COMPLETE MONOGRAPH

2015 GROUP A PROPOSED CHANGES TO THE I-CODES MEMPHIS COMMITTEE ACTION HEARINGS

April 19–28, 2015
Memphis Cook Convention Center
Memphis, Tennessee

ICC
INTERNATIONAL CODE COUNCIL®

First Printing

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(2015 Group A)

INTRODUCTION

Welcome to the first full cycle of Code Development utilizing cdpACCESS™!

This 2015 Group A Cycle kicks off the first full cycle (2015 Group A, 2016 Group B and 2017 Group C) which is utilizing the new cdpACCESS system. This system allows stakeholders to collaborate on potential code changes and to submit code changes online via the system.

New to cdpACCESS and the 2015 Cycle is the way that code change modifications will be submitted and presented for committee and public viewing at the Committee Action Hearing. See page viii for details on the new modification submittal process.

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

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

2015 – 2017 CODE GROUPINGS

The code groupings for the 2015 – 2017 Cycle have been revised from the 2012 – 2014 Cycle as follows.

Codes moved to 2015 Group A, to be considered in this Cycle:

- IEBC non-structural provisions
- IPMC
- IRC – Mechanical
- IRC – Plumbing
- ISPSC
- IZC

The following code was moved to Group B, to be considered in the 2016 Cycle:

- IBC – Structural has been moved to Group B. This includes the structural provisions of the IEBC.

See page xiii for the 2015 – 2017 ICC Code Development Schedule

2015 ICC COMMITTEE ACTION HEARINGS

These proposed changes will be discussed in public hearings to be held on April 19 – 28, 2015 at the Memphis Cook Convention Center, Memphis, TN. The code committees will conduct their public hearings in accordance with the schedule shown on page xlii.

MEMBERSHIP COUNCILS TO MEET PRIOR TO THE HEARINGS

Prior to the hearings, some of the Membership Councils will be holding meetings during the Saturday, April 18th /Sunday morning, April 19th time period. This has been identified on the hearing schedule that was posted February 20th. Be sure to consult the Membership Councils webpage for details as they become available.

ADVANCED REGISTRATION AND VOTING

In 2014, the assembly floor motion process was changed. This is continued in the 2015 Cycle where assembly floor motions will be allowed following the committee action, however, the motion will be voted online following the hearings. All ICC members will be allowed to vote online on assembly floor motions. ICC members in attendance will still be allowed to vote on procedural "points of order" in accordance with Section 5.4.7 of CP 28 (see page xxv) **For identification purposes, all hearing participants must register. There is no cost to register or participate in the hearings.**

You are encouraged to advance register. Click here to register online.

The registration desk will be open in the lobby of the convention center according to the following schedule:

Sunday, April 19th	11:00 am to 5:00 pm
Monday, April 20th through Monday, April 27th	7:30 am to 5:00 pm
Tuesday, April 28th	7:30 am to 12:00 pm

CP 28 requires that ICC's membership records regarding ICC members reflect the eligible voters 30 days prior to the start of the Committee Action Hearings. This process includes new members as well as changes to voting status. This applies to all ICC Members - Governmental Members and non Governmental Members. Applicable CP 28 sections noted below:

> **5.7.4 Eligible Online Assembly Motion Voters:** All members of ICC shall be eligible to vote on online assembly floor motions. Each member is entitled to one vote, except that each Governmental Member Voting Representative may vote on behalf of its Governmental Member. Individuals who represent more than one Governmental Member shall be limited to a single vote. Application, whether new or updated, for ICC membership must be received by the Code Council 30 days prior to the first day of the Committee Action Hearing. The ballot period will not be extended beyond the published period except as approved by the ICC Board.
>
> **9.2 Applications:** Applications for Governmental Membership must be received by the ICC at least 30 days prior to the Committee Action Hearing in order for its designated representatives to be eligible to vote at the Public Comment Hearing or Online Governmental Consensus Vote. Applications, whether new or updated, for Governmental Member Voting Representative status must be received by the Code Council 30 days prior to the commencement of the first day of the Public Comment Hearing in order for any designated representative to be eligible to vote. An individual designated as a Governmental Member Voting Representative shall provide sufficient information to establish eligibility as defined in the ICC Bylaws. The Executive Committee of the ICC Board, in its discretion, shall have the authority to address questions related to eligibility.

As such, new membership applications as well as renewal applications must be received by ICC's Member Services Department by March 20, 2015. These records will be used to verify eligible voter status. Members are strongly encouraged to review their membership records for accuracy well in advance of the hearings so that any necessary changes are made prior to the March 20th deadline. For information on application for new membership and membership renewal, click here or call ICC Member Services at 1-888-ICC SAFE (422-7233)

PROCEDURES

The procedures for the conduct of the public hearing are published in CP 28 ("Procedures") on page xviii. The attention of interested parties is specifically directed to Section 5.0 of the Procedures. These procedures indicate the conduct of, and opportunity to participate at the Committee Action Hearing. Please review these procedures carefully to familiarize yourself with the process.

There were many cdpACCESS related changes to the process effective with the 2014 Cycle. New to the 2015 Cycle are changes to Section 3.3.5.6 Cost Impact and the electronic submittal of modifications (Section 5.5.2.1). Included among these revisions are the following:

Section 1.3.1	**Code Correlation.** This section institutionalizes the role of the Code Correlation Committee and the development and maintenance of the Code Scoping Coordination Matrix.
Section 1.5	**Secretariat.** Staff has the authority to resolve unforeseen situations which arise in the implementation of CP 28.
Section 1.6	**Recording.** This section stipulates that ICC maintains sole ownership in the content of the hearings and has the right to control its subsequent distribution.
Section 2.4	**Emergency Procedures.** This section includes a 'metric' to aid in the determination of when an issue rises to the level of concern appropriate to an emergency amendment. Furthermore, it stipulates a process by which a proposed Emergency Amendment is reviewed by the ICC Codes and Standards Council who is responsible for the implementation and oversight of ICC's Code Development Process.
Section 2.5	**Code Development Record.** Identifies the official documents and records for a cycle.
Section 3.3.1 & Section 6.4.1	**Proponent.** An e-mail address for each code change/public comment proponent will be published in the monograph, unless the proponent requests otherwise.
Section 3.3.5.3 & Section 6.4.5	**Substantiation.** ICC evaluates whether substantiating material is germane, but the policy makes it clear that ICC does not in all circumstances evaluate substantiating material for quality or accuracy.
Section 3.3.5.6	**Cost Impact.** **<u>New in the 2015 Cycle.</u>** The proponent is required to submit information that supports their claim regarding cost impact. Such information submitted will be considered by the code development committee. This language is intended to emphasize the need to provide supporting information on how the proposed change will affect the cost of construction.
Section 3.4 & Section 6.4.6	**Online Submittal.** Code changes and public comments are required to be submitted online via the cdpACCESS system.
Section 3.6.3.1	**Standard Promulgation.** If a proposed new standard is not submitted in at least draft form, the corresponding code change proposal shall be considered incomplete and shall not be processed.
Section 4.4	**Editorial Code Change Proposals.** Institutionalizes and revises the process by which the Code Correlation Committee (CCC) considers staff identified editorial code changes. Code changes identified as editorial may be required to be considered via the entire process. (See page xliv for code change proposals deemed editorial by the CCC).
Section 4.6	**Updating Standards Referenced in the Codes.** The deadline for availability of updated referenced standards and receipt by the Secretariat is December 1st of the third year of each code cycle. For the 2015/2016/2017 cycle, the deadline is December 1, 2017.
Section 5.2.2	**Conflict of Interest.** The determination as to whether or not a committee member should recuse themselves is left to the committee member. The only exception is where the committee member is also the proponent of the code change.

Section 5.4.2	**Open Hearing.** This stipulates that participants shall not advocate a position on specific code changes with Committee Members other than through the methods provided in this policy.
Section 5.4.3 & Section 7.5.3	**Presentation of Material at the Public Hearing.** All participants are to make it clear what interests they are representing. This disclosure provides additional information upon which to evaluate the testimony.
Section 5.5.2.1	**Submission (Modifications).** **New in the 2015 Cycle**. With the development of cdpACCESS, this section was revised to reflect that modifications will be submitted electronically. This feature was under development in the 2014 Cycle and was not ready for the 2014 Committee Action Hearing, however, it is being implemented in the 2015 Cycle. (See page viii)
Sections 5.7 – 5.7.5	**Assembly consideration.** Assembly floor motions made at the Committee Action Hearing will not be voted on at the hearing. They will be voted on via an online process following the hearing (5.7.2). The process will include the ability to view the video of the hearing testimony, committee deliberations and committee action (5.7.3). Each member, including Governmental Member Voting Representatives, gets only one vote (5.7.4). A successful assembly action requires a majority of votes cast and will result in an automatic public comment to be considered at the Public Comment Hearing (PCH). The initial motion at the PCH will be the committee's action (5.7.5 & 7.4). (See page vi)
Section 5.8	**Report of the Committee Action Hearing.** This report will include all the actions taken at the hearing as well as the results of the online assembly vote, including online vote counts.
Section 6.5.3	**Deadline.** This section includes a provision where-by the Code Correlation Committee is provided the opportunity to submit public comments to be considered at the Public Comment Hearing in order to facilitate code change coordination where a public comment was not submitted. Otherwise, the code change would have been placed on the consent agenda without an opportunity to coordinate with items on the individual consideration agenda.
Sections 7.5.8	**Discussion and Voting (at the Public Comment Hearing).** Voting on main motions will occur electronically with the vote recorded and assigned to the eligible voting member (7.5.8.7). Subsequent motions for Disapproval are not in order as that is addressed where a majority vote is not achieved (7.5.8.8, 7.5.8.9). The posted results will include the vote counts. (7.5.8.10)
Section 8.0	**Online Governmental Consensus Vote.** This is a new process following the Public Comment Hearing (PCH) where eligible voters can vote online. It successfully debuted in the 2014 Cycle.
Section 9.0	**Eligible Final Action Voters.** This section requires that all Governmental Member applications must be received by 30 days prior to the Committee Action Hearings. For the 2015 Cycle, this date is March 20th (see page iii). All eligible voters must be confirmed via ICC's Electronic Voter Validation System.
Section 10.0	**Tabulation, Certification and Posting of Results.** With the new Online Governmental Consensus Vote, security and validation of results is of paramount importance. This section outlines the steps to ensure fairness within the process. The final action results will be posted for each code change and include the tabulated vote counts from both the Public Comment Hearing and the Online Governmental Consensus Vote.
Section 11.0	**Code Publication.** This section identifies the role and authority of the Code Correlation Committee to resolve coordination issues between successful actions taken on code changes.

Section 12.0 **Appeals.** With the new cdpACCESS process, this section defines actions or inactions that are not appealable.

Section 13.0 **Violations.** This section notes the authority of the ICC Board to take whatever action necessary to maintain the integrity of the code development process.

ASSEMBLY ACTION PROCESS

In the 2014 Cycle, the procedures regarding assembly consideration at the Committee Action Hearing were revised (see Section 5.7 of CP 28 on page xxvi). Some important items to note regarding assembly consideration are:

- After the committee decision on a code change proposal is announced by the moderator, anyone in the assembly may make a floor motion for assembly action (5.7.1).
- After a floor motion for assembly action is made and seconded, the moderator will accept the motion and notify the attendees that the motion will be considered via an online voting process by all ICC members (5.7.2 and 5.7.4). No additional testimony will be permitted.
- Assembly floor motions will be voted on via an online process following the hearing (5.7.2).
- The online voting process will include the ability to view the video of the hearing testimony, committee deliberations and committee action (5.7.3). Each member, including Governmental Member Voting Representatives, gets only one vote (5.7.4). A successful assembly action requires a majority of votes cast and will result in an automatic public comment (5.7.5).
- A code change proposal that receives a successful assembly action will be placed on the Public Comment Agenda for individual consideration. The initial motion at the Public Comment Hearing will be the committee's action (7.4).

2015 GROUP A CODE DEVELOPMENT COMMITTEE RESPONSIBILITIES

Some sections of the International Codes have a letter designation in brackets in front of them. Code change proposals submitted for such code sections that have a bracketed letter designation in front of them will be heard by the respective committee responsible for such code sections. Because different committees will meet in different years, some proposals for a given code will be heard by a committee in a different year than the year in which the primary committee for this code meets.

For instance, Section 1505.10 of the IBC has a [BF] in front of it, meaning that this section is the responsibility of the IBC – Fire Safety Code Development Committee. However, the technical content of Chapter 15 is generally structural and as such, code change proposals are designated with the structural designation: IBC – S. In this current 2015 Group A Cycle, there are 10 such IBC – S proposals, to be heard by either the IBC – Fire Safety or IBC – General Code Development Committee. Be sure to consult the Cross Index of Proposed Code Changes on page xxxv and the respective Tentative Order of Discussion for the individual committees.

A complete summary of the 2015 – 2017 Group A, Group B and Group C Code Development Committees' responsibilities can be viewed at the ICC Website.

ANALYSIS STATEMENTS

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

NEW REFERENCE STANDARDS

Proposed changes that include the addition of a reference to a new standard (a standard that is not currently referenced in the current edition of the I-Codes) will include in the proposal the number, title and edition of the proposed standard. This identifies to all interested parties the precise document that is being proposed and which would be included in the referenced standards chapter of the code if the proposed change is approved. Section 3.6.3.1 of CP 28 requires that a code change proposal will not be processed unless a consensus draft of the standard has been provided. Proponents of code changes which propose a new standard have been directed to forward copies of the standard to the code development committee. An analysis statement will be posted on the ICC website providing information regarding standard content, such as enforceable language, references to proprietary products or services, and references to consensus procedure. The analysis statements for referenced standards will be posted on or before April 2, 2015. This information will also be published and made available at the hearings.

Proposed new reference standards must be completed and readily available prior to the 2015 Public Comment Hearing in accordance with Section 3.6.3.1 of CP28.

REFERENCED STANDARDS UPDATES

Updates to currently referenced standards in any of the 2015 Codes will be considered by the Administrative Code Development Committee in the 2016 Group B Cycle.

It should be noted that, in accordance with Section 4.6 of CP 28, standards promulgators will have until December 1, 2017 to finalize and publish any updates to standards in the administrative update. If the standard update is not finalized and published by December 1, 2017, the respective I-Codes will be revised to reference the previously listed year edition of the standard.

ICC WEBSITE

This document is posted on the ICC Website. While great care has been exercised in the publication of this document, errata to proposed changes may occur. Errata, if any, will be identified in updates posted prior to the Committee Action Hearing. Users are encouraged to periodically review the ICC Website. Additionally, analysis statements for code changes which propose a new referenced standard will be updated and posted to reflect the staff review of the standard for compliance with Section 3.6 of the Procedures.

PROPONENT CONTACT INFORMATION

For most of the code change proposals, an e-mail address for the proponent has been provided.

FLOOR MODIFICATIONS (NEW SUBMITTAL PROCESS)

With the implementation of the new cdpACCESS online system, CP 28 was revised to reflect that floor modifications would be submitted electronically at the Committee Action Hearing (CAH). This 2015 Cycle will be the first cycle to utilize the new submittal process.

The only aspect of the modification process that is changing is the way the modification is submitted and viewed. It is required to be submitted electronically via cdpACCESS. All other aspects of the modification process are unchanged. As in the past, the proponent of the modification must be in attendance at the CAH to present the modification as part of his/her testimony.

Those who are submitting a modification for consideration by the respective Code Development Committee are required to sign a Copyright Release in order to have their modification(s) considered (Section 3.3.5.5 of CP 28). This feature is built into cdpACCESS similar to the way the release is executed for code change and public comment submittals.

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

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

Example:
Original code change proposal.
The original code change proposal requested the following change to Section 305.3 of the IPMC: (Note that the example is fictional.)

PM10-15
305.13

Proponent: John West representing self

Revise as follows:

305.3 Interior surfaces. All interior surfaces, including windows and doors, shall be maintained in good and clean condition. Peeling, chipping, flaking or abraded paint shall be repaired, removed or covered. Cracked or loose plaster~~, decayed wood~~ and other defective surface conditions shall be corrected. Surfaces of porous materials made of or containing organic materials, such as but not limited to wood, textiles, paint, cellulose insulation, and paper, including paper-faced gypsum board, that have visible signs of mold or mildew shall be removed and replaced or remediated in an approved manner.

> **Exception:** Porous materials that do not contain organic materials, such as clean unpainted bricks and concrete.

Proposed modification:

A modification to the code change proposal is proposed:

1. To add “and sanitary” after “clean” in the first sentence.
2. To add “or water permeable” after “porous” in the third sentence.
3. Delete “in an approved manner.” in the last sentence.
4. Delete the proposed new exception.

The cdpACCESS system will provide the text of the original code change proposal in legislative format. Using the cdpACCESS system, the proponent of the modification locates the original change in the system. To delete text, use the "delete" or "backspace" button on the keyboard. To insert new text, the proponent keys in the text in the location desired.

The cdpACCESS system will automatically take the original text and "modify" it. The modification to the original proposal will be shown with ~~cross out,~~ <u>underline</u> formatting as it has been done manually in the past.

cdpACCESS will show the modification as follows:

> **PM10-13**
> **305.13**
>
> **Modification Proponent:** Sam Sumter representing self
>
> **Modify the proposal as follows:**
>
> **305.3 Interior surfaces.** All interior surfaces, including windows and doors, shall be maintained in good<u>,</u> ~~and~~ clean <u>and sanitary</u> condition. Peeling, chipping, flaking or abraded paint shall be repaired, removed or covered. Cracked or loose plaster and other defective surface conditions shall be corrected. Surfaces of porous <u>or water permeable</u> materials made of or containing organic materials, such as but not limited to wood, textiles, paint, cellulose insulation, and paper, including paper-faced gypsum board, that have visible signs of mold or mildew shall be removed and replaced or remediated ~~in an approved manner~~.
>
> > ~~**Exception:** Porous materials that do not contain organic materials, such as clean unpainted bricks and concrete.~~

Among the benefits of using cdpACCESS to submit modifications are:

- Modification proponents will be able to access the system in advance of the hearings to develop their modification (see "Detailed Steps of the Modification Submission Process via cdpACCESS" on the following pages).
- The collaboration features will allow modification proponents to collaborate before submitting.
- The system automatically processes the modification in legislative format such that it is easy to determine how the modification differs from the original proposal.
- 20 hard copies of the modification for distribution to the committee are no longer required.
- You can preview your modification at any time by downloading a pdf via cdpACCESS.

<u>OVERVIEW OF THE MODIFICATION PROCESS (see CP28 Section 5.5.2 on page xxv)</u>

1. **NEW**. Modification submitted electronically via cdpACCESS. As in the past, this submittal is required well in advance of the code change proposal being brought to the floor.

2. The code change proposal is brought to the floor by the Moderator.
   IMPORTANT NOTE: ONCE A CODE CHANGE PROPOSAL IS BROUGHT TO THE FLOOR, ALL MODIFICATIONS MUST BE IN THE cdpACCESS SYSTEM. SEE NOTE 1.

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

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

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

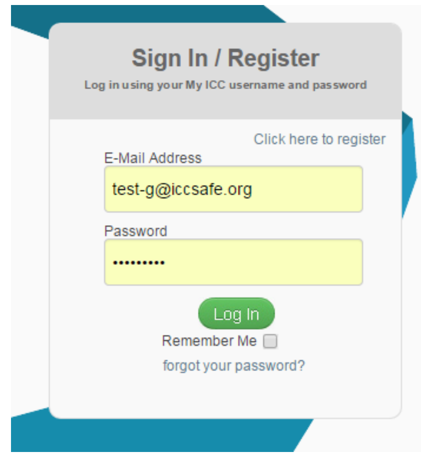
6. Chair rules the modification in or out of order.

7. If ruled in order, testimony on the modification is initiated.

DETAILED STEPS OF THE MODIFICATION SUBMISSION PROCESS via cdpACCESS

cdpACCESS will be live on April 1ST for the development of floor modifications. In order to submit a floor modification you must have a My ICC account. See below.

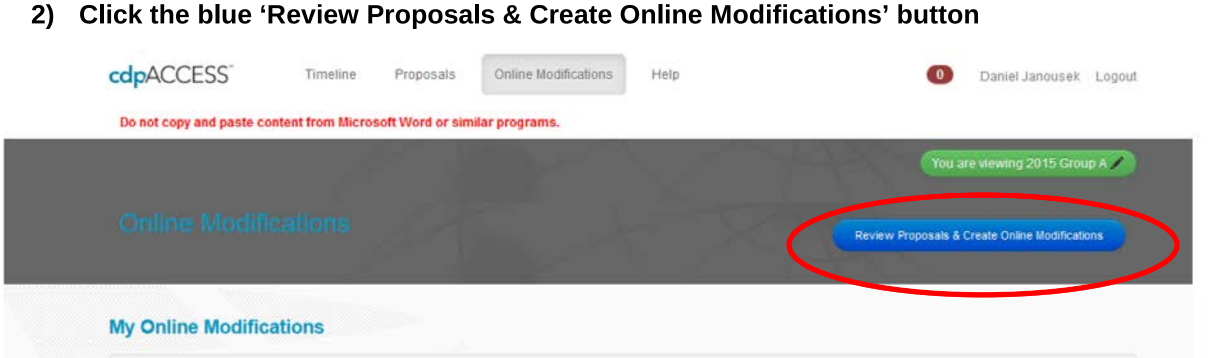
Visit http://cdpaccess.com and log in with your My ICC email address and password.



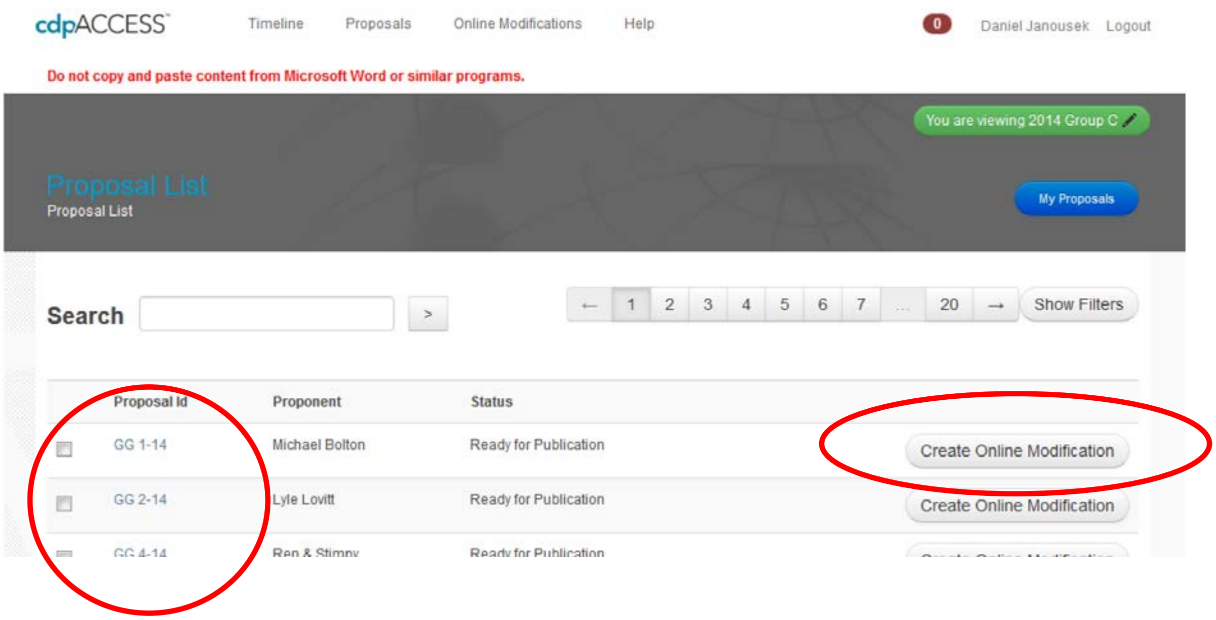
- If you have forgotten your password you can reset it online by clicking the 'forgot your password?' link at the bottom of the sign in box.
- You may also create a new account by clicking on the 'Click here to register' link at the top right of the sign in box. For Governmental Member Voting Representatives, register with the same email address that was used to validate your membership.

To create a floor modification

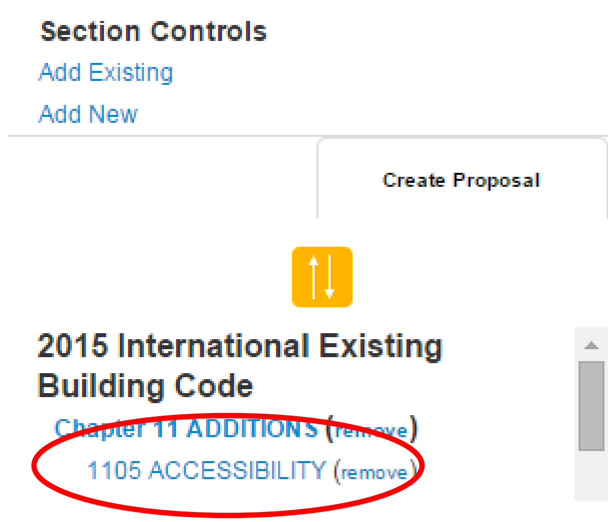
1) **Click 'Online Modifications'** at the top of the site to access the system.
2) **Click the blue 'Review Proposals & Create Online Modifications' button**



3.) Search for a proposal by Proposal ID (Code change number). Click on the number to review the proposal, or simply click the 'Create Online Modification' button. Click OK to confirm that you will be present at the hearings to present the modification.



4.) To modify a code section already in the proposal: Click on the code section in the left-hand column. The code section content will load in the center column.

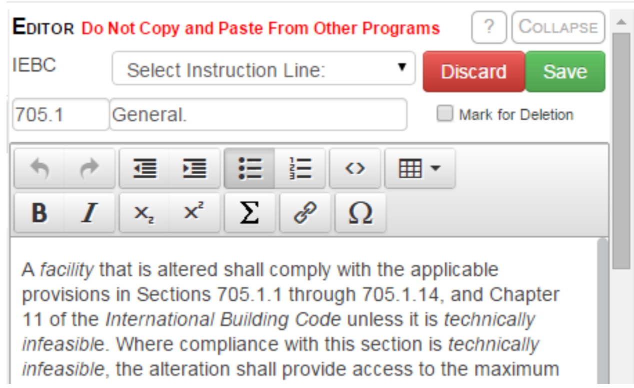


To add a code section from an I-Code: Click 'Add Existing'. You will be able to select a Code, a chapter, and a section. Click the check-box next to the appropriate section and then click 'Add Selected Sections to Proposal'. Proceed as if modifying a code section already in the proposal.

To create a new code section that does not exist in an I-Code: Click 'Add New'. You must choose a Code and chapter, then click 'Create New Code Section' to add it to the modification.

Proceed as if modifying a code section already in the proposal.

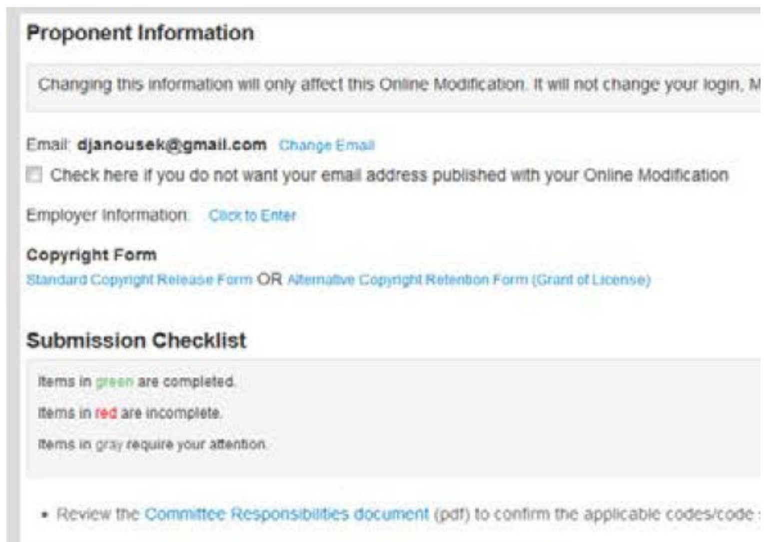
5.) To modify the content of a selected code section: Make your edits in the center column. You do not need to strike through/underline text you are deleting or adding. All you need to do is to key in the text to insert at the applicable locations and use the 'delete' or 'backspace' key to delete text -- the system will automatically create and preview legislative formatting in the right-hand column.



Make sure to click the green 'Save' button when you have completed your edits.

- You can preview your modification at any time by clicking the Download Link (PDF) at the top of the editing window.

6.) To submit your modification: Click 'Finalize and Submit' in the right-hand column of your screen.



- Email address: you may optionally change your email.

- Employer information: do not use acronyms or shorthand.

- Copyright Form: Includes information about who you represent. This must be digitally signed before submission.

- Click the 'Submit Online Modification to ICC' button.

More detailed instructions will be posted on cdpACCESS.com on April 1st.

For further help with Online Modifications, please email cdpACCESS@iccsafe.org, or if you are at the hearings please visit the cdpACCESS table outside the hearing rooms.

2015/2016/2017 ICC CODE DEVELOPMENT SCHEDULE
(Updated September 12, 2014)

STEP IN CODE DEVELOPMENT CYCLE	DATE		
	2015 – Group A Codes IBC- E, IBC - FS, IBC -G, IEBC, IFGC, IMC, IPC, IPMC, IPSDC, IRC – M, IRC- P, ISPSC, IZC	**2016 – Group B Codes Admin, IBC-S, IECC-C, IECC/IRC-R, IFC, IRC - B, IWUIC**	**2017 – Group C Code IgCC**
2015 EDITION OF I-CODES PUBLISHED	June 2, 2014		March 31, 2015 (approx.)
DEADLINE FOR RECEIPT OF APPLICATIONS FOR ALL CODE COMMITTEES	June 2, 2014 for the 2015/2016/2017 Cycle. Call for committee posted January 31, 2014 June 1, 2017 for the 2018/2019/2020 Cycle. Call for committee to be posted in January/2017.		
DEADLINE FOR cdpACCESS ONLINE RECEIPT OF CODE CHANGE PROPOSALS	January 12, 2015	January 11, 2016	January 9, 2017
WEB POSTING OF "PROPOSED CHANGES TO THE I-CODES"	March 13, 2015	March 8, 2016	March 10, 2017
COMMITTEE ACTION HEARING (CAH)	April 19 – 30, 2015 Memphis Cook Convention Center Memphis, TN	April 17 – 27, 2016 Kentucky International Convention Center Louisville, KY	April 23 – 30, 2017 Kentucky International Convention Center Louisville, KY
ONLINE CAH ASSEMBLY FLOOR MOTION VOTING PERIOD	Starts approx. one week after last day of CAH. Open for 2 weeks.	Starts approx. one week after last day of CAH. Open for 2 weeks.	Starts approx. one week after last day of CAH. Open for 2 weeks.
WEB POSTING OF "REPORT OF THE COMMITTEE ACTION HEARING"	June 5, 2015	June 1, 2016	June 2, 2017
DEADLINE FOR cdpACCESS ONLINE RECEIPT OF PUBLIC COMMENTS	July 17, 2015	July 22, 2016	July 28, 2017
WEB POSTING OF "PUBLIC COMMENT AGENDA"	August 28, 2015	September 9, 2016	September 15, 2017
PUBLIC COMMENT HEARING (PCH) ANNUAL CONFERENCE DATES NOTED BY AC	September 30 – October 7, 2015 Long Beach Convention Center Long Beach, CA AC: September 27 - 29	October 19 – 25, 2016 Kansas City Convention Center Kansas City, MO AC: October 16 – 18	October 25 – 31, 2017 Greater Columbus Convention Center Columbus, OH AC: October 22 – 24

STEP IN CODE DEVELOPMENT CYCLE	DATE		
	2015 – Group A Codes IBC- E, IBC - FS, IBC -G, IEBC, IFGC, IMC, IPC, IPMC, IPSDC, IRC – M, IRC- P, ISPSC, IZC	**2016 – Group B Codes Admin, IBC-S, IECC-C, IECC/IRC-R, IFC, IRC - B, IWUIC**	**2017 – Group C Code IgCC**
ONLINE GOVERNMENTAL CONSENUS VOTING PERIOD	Starts approx. one week after last day of PCH. Open for 2 weeks.	Starts approx. one week after last day of PCH. Open for 2 weeks.	Starts approx. one week after last day of PCH. Open for 2 weeks.

Group A Codes/Code committees:

- IBC-E: IBC Egress provisions. Chapters 10 and 11
- IBC-FS: IBC Fire Safety provisions. Chapters 7, 8, 9 (partial), 14 and 26. Majority of IBC Chapter 9 is maintained by the IFC in Group B. See notes
- IBC-G: IBC General provisions. Chapters 3 – 6, 12, 13, 27 – 33
- IEBC: IEBC non structural provisions. See notes
- IFGC
- IMC
- IPC
- IPMC (code changes heard by the IPMZC code committee)
- IPSDC (code changes heard by the IPC code committee)
- IRC-M: IRC Mechanical provisions. Chapters 12 – 23 (code changes heard by the IRC - MP code committee)
- IRC-P: IRC Plumbing provisions. Chapters 25 – 33 (code changes heard by the IRC - MP code committee)
- ISPSC
- IZC (code changes heard by the IPMZC code committee)

Group B Codes/Code committees:

- Admin: Chapter 1 of all the I-Codes except the IECC and IRC. Also includes the update of currently referenced standards in all of the 2015 Codes
- IBC-S: IBC Structural provisions. IBC Chapters 15 – 25 and IEBC structural provisions. See notes
- IECC-C: IECC Commercial energy provisions
- IECC/IRC-R: IECC Residential energy provisions and IRC Energy provisions in Chapter 11
- IFC: The majority of IFC Chapter 10 is maintained by IBC-E in Group A. See notes
- IRC-B: IRC Building provisions. Chapters 1 – 10
- IWUIC (code changes heard by the IFC code committee)

Group C Codes/Code committees:

- IgCC
    - IgCC – General: Chapters 1 – 5, 8 – 11 and Appendices
    - IgCC – Energy/Water: Chapters 6 and 7

Notes:

- Be sure to review the document entitled “2015/2016/2017 Code Committee Responsibilities” which will be posted. This identifies responsibilities which are different than Group A, B and C codes and committees which may impact the applicable code change cycle and resulting code change deadline. As an example, throughout Chapter 9 of the IBC (IBC- Fire Safety, a Group A code committee), there are numerous sections which include the designation “[F]” which indicates that the provisions of the section are maintained by the IFC code committee (a Group B code committee). Similarly, there are numerous sections in the IEBC which include the designation “[BS]”. These are structural provisions which will be heard in Group B by the IBC – Structural committee while the non structural provisions will be maintained in the 2015 Group A Cycle by the IEBC code committee. The designations in the code are identified in the Code Committee Responsibilities document.
- Proposed changes to the ICC Performance Code will be heard by the code committee noted in brackets ([ ]) in the section of the code and in the Code Committee Responsibilities document.
- Definitions. Be sure to review the brackets ([ ]) in Chapter 2 of the applicable code and the Code Committee Responsibilities document to determine which code committee will consider proposed changes to the definitions.

2015 - 2017 STAFF SECRETARIES

Email addresses and phone extensions noted. ICC phone: 1-888-ICC-SAFE

GROUP A (2015)

IBC- Egress Chapters 10, 11	**IBC-Fire Safety Chapters 7, 8, 9, 14, 26**	**IBC-General Chapters 1-6, 12, 13, 27-34**	**IEBC Non structural**	**IFGC**
Kim Paarlberg Indianapolis, IN Ext 4306 kpearlberg@iccsafe.org	Ed Wirtschoreck Central Regional Office Ext 4317 ewirtschoreck@iccsafe.org	Kermit Robinson Western Regional Office Ext 3317 krobinson@iccsafe.org Allan Bilka Central Regional Office Ext 4326 abilka@iccsafe.org	Beth Tubbs Northbridge, MA Ext 7708 btubbs@iccsafe.org	Gregg Gress Central Regional Office Ext 4343 ggress@iccsafe.org
IMC	**IPC/IPSDC**	**IPMC**	**IRC - Mechanical**	**IRC - Plumbing**
Gregg Gress Central Regional Office Ext 4343 ggress@iccsafe.org	Fred Grable Central Regional Office Ext 4359 fgrable@iccsafe.org	Larry Franks Eastern Regional Office Ext 5279 lfranks@iccsafe.org	Gregg Gress Central Regional Office Ext 4343 ggress@iccsafe.org	Fred Grable Central Regional Office Ext 4359 fgrable@iccsafe.org
ISPSC	**IZC**			
Fred Grable Central Regional Office Ext 4359 fgrable@iccsafe.org	Larry Franks Eastern Regional Office Ext 5279 lfranks@iccsafe.org			

GROUP B (2016)

ADMINISTRATIVE Chapter 1 All Codes Except IRC	**IBC – Structural Chapters 15 – 25 IEBC Structural**	**IECC-Commercial Commercial Chapters C1 – C5**	**IECC/IRC - Residential IECC Residential Chapters R1 – R5, App. IRC Chapter 11**	**IFC**
Kim Paarlberg Indianapolis, IN Ext 4306 kpearlberg@iccsafe.org	Alan Carr Surprise, AZ Ext 7601 acarr@iccsafe.org	Gregg Gress Central Regional Office Ext 4343 ggress@iccsafe.org	Fred Grable Central Regional Office Ext 4359 fgrable@iccsafe.org	Beth Tubbs Northbridge, MA Ext 7708 btubbs@iccsafe.org
IRC-Building	**IWUIC**			
Larry Franks Eastern Regional Office Ext 5279 lfranks@iccsafe.org Allan Bilka Central Regional Office Ext 4326 abilka@iccsafe.org	Beth Tubbs Northbridge, MA Ext 7708 btubbs@iccsafe.org			

GROUP C (2017)

IgCC-General	**IgCC-Energy/Water**
Allan Bilka Central Regional Office Ext 4326 abilka@iccsafe.org	Fred Grable Central Regional Office Ext 4359 fgrable@iccsafe.org

cdpACCESS™ Update

In response to the feedback received from the inaugural use of cdpACCESS for the 2014 Cycle, the system has been updated with the following improvements:

- "Bugs" are common with the introduction of any new software products. The system has been updated for the following:
  - Ease of adding collaborators
  - Adding co-proponents/changing ownership of the code change submittal
  - Maintaining a unique name for the submittal as given by the proponent
  - Ability to add attachments to the submittal
  - Downloading a pdf of the submitted code change
- The database has been loaded with all 2015 I-Codes which allows the proponent to "pull in" the respective text, including tables and figures
- Proposed new sections are easily created
- Editing tools have been added to propose revisions to tables
- A new "drag and drop" feature has been added for organizing sections within a proposal
- The system now automatically produces the code change submittal in legislative format by comparing the proponent inserted and deleted text with the original code text in the database. The proponent simply types in additional text or deletes existing text and cdpACCESS applies the necessary legislative format with strike-outs and underlines.

As noted on page ii, for the first time ever, ICC will be using a new online floor modification submittal process via cdpACCESS for the upcoming 2015 Committee Action Hearing. Be sure to consult page viii for the details on the process.

CP #28-05 CODE DEVELOPMENT

Approved: 9/24/05
Revised: 9/27/14

1.0 Introduction

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

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

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

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

1.3.1 Code Correlation: The provisions of all Codes shall be consistent with one another so that conflicts between the Codes do not occur. A Code Scoping Coordination Matrix shall determine which Code shall be the primary document, and therefore which code development committee shall be responsible for maintenance of the code text where a given subject matter or code text could appear in more than one Code. The Code Scoping Coordination Matrix shall be administered by the Code Correlation Committee as approved by the ICC Board. Duplication of content or text between Codes shall be limited to the minimum extent necessary for practical usability of the Codes, as determined in accordance with Section 4.5.

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

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

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

2.0 Code Development Cycle

2.1 Intent: The code development cycle shall consist of the complete consideration of code change proposals in accordance with the procedures herein specified, commencing with the deadline for submission of code change proposals (see Section 3.5) and ending with publication of the Final Action on the code change proposals (see Section 10.4).

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

2.3 Supplements: The results of code development activity between editions may be published.

2.4 Emergency Action Procedures:

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

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

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

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

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

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

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

1. Code Change Agenda (Section 4.8)
2. Audio and video recording of the Committee Action Hearing (Section 5.1)
3. The Online Assembly Floor Motion Ballot (Section 5.7.3)
4. Report of the Committee Action Hearing (Section 5.8)
5. Public Comment Agenda (Section 6.6)
6. Public Comment Hearing results (Section 7.5.8.10)
7. Audio and video recording of the Public Comment Hearing (Section 7.1)

8. The Online Governmental Consensus Ballot (Section 8.2)
9. Final Action results (Section 10.4)
10. Errata to the documents noted above

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

3.0 Submittal of Code Change Proposals

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

3.2 **Withdrawal of Proposal:** A code change proposal may be withdrawn by the proponent (WP) at any time prior to public comment consideration of that proposal. All actions on the code change proposal shall cease immediately upon the withdrawal of the code change proposal.

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

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

3.3.1.1 If a group, organization or committee submits a code change proposal, an individual with prime responsibility shall be indicated.
3.3.1.2 If a proponent submits a code change proposal on behalf of a client, group, organization or committee, the name and mailing address of the client, group, organization or committee shall be indicated.

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

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

3.3.3 **Multiple Code Change Proposals to a Code Section.** A proponent shall not submit multiple code change proposals to the same code section. When a proponent submits multiple code change proposals to the same section, the proposals shall be considered as incomplete proposals and processed in accordance with Section 4.3. This restriction shall not apply to code change proposals that attempt to address differing subject matter within a code section.

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

3.3.4.1 A charging statement shall indicate the referenced code section(s) and whether the code change proposal is intended to be an addition, a deletion or a revision to existing Code text.
3.3.4.2 Whenever practical, the existing wording of the text shall be preserved with only such deletions and additions as necessary to accomplish the desired change.
3.3.4.3 Each code change proposal shall be in proper code format and terminology.
3.3.4.4 Each code change proposal shall be complete and specific in the text to eliminate unnecessary confusion or misinterpretation.
3.3.4.5 The proposed text shall be in mandatory terms.

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

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

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

3.3.5.3 Substantiation: The proponent shall substantiate the code change proposal based on technical information and substantiation. Substantiation provided which is reviewed in accordance with Section 4.2 and determined as not germane to the technical issues addressed in the code change proposal may be identified as such. The proponent shall be notified that the code change proposal is considered an incomplete proposal in accordance with Section 4.3 and the proposal shall be held until the deficiencies are corrected. The proponent shall have the right to appeal this action in accordance with the policy of the ICC Board. The burden of providing substantiating material lies with the proponent of the code change proposal. All substantiating material published by ICC is material that has been provided by the proponent and in so publishing ICC makes no representations or warranties about its quality or accuracy.

3.3.5.4 Bibliography: The proponent shall submit a bibliography of any substantiating material submitted with the code change proposal. The bibliography shall be published with the code change proposal and the proponent shall make the substantiating materials available for review at the appropriate ICC office and during the public hearing.

3.3.5.5 Copyright Release: The proponent of code change proposals, floor modifications and public comments shall sign a copyright release reading: "I hereby grant and assign to ICC all rights in copyright I may have in any authorship contributions I make to ICC in connection with any proposal and public comment, in its original form submitted or revised form, including written and verbal modifications submitted in accordance Section 5.5.2. I understand that I will have no rights in any ICC publications that use such contributions in the form submitted by me or another similar form and certify that such contributions are not protected by the copyright of any other person or entity."

3.3.5.6 Cost Impact: The proponent shall indicate one of the following regarding the cost impact of the code change proposal: 1) the code change proposal will increase the cost of construction; or 2) the code change proposal will not increase the cost of construction. The proponent shall submit information which substantiates either assertion. This information will be considered by the code development committee and will be included in the bibliography of the published code change proposal. Any proposal submitted which does not include the requisite cost information shall be considered incomplete and shall not be processed.

3.4 Online Submittal: Each code change proposal and all substantiating information shall be submitted online at the website designated by ICC. Two copies of each proposed new referenced standard in hard copy or one copy in electronic form shall be submitted. Additional copies may be requested when determined necessary by the Secretariat to allow such information to be distributed to the code development committee. Where such additional copies are requested, it shall be the responsibility of the proponent to send such copies to the respective code development committee.

3.5 **Submittal Deadline:** ICC shall establish and post the submittal deadline for each cycle. The posting of the deadline shall occur no later than 120 days prior to the code change deadline. Each code change proposal shall be submitted online at the website designated by ICC by the posted deadline. The submitter of a code change proposal is responsible for the proper and timely receipt of all pertinent materials by the Secretariat.

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

3.6.1 **Code References:**

3.6.1.1 The standard, including title and date, and the manner in which it is to be utilized shall be specifically referenced in the Code text.
3.6.1.2 The need for the standard to be referenced shall be established.

3.6.2 **Standard Content:**

3.6.2.1 A standard or portions of a standard intended to be enforced shall be written in mandatory language.
3.6.2.2 The standard shall be appropriate for the subject covered.
3.6.2.3 All terms shall be defined when they deviate from an ordinarily accepted meaning or a dictionary definition.
3.6.2.4 The scope or application of a standard shall be clearly described.
3.6.2.5 The standard shall not have the effect of requiring proprietary materials.
3.6.2.6 The standard shall not prescribe a proprietary agency for quality control or testing.
3.6.2.7 The test standard shall describe, in detail, preparation of the test sample, sample selection or both.
3.6.2.8 The test standard shall prescribe the reporting format for the test results. The format shall identify the key performance criteria for the element(s) tested.
3.6.2.9 The measure of performance for which the test is conducted shall be clearly defined in either the test standard or in Code text.
3.6.2.10 The standard shall not state that its provisions shall govern whenever the referenced standard is in conflict with the requirements of the referencing Code.
3.6.2.11 The preface to the standard shall announce that the standard is promulgated according to a consensus procedure.

3.6.3 **Standard Promulgation:**

3.6.3.1 Code change proposals with corresponding changes to the code text which include a reference to a proposed new standard or a proposed update of an existing referenced standard shall comply with this section. The standard shall be completed and readily available prior to the Public Comment Hearing based on the cycle of code development which includes the code change proposal. In order for a new standard to be considered for reference by the Code, such standard shall be submitted in at least a consensus draft form in accordance with Section 3.4. If a new standard is not submitted in at least draft form, the code change proposal shall be considered incomplete and shall not be processed. Updating of standards without corresponding code text changes shall be accomplished administratively in accordance with Section 4.6.

3.6.3.2 The standard shall be developed and maintained through a consensus process such as ASTM or ANSI.

4.0 Processing of Code Change Proposals

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

4.2 **Review:** Upon receipt in the Secretariat's office, the code change proposals will be checked for compliance with these Rules of Procedure as to division, separation, number of copies, form, language, terminology, supporting statements and substantiating data. Where a code change proposal consists of multiple parts which fall under the maintenance responsibilities of different code committees, the Secretariat shall determine the code committee responsible for determining the committee action in accordance with Section 5.6 and the Code Scoping Coordination Matrix (see Section 1.3.1).

4.3 **Incomplete Code Change Proposals:** When a code change proposal is submitted with incorrect format, without the required information or judged as not in compliance with these Rules of Procedure, the Secretariat shall notify the proponent of the specific deficiencies and the proposal shall be held until the deficiencies are corrected, with a final date set for receipt of a corrected submittal. If the Secretariat receives the corrected code change proposal after the final date, the proposal shall be held over until the next code development cycle. Where there are otherwise no deficiencies addressed by this section, a code change proposal that incorporates a new referenced standard shall be processed with an analysis of the referenced standard's compliance with the criteria set forth in Section 3.6.

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

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

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

4.7 **Preparation:** All code change proposals in compliance with these procedures shall be prepared in a standard manner by the Secretariat and be assigned separate, distinct and consecutive numbers. The Secretariat shall coordinate related proposals submitted in accordance with Section 3.3.2 to facilitate the hearing process.

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

5.0 Committee Action Hearing

5.1 Intent: The intent of the Committee Action Hearing is to permit interested parties to present their views including the cost and benefits on the code change proposals on the published agenda. The code development committee will consider such comments as may be presented in the development of their action on the disposition of such code change proposals. At the conclusion of the code development committee deliberations, the committee action on each code change proposal shall be placed before the hearing assembly for consideration in accordance with Section 5.7.

5.2 Committee: The Codes and Standards Council shall review all applications and make committee appointment recommendations to the ICC Board. The Code Development Committees shall be appointed by the ICC Board.

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

5.2.2 Conflict of Interest: A committee member shall withdraw from and take no part in those matters with which the committee member has an undisclosed financial, business or property interest. The committee member shall not participate in any committee discussion or any committee vote on the matter in which they have an undisclosed interest. A committee member who is a proponent of a code change proposal shall not participate in any committee discussion on the matter or any committee vote. Such committee member shall be permitted to participate in the floor discussion in accordance with Section 5.5 by stepping down from the dais.

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

5.2.4 Committee Composition: The committee may consist of representation from multiple interests. A minimum of thirty-three and one-third percent (33.3%) of the committee members shall be regulators.

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

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

5.4.1 Chair Voting: The Chairman of the committee shall vote only when the vote cast will break a tie vote of the committee.

5.4.2 Open Hearing: The Committee Action Hearing is an open hearing. Any interested person may attend and participate in the floor discussion and assembly consideration portions of the hearing. Only code development committee members may participate in the committee action portion of the hearings (see Section 5.6). Participants shall not advocate a position on specific code change proposals with committee members other than through the methods provided in this policy.

5.4.3 Presentation of Material at the Public Hearing: Information to be provided at the hearing shall be limited to verbal presentations and modifications submitted in accordance with Section 5.5.2. Each individual presenting information at the hearing shall state their name and affiliation, and shall identify any entities or individuals they are representing in connection with their testimony. Audio-visual presentations are not permitted. Substantiating material submitted in accordance with Section 3.3.5.3 and other material submitted in response to a code change proposal shall be located in a designated area in the hearing room and shall not be distributed to the code development committee at the public hearing.

5.4.4 **Agenda Order:** The Secretariat shall publish a Code Change Agenda for the Committee Action Hearing, placing individual code change proposals in a logical order to facilitate the hearing. Any public hearing attendee may move to revise the agenda order as the first order of business at the public hearing, or at any time during the hearing except while another code change proposal is being discussed. Preference shall be given to grouping like subjects together, and for moving items back to a later position on the agenda as opposed to moving items forward to an earlier position. A motion to revise the agenda order is subject to a 2/3 vote of those present and voting.

5.4.5 **Reconsideration:** There shall be no reconsideration of a code change proposal after it has been voted on by the committee in accordance with Section 5.6.

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

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

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

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

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

5.5.1 **Discussion Order:**

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

5.5.2 **Modifications:** Modifications to code change proposals may be suggested from the floor by any person participating in the public hearing. The person proposing the modification is deemed to be the proponent of the modification.

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

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

1. is not legible, unless not required to be written in accordance with Section 5.5.2.1; or
2. changes the scope of the original code change proposal; or
3. is not readily understood to allow a proper assessment of its impact on the original code change proposal or the Code.

The ruling of the Chairman on whether or not the modification is in or out of order shall be final and is not subject to a point of order in accordance with Section 5.4.7.

5.5.2.3 Testimony. When a modification is offered from the floor and ruled in order by the Chairman, a specific floor discussion on that modification is to commence in accordance with the procedures listed in Section 5.5.1.

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

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

Discussion on this motion shall be limited to code development committee members. If a committee member proposes a modification which had not been proposed during floor discussion, the Chairman shall rule on the modification in accordance with Section 5.5.2.2. If a committee member raises a matter of issue, including a proposed modification, which has not been proposed or discussed during the floor discussion, the Moderator shall suspend the committee discussion and shall reopen the floor discussion for comments on the specific matter or issue. Upon receipt of all comments from the floor, the Moderator shall resume committee discussion.

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

The code development committee shall maintain a record of its proceedings including the action on each code change proposal.

5.7 Assembly Consideration: At the conclusion of the committee's action on a code change proposal and before the next code change proposal is called to the floor, the Moderator shall ask for a motion from the public hearing attendees who may object to the committee's action. If a motion in accordance with Section 5.7.1 is not brought forward on the committee's action, the results of the Committee Action Hearing shall be established by the committee's action.

5.7.1 Assembly Floor Motion: Any attendee may raise an objection to the committee's action in which case the attendee will be able to make a motion to:

1. Approve the code change proposal As Submitted from the Floor (ASF), or
2. Approve the code change proposal As Modified from the Floor (AMF) with a specific modification that has been previously offered from the floor and ruled in order by the Chairman during floor discussion (see Section 5.5.2) or has been offered by a member of the Committee and ruled in order by the Chairman during committee discussion (see Section 5.6), or
3. Disapprove the code change proposal from the floor (DF).

5.7.2 Assembly Floor Motion Consideration: On receipt of a second to the floor motion, the Moderator shall accept the motion and the second and notify the attendees that the motion will be considered in an online ballot following the hearing in accordance with Section 5.7.3. No additional testimony shall be permitted.

5.7.3 Online Assembly Floor Motion Ballot: Following the Committee Action Hearing, all assembly floor motions which received a second shall be compiled into an online ballot. The ballot will include:

1. The code change proposal as published.
2. The committee action and reason from the Committee Action Hearing.
3. The floor motion, including modifications which are part of the floor motion.
4. Access to the audio and video of the Committee Action Hearing proceedings.
5. Identification of the ballot period for which the online balloting will be open.

5.7.4 Eligible Online Assembly Motion Voters: All members of ICC shall be eligible to vote on online assembly floor motions. Each member is entitled to one vote, except that each Governmental Member Voting Representative may vote on behalf of its Governmental Member. Individuals who represent more than one Governmental Member shall be limited to a single vote. Application, whether new or updated, for ICC membership must be received by the Code Council 30 days prior to the first day of the Committee Action Hearing. The ballot period will not be extended beyond the published period except as approved by the ICC Board.

5.7.5 Assembly Action: A successful assembly action shall be a majority vote of the votes cast by eligible voters (see Section 5.7.4). A successful assembly action results in an automatic public comment to be considered at the Public Comment Hearing (see Section 7.4).

5.8 Report of the Committee Action Hearing: The results of the Committee Action Hearing, including committee action and reason, online assembly floor motion vote results and the total vote count for each assembly floor motion shall be posted on the ICC website not less than 60 days prior to the Public Comment Hearing, except as approved by the ICC Board.

6.0 Public Comments

6.1 Intent: The public comment process gives attendees at the Public Comment Hearing an opportunity to consider specific objections to the results of the Committee Action Hearing and more thoughtfully prepare for the discussion for public comment consideration. The public comment process expedites the Public Comment Hearing by limiting the items discussed to the following:

1. Consideration of items for which a public comment has been submitted; and
2. Consideration of items which received a successful assembly action.

6.2 Deadline: The deadline for receipt of a public comment to the results of the Committee Action Hearing_shall be announced at the Committee Action Hearing but shall not be less than 30 days subsequent to the availability of the Report of the Committee Action Hearing (see Section 5.8).

6.3 Withdrawal of Public Comment: A public comment may be withdrawn by the public commenter at any time prior to public comment consideration of that comment. A withdrawn public comment shall not be subject to public comment consideration. If the only public comment to a code change proposal is withdrawn by the public commenter prior to the vote on the consent agenda in accordance with Section 7.5.4, the proposal shall be considered as part of the consent agenda. If the only public comment to a code change proposal is withdrawn by the public commenter after the vote on the consent agenda in accordance with Section 7.5.4, the proposal shall continue as part of the individual consideration agenda in accordance with Section 7.5.5, however the public comment shall not be subject to public comment consideration.

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

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

If a group, organization, or committee submits a public comment, an individual with prime responsibility shall be indicated. If a public comment is submitted on behalf a client, group, organization or committee, the name and mailing address of the client, group, organization or committee shall be indicated. The scope of the public comment shall be consistent with the scope of the original code change proposal, committee action or successful assembly action. Public comments which are determined as not within the scope of the code change proposal, committee action or successful assembly action shall be identified as such. The public commenter shall be notified that the public comment is considered an incomplete public comment in accordance with Section 6.5.1 and the public comment shall be held until the deficiencies are corrected. A copyright release in accordance with Section 3.3.5.5 shall be provided with the public comment.

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

6.4.3 Multiple public comments to a code change proposal. A proponent shall not submit multiple public comments to the same code change proposal. When a proponent submits multiple public comments to the same code change proposal, the public comments shall be considered as incomplete public comments and processed in accordance with Section 6.5.1. This restriction shall not apply to public comments that attempt to address differing subject matter within a code section.

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

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

6.4.5 Supporting Information: The public comment shall include a statement containing a reason and justification for the desired Final Action on the code change proposal. Reasons and justification which are reviewed in accordance with Section 6.5 and determined as not germane to the technical issues addressed in the code change proposal or committee action may be identified as such. The public commenter shall be notified that the public comment is considered an incomplete public comment in accordance with Section 6.5.1 and the public comment shall be held until the deficiencies are corrected. The public commenter shall have the right to appeal this action in accordance with the policy of the ICC Board. A bibliography of any substantiating material submitted with a public comment shall be published with the public comment and the substantiating material shall be made available at the Public Comment Hearing. All substantiating material published by ICC is material that has been provided by the proponent and in so publishing ICC makes no representations or warranties about its quality or accuracy.

6.4.6 Online submittal: Each public comment and substantiating information shall be submitted online at the website designated by ICC. Additional copies may be requested when determined necessary by the Secretariat.

6.4.7 Submittal Deadline: ICC shall establish and post the submittal deadline for each cycle. The posting of the deadline shall occur no later than 120 days prior to the public comment deadline. Each public comment shall be submitted online at the website designated by ICC by the posted deadline. The submitter of a public comment is responsible for the proper and timely receipt of all pertinent materials by the Secretariat.

6.5 **Review:** The Secretariat shall be responsible for reviewing all submitted public comments from an editorial and technical viewpoint similar to the review of code change proposals (see Section 4.2).

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

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

6.5.3 **Deadline:** Public comments received by the Secretariat after the deadline set for receipt shall not be published and shall not be considered as part of the public comment consideration. This deadline shall not apply to public comments submitted by the Code Correlation Committee. In order to correlate submitted public comments with action taken at the Committee Action Hearing on code change proposals that did receive a public comment, the Code Correlation Committee, in conjunction with staff processing of public comments, shall review the submitted public comments and submit the necessary public comments in order to facilitate the coordination of code change proposals. Such review and submittal shall not delay the posting of the Public Comment Agenda as required in Section 6.6.

6.6 **Public Comment Agenda:** The Committee Action Hearing results on code change proposals that have not received a public comment and code change proposals which received public comments or successful assembly actions shall constitute the Public Comment Agenda. The Public Comment Agenda shall be posted on the ICC website at least 30 days prior the Public Comment Hearing. Any errata to the Public Comment Agenda shall be posted on the ICC website as soon as possible. Code change proposals and public comments which have not been published in the original posting or subsequent errata shall not be considered.

7.0 Public Comment Hearing

7.1 **Intent:** The Public Comment Hearing is the first of two steps to make a final determination on all code change proposals which have been considered in a code development cycle by a vote cast by eligible voters (see Section 9.0). The second step, which follows the Public Comment Hearing, is the Online Governmental Consensus Vote that is conducted in accordance with Section 8.0.

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

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

7.4 **Public Comment Agenda:** The Public Comment Consent Agenda shall be comprised of code change proposals which have neither a successful assembly action nor public comment. The agenda for public testimony and individual consideration shall be comprised of proposals which have a successful assembly action or public comment (see Section 6.1).

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

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

7.5.2 **Agenda Order:** The Secretariat shall publish a Public Comment Agenda for the Public Comment Hearing, placing individual code change proposals and public comments in a logical order to facilitate the hearing. The proponents or opponents of any code change proposal or public comment may move to revise the agenda order as the first order of business at the public hearing, or at any time during the hearing except while another proposal is being discussed. Preference shall be given to grouping like subjects together and for moving items back to a later position on the agenda as opposed to moving items forward to an earlier position. A motion to revise the agenda order is subject to a 2/3 vote of those present and voting.

7.5.3 Presentation of Material at the Public Comment Hearing: Information to be provided at the hearing shall be limited to verbal presentations. Each individual presenting information at the hearing shall state their name and affiliation, and shall identify any entities or individuals they are representing in connection with their testimony. Audio-visual presentations are not permitted. Substantiating material submitted in accordance with Section 6.4.5 and other material submitted in response to a code change proposal or public comment shall be located in a designated area in the hearing room.

7.5.4 Public Comment Consent Agenda: The Public Comment Consent Agenda (see Section 7.4) shall be placed before the assembly with a single motion for Final Action in accordance with the results of the Committee Action Hearing. When the motion has been seconded, the vote shall be taken with no testimony being allowed. A simple majority (50% plus one) based on the number of votes cast by eligible voters shall decide the motion. This action shall not be subject to the Online Governmental Consensus Vote following the Public Comment Hearing (see Section 8.0).

7.5.5 Public Comment Individual Consideration Agenda: Upon completion of the Public Comment_Consent Agenda vote, all code change proposals not on the Public Comment Consent Agenda shall be placed before the assembly for individual consideration of each item (see Section 7.4).

7.5.6 Reconsideration: There shall be no reconsideration of a code change proposal after it has been voted on in accordance with Section 7.5.8.

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

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

7.5.8 Discussion and Voting: Discussion and voting on code change proposals being individually considered shall be in accordance with the following procedures and the voting majorities in Section 7.6:

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

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

7.5.8.3 Eligible voters: Voting shall be limited to eligible voters in accordance with Section 9.0.

7.5.8.4 **Allowable Final Action Motions:** The only allowable motions for Final Action are Approval as Submitted (AS), Approval as Modified by the committee (AM) or by one or more modifications published in the Public Comment Agenda (AMPC), and Disapproval (D).

7.5.8.5 **Initial Motion:** The code development committee action shall be the initial motion considered.

7.5.8.6 **Motions for Modifications:** Whenever a motion under consideration is for Approval as Submitted or Approval as Modified, a subsequent motion and second for a modification published in the Public Comment Agenda may be made (see Section 6.4.4). Each subsequent motion for modification, if any, shall be individually discussed and voted before returning to the main motion. A two-thirds majority based on the number of votes cast by eligible voters shall be required for a successful motion on all modifications.

7.5.8.7 **Voting:** After dispensing with all motions for modifications, if any, and upon completion of discussion on the main motion, the Moderator shall then ask for the vote on the main motion. The vote on the main motion shall be taken electronically with the vote recorded and each vote assigned to the eligible voting member. If the motion fails to receive the majority required in Section 7.6, the Moderator shall ask for a new motion.

7.5.8.8 **Subsequent Motion:** If the initial motion is unsuccessful, a motion for either Approval as Submitted or Approval as Modified by one or more published modifications is in order. A motion for Disapproval is not in order. The vote on the main motion shall be taken electronically with the vote recorded and each vote assigned to the eligible voting member. If a successful vote is not achieved, Section 7.5.8.9 shall apply.

7.5.8.9 **Failure to Achieve Majority Vote at the Public Comment Hearing.** In the event that a code change proposal does not receive any of the required majorities in Section 7.6, the results of the Public Comment Hearing for the code change proposal in question shall be Disapproval. The vote count that will be reported as the Public Comment Hearing result will be the vote count on the main motion in accordance with Section 7.5.8.7.

7.5.8.10 **Public Comment Hearing Results:** The result and vote count on each code change proposal considered at the Public Comment Hearing shall be announced at the hearing. The results shall be posted and included in the Online Governmental Consensus Ballot (see Section 8.2).

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

Committee Action	**Desired Final Action**		
	AS	**AM/AMPC**	**D**
AS	Simple Majority	2/3 Majority	Simple Majority
AM	2/3 Majority	Simple Majority to sustain the Committee Action or; 2/3 Majority on each additional modification and 2/3 Majority on entire code change proposal for AMPC	Simple Majority
D	2/3 Majority	2/3 Majority	Simple Majority

8.0 Online Governmental Consensus Vote

8.1 **Public Comment Hearing Results:** The results from the Individual Consideration Agenda at the Public Comment Hearing (see Sections 7.5.5 and 7.5.8.10) shall be the basis for the Online

Governmental Consensus Vote. The ballot shall include the voting options in accordance with the following table:

Committee Action	Public Comment Hearing result and Voting Majority	Online Governmental Consensus Ballot and Voting Majority	
AS	**AS:** Simple Majority	**AS:** Simple Majority	**D:** Simple Majority
	AMPC: 2/3 Majority	**AMPC:** 2/3 Majority	**D:** Simple Majority
	D: Simple Majority	**AS:** Simple Majority	**D:** Simple Majority
AM	**AS:** 2/3 Majority	**AS:** 2/3 Majority	**D:** Simple Majority
	AM: Simple Majority	**AM:** Simple Majority	**D:** Simple Majority
	AMPC: 2/3 Majority	**AMPC:** 2/3 Majority	**D:** Simple Majority
	D: Simple Majority	**AM:** Simple Majority	**D:** Simple Majority
D	**AS:** 2/3 Majority	**AS:** 2/3 Majority	**D:** Simple Majority
	AMPC: 2/3 Majority	**AMPC:** 2/3 Majority	**D:** Simple Majority
	D: Simple Majority	**AS:** 2/3 Majority	**D:** Simple Majority

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

1. The Public Comment Hearing result and vote count.
2. The allowable Online Governmental Consensus Vote actions in accordance with Section 8.1.
3. Where the Public Comment Hearing result is As Submitted (AS) or Disapprove (D), the original code change proposal will be presented.
4. Where the Public Comment Hearing result is As Modified by the committee (AM) or As Modified by one or more Public Comments (AMPC), the original code change and approved modification(s) will be presented.
5. The committee action taken at the Committee Action Hearing.
6. ICC staff identification of correlation issues.
7. For those who voted at the Public Comment Hearing, the ballot will indicate how they voted.
8. An optional comment box to provide comments.
9. Access to the Public Comment Agenda which includes: the original code change, the report of the committee action and the submitted public comments.
10. Access to the audio and video of the Committee Action and Public Comment Hearing proceedings.
11. Identification of the ballot period for which the online balloting will be open.

8.3 **Voting process:** Voting shall be limited to eligible voters in accordance with Section 9.0. Eligible voters are authorized to vote during the Public Comment Hearing and during the Online Governmental Consensus Vote; however, only the last vote cast will be included in the final vote tabulation. The ballot period will not be extended beyond the published period except as approved by the ICC Board.

9.0 Eligible Final Action Voters

9.1 **Eligible Final Action Voters:** Eligible Final Action voters include ICC Governmental Member Voting Representatives and Honorary Members in good standing who have been confirmed by ICC in accordance with the Electronic Voter Validation System. Such confirmations are required to be revalidated annually. Eligible Final Action voters in attendance at the Public Comment Hearing and those participating in the Online Governmental Consensus Vote shall have one vote per eligible voter on all Codes. Individuals who represent more than one Governmental Member shall be limited to a single vote.

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

10.0 Tabulation, certification and posting of results

10.1 Tabulation and Validation: Following the closing of the online ballot period, the votes received will be combined with the vote tally at the Public Comment Hearing to determine the final vote on the code change proposal. ICC shall retain a record of the votes cast and the results shall be certified by a validation committee appointed by the ICC Board. The validation committee shall report the results to the ICC Board, either confirming a valid voting process and result or citing irregularities in accordance with Section 10.2.

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

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

10.3 Failure to Achieve Majority Vote: In the event a code change proposal does not receive any of the required majorities for Final Action in Section 8.0, Final Action on the code change proposal in question shall be Disapprove.

10.4 Final Action Results: The Final Action on all code change proposals shall be published as soon as practicable after certification of the results. The results shall include the Final Action taken, including the vote tallies from both the Public Comment Hearing and Online Governmental Consensus Vote, as well the required majority in accordance with Section 8.0. ICC shall maintain a record of individual votes for auditing purposes, however, the record shall not be made public. The exact wording of any resulting text modifications shall be made available to any interested party.

11.0 Code Publication

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

11.2 Code Correlation: The Code Correlation Committee is authorized to resolve technical or editorial inconsistencies resulting from actions taken during the code development process by making appropriate changes to the text of the affected code. Any such changes to a Code shall require a 2/3 vote of the Code Correlation Committee. Technical or editorial inconsistencies not resolved by the Code Correlation Committee shall be forwarded to the ICC Board for resolution.

12.0 Appeals

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

The following actions are not appealable:

1. Variations of the results of the Public Comment Hearing compared to the Final Action result in accordance with Section 10.4.

2. Denied requests to extend the voter balloting period in accordance with Sections 5.7.4 or 8.3.
3. Lack of access to the internet based online collaboration and voting platform to submit a code change proposal, to submit a public comment or to vote.
4. Code Correlation Committee changes made in accordance with Section 11.2.

13.0 Violations

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

2015 ICC CODE DEVELOPMENT CYCLE
CROSS INDEX OF PROPOSED CODE CHANGES

Some of the proposed code changes include sections that are outside of the scope of the chapters or the code listed in the table of 2015-2017 Staff Secretaries on page xvi. This is done in order to facilitate coordination among the International Codes which is one of the fundamental principles of the International Codes.

Listed in this cross index are proposed code changes that include sections of codes or codes other than those listed on page xvi. For example, IBC Section 1004.5 is proposed for revision in code change G131-15, which is to be heard by the IBC-General Committee. This section of the IBC is typically the responsibility of the IBC-Egress. It is therefore identified in this cross index. Another example is Section 607.3.1 of the International Mechanical Code. The International Mechanical Code is normally maintained by the IMC Committee, but Section 607.3.1 will be considered for revision in proposed code change FS107-15 which will be on the IBC-Fire Safety Committee agenda. In some instances, there are other subsections that are revised by an identified code change that is not included in the cross index.

This information is provided to assist users in locating all of the proposed code changes that would affect a certain section or chapter. For example, to find all of the proposed code changes that would affect Chapter 4 of the IBC, review the proposed code changes in the portion of the monograph for the IBC-General Code Development Committee (listed with a G prefix) then review this cross reference for Chapter 4 of the IBC for proposed code changes published in other code change groups. While care has been taken to be accurate, there may be some omissions in this list.

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

PREFIX	**PROPOSED CHANGE GROUP (see monograph table of contents for location)**
E	International Building Code - Egress
EB	International Existing Building Code
FG	International Fuel Gas Code
FS	International Building Code - Fire Safety
G	International Building Code – General
M	International Mechanical Code
P	International Plumbing Code
PSD	International Private Sewage Disposal Code
PM	International Property Maintenance Code
RM	International Residential Code - Mechanical
RP	International Residential Code - Plumbing
S	International Building Code – Structural
SP	International Swimming Pool and Spa Code

International Building Code	
Section #	**Code Change #**
Chapter 2	
Air barrier	FS154
Building element	FS177
Building element, interior	FS177
Continuous air barrier	FS154
Continuous insulation	FS161, FS162
Control coating	FS127
Delayed action closer	FS94
Fire curtain	FS102 Part I, FS102 Part II, FS102 Part III
Insulated vinyl siding	FS156
Interior building element	FS177
Interior radiation control coating	FS127
Projection	FS11
Chapter 4	
402.8.6.1	FS74
404.6	FS102 Part II
405.4.2	FS74
405.4.3	FS74
406.8.3	FS140
407.3.1	FS74
408.3.8	FS74
410.3.5	FS74
423.1.1	EB68 Part II
423.4	EB68 Part II
423.4.1	EB68 Part II
423.4.2	EB68 Part II
424.2	FS140
Chapter 5	
510.2	FS74
Chapter 7	
702.1	G22
705.2.3	G180
706.1	G130
708.1	G202
708.3	G164
709.4.2	G92
709.5.1	G112
711.2.3	G164
711.2.4.1	G164
711.2.4.3	G164
716.5.9.3	G202
722.1	G22
Chapter 8	
802.1	G22
803.3	G180
803.13.3	G180

Chapter 9	
902.1	G22
903.2.2	G124
903.2.8.4	G33
907.5.2.1	G202
909.20.6.1	G117
913.2.2	G117
Chapter 10	
1002.1	G22
1004.5	G131
Table 1006.2.1	G133
1006.2.2	G133
1006.2.2.6 (new)	G133
Table 1017.2	G133
1019.3	FS102 Part III
Table 1020.1	G133
1020.1.1	G201
1023.3.1	FS74
Chapter 11	
1102.1	G22
Chapter 12	
1211	P54 Part II
1211.1	P54 Part II
Chapter 14	
1402.1	G22
1406.3	G180
Chapter 15	
1502.1	G22
Chapter 16	
1602.1	G22
1609.2	G22
1612.2	G22
1613.2	G22
1615.2	G22
Chapter 17	
1702.1	G22
Chapter 18	
1802.1	G22
Chapter 21	
2102.1	G22
Chapter 23	
2302.1	G22

2304.11 through 2304.11.4.2	G179
Chapter 24	
2402.1	G22
2409.1	FS76
Chapter 25	
2502.1	G22
Chapter 26	
2602.1	G22
2603.7	M69 Part II, M70 Part II, M160 Part II
Chapter 29	
2902.1	P27
T2902.1	P28, P29, P30, P31, P33, P34, P35
2902.1.1 (New)	P36 Part II
2902.1.1	P35
2902.1.2 (New)	P37, P39
2902.1.2	P38, P40
2902.2	P41, P42, P43, P44
2902.2.1	P38
2902.2.2 (New)	P43
2902.3	P45
2902.3.1	P43
2902.3.7 (New)	P46 Part II
2902.4	P38, P43
2902.4.6	P59, P60
Chapter 30	
3002.1	FS51
3007.6.3	FS74
3008.6.3	FS74
3008.6.3.1	FS74
Chapter 31	
3104.10	FS74
INTERNATIONAL FIRE CODE	
Chapter 6	
604.2.1 (New)	G125
803.1	G180
INTERNATIONAL MECHANICAL CODE	
Chapter 6	
607.1.2	FS103, FS104, FS105
607.2.3 (New)	FS106
607.3.1	FS107
607.3.2.1	FS108
607.3.2.3	FS108
607.5.2	FS109, FS110, FS111, FS112

607.5.4	FS118
607.5.5	FS110, FS111, FS113, FS114, FS115, FS116, FS117
607.6.1	FS57
607.6.2	FS119
607.6.2.1	FS119, FS120
INTERNATIONAL RESIDENTIAL CODE	
Chapter 2	
Full-open valve (New)	P3 Part II
Chapter 3	
R303.5	RM20
R303.5.1	RM20
R303.5.2 (New)	RM20
Chapter 25	
P2503.7	P20 Part II
Chapter 26	
P2602.1	P98 Part II, P99 Part II, P166 Part II
P2605.1	P19 Part II
P2605.2 (New)	P15 Part II
Chapter 27	
T P2701.1	P51 Part II
P2702.4	P51 Part II
P2704	P53 Part II
P2704.1	P53 Part II
P2713.1	P55 Part II
P2713.3	P82 Part II
P2725 (New)	P162 Part II
P2726.1 (New)	P162 Part II
Chapter 28	
P2804.6.1	P93 Part II
Chapter 29	
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2015 GROUP A COMMITTEE ACTION HEARING SCHEDULE

April 19 – 28, 2015

Memphis Cook Convention Center: Memphis, TN

The hearings will start at 1:00 pm on Sunday, April 19th. Prior to the hearings, some of the Membership Councils will be holding meetings. Be sure to consult the Membership Councils webpage for details as they become available.

In order to minimize code related subject matter conflicts between tracks, the hearings are scheduled in two tracks, as follows:

Track 1: Building related – IPMC/IZC, IEBC and IBC
Track 2: Plumbing/Mechanical/Fuel Gas (PMG) related - ISPSC, IFGC, IPC/IPSDC, IRC-P, IRC-M and IMC

Unless noted by "Start no earlier than X am," each Code Committee will begin immediately upon completion of the hearings for the prior Committee. This includes moving a Committee forward or back from the day indicated based on hearing progress. The actual start times for the various Committees are not stipulated because of uncertainties in hearing progress. The schedule anticipates that the hearings will finish by the date/time noted as "Finish" for each track.

	Sunday April 19	Monday April 20	Tuesday April 21	Wednesday April 22	Thursday April 23
TRACK 1	Start 1 pm IPMC/IZC IEBC End 7 pm	Start 8 am IEBC IBC – FS (Start no earlier than 1 pm) End 7 pm	Start 8 am IBC - FS End 7 pm	Start 8 am IBC - FS End 7 pm	Start 8 am IBC - FS IBC – G (Start no earlier than 8 am) End 7 pm
TRACK 2	Start 1 pm ISPSC IFGC End 7 pm	Start 8 am IFGC IPC/IPSDC (Start no earlier than 8 am) End 7 pm	Start 8 am IPC/IPSDC End 7 pm	Start 8 am IPC/IPSDC IRC – P (Start no earlier than 1 pm) End 7 pm	Start 8 am IRC – P IRC - M IMC (Start no earlier than 1 pm) End 7 pm

	Friday April 24	Saturday April 25	Sunday April 26	Monday April 27	Tuesday April 28
TRACK 1	Start 8 am IBC - G End 7 pm	Start 8 am IBC - G End 7 pm	Start 10 am IBC - G IBC – E (Start no earlier than 10 am) End 7 pm	Start 8 am IBC - E End 7 pm	Start 8 am IBC- E Finish 3 pm
TRACK 2	Start 8 am IMC End 7 pm	Start 8 am IMC Finish 3 pm			

Hearing schedule notes and committee designations

Notes:

- Code change agenda to be posted March 13th.
- Hearing times may be modified at the discretion of the Chairman based on hearing progress.
- Morning and afternoon breaks will be announced. A lunch break is planned for each track. A dinner break is not planned. The hearings are scheduled to adjourn for dinner and resume the next day, unless otherwise necessary to complete the agenda.
- Because of uncertainties in hearing progress, the start time indicated as “start no earlier than xx” is conservatively estimated and is not intended to be a hearing progress target.
- Consult the hearing order in the posted code change agenda for:
    - Code changes to be heard by a Committee other than the Committee under which the code change is designated (i.e. an IBC Egress code change (Exx-15) heard by the IBC – G Committee).
    - Code changes comprised of multiple parts where each part is heard by a different Committee. For example, code change Pxx- 15 Part I is heard by the IPC/IPSDC Committee as a change to the IPC and Pxx – 15 Part II is heard by the IRC – MP Committee as a change to the IRC.
    - Code changes to the definitions to determine the applicable Committee who will hear the change to the definition for the respective code.
- There are no code change proposals submitted to the IZC

Code Committees/Codes:

- IBC-E: International Building Code (IBC) Egress provisions. Chapters 10 and 11
- IBC-FS: IBC Fire Safety provisions. Chapters 7, 8, 9 (partial), 14 and 26. Majority of IBC Chapter 9 is maintained by the IFC in Group B
- IBC-G: IBC General provisions. Chapters 3 – 6, 12, 13, 27 – 33
- IEBC: International Existing Building Code non structural provisions.
- IFGC: International Fuel Gas Code
- IMC: International Mechanical Code
- IPC/IPSDC: International Plumbing and Private Sewage Disposal Codes
- IPMC/IZC: International Property Maintenance and Zoning Codes
- IRC-M: International Residential Code (IRC) Mechanical provisions. Chapters 12 – 23 (code changes heard by the IRC - MP code committee)
- IRC-P: IRC Plumbing provisions. Chapters 25 – 33 (code changes heard by the IRC - MP code committee)
- ISPSC: International Swimming Pool and Spa Code

EDITORIAL CODE CHANGES - CODE CORRELATION COMMITTEE

In a typical code change cycle, there are code change proposals that are considered strictly editorial. Section 4.4 of CP 28 (see below) establishes a process by which the Code Correlation Committee (CCC) considers such proposals.

> **4.4 Editorial Code Change Proposals.** When a code change proposal is submitted that proposes an editorial or format change that, in the opinion of the Secretariat, does not affect the scope or application of the code, the proposal shall be submitted to the Code Correlation Committee who shall deem the code change proposal as editorial or send the proposal back to the Secretariat to be considered by the appropriate code development committee. To be deemed editorial, such proposal shall require a majority vote of the Code Correlation Committee. Editorial proposals shall be published in the Code Change Agenda. Such proposals shall be added to the hearing agenda for consideration by the appropriate code development committee upon written request to ICC by any individual. The deadline to submit such requests shall be 14 days prior to the first day of the Committee Action Hearing. Code Correlation Committee proposals that are not added to a code development committee hearing agenda shall be published in the next edition of the code with no further consideration.

There are 2 such proposals in the current 2015 Cycle. They are both proposals to the IEBC and are posted as the first code changes in the IEBC's agenda. They are identified by code change numbers CCC-1 and CCC-2.

As noted in Section 4.4, anyone may request that either of these proposals be added to the hearing agenda. The deadline to make such a request is 11: 59 pm Pacific on Sunday, April 5th via email. Be sure to identify the code change number noted above. Such requests must be sent to:

Dave Bowman
Manager, Codes
dbowman@iccsafe.org

2015 PROPOSED CHANGES TO THE INTERNATIONAL CODES

2015 GROUP A – PROPOSED CHANGES TO THE INTERNATIONAL BUILDING CODE – FIRE SAFETY

FIRE SAFETY CODE COMMITTEE

Kenneth E. Bush, *Chair*
Rep: National Association of State Fire Marshals
Senior Fire Protection Engineer
Maryland State Fire Marshal's Office
Easton, MD

Paul Armstrong, *Vice Chair,* PE, CBO
Regional Manager/Building Official
CSG Consultants, Inc.
Lakewood, CA

Andrew Blum, PE, MS, CFEI
Managing Engineer
Exponent, Inc.
Marietta, GA

Matthew Dobson
Rep: National Association of Home Builders
Director, Code and Regulatory
Vinyl Siding Institute
Burlington, NC

George Hollingsworth
Captain II, Fire Marshal
Fairfax County Fire and Rescue Department
Fairfax, VA

Stephan Kiefer
Community & Economic Development Director
City of Livermore, CA
Livermore, CA

Bradley J. Larson, CFPS
Fire Marshal/Battalion Chief
Unified Fire Authority of Greater Salt Lake
Salt Lake City, UT

Joseph McElvaney, Jr., PE
Lead Fire Protection Engineer
City of Phoenix Fire Department
Phoenix, AZ

Bill McHugh
Rep: Firestop Contractors International Association
Executive Director
The McHugh Company
Hillside, IL

Bob D. Morgan, PE, CPCU
Senior Fire Protection Engineer
Fort Worth Fire Department
Fort Worth, TX

Steven Andrew Norwood, AIA
President
Norwood Architecture, Inc.
Louisville, CO

Timothy Pate, CBO
Chief Building Official
City and County of Broomfield
Broomfield, CO

Michael Shannon, PE, CBO
Assistant Development Services Director
-Deputy Building Official
City of San Antonio, Development Services Department
San Antonio, TX

Richard N. Walke
Senior Regulatory Engineer
Codes and Advisory Services
UL LLC
Northbrook, IL

Michael E. Whalen
Construction Official
New Jersey Department of Community Affairs
Trenton, NJ

<u>Staff Secretariat</u>
Ed Wirtschoreck, LA
Manager, Standards
International Code Council
Central Regional Office
Country Club Hills, IL

TENTATIVE ORDER OF DISCUSSION
2015 PROPOSED CHANGES TO THE INTERNATIONAL BUILDING CODE (FIRE SAFETY)

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

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

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FS 1-15

703.4, 703.4 (New)

Proponent: Jeffrey Shapiro, Tyco Fire Protection Products, representing Tyco Fire Protection Products

2015 International Building Code

Delete and substitute as follows:

~~**703.4 Automatic sprinklers.** Under the prescriptive fire-resistance requirements of this code, the *fire-resistance rating* of a building element, component or assembly shall be established without the use of *automatic sprinklers* or any other fire suppression system being incorporated as part of the assembly tested in accordance with the fire exposure, procedures and acceptance criteria specified in ASTM E 119 or UL 263. However, this section shall not prohibit or limit the duties and powers of the *building official* allowed by Sections 104.10 and 104.11.~~

703.4 Automatic Sprinklers Assemblies utilizing fire sprinklers as an alternative to complying with a required fire resistance rating for a building element, component or assembly shall only be permitted where approved by the Building Official in accordance with Sections 104.10 and 104.11.

Reason: This proposal is based on text that was agreed to by major parties on both sides of the sprinklered-protected assembly issue during the last NFPA code cycle. At the second revision meeting of the NFPA Technical Committee on Fire Protection Features, a great deal of effort went into gaining this agreement, and it was supported by a majority of the committee members in attendance. Following the meeting, NFPA distributed the recommendation to the full committee for balloting, and it fell short of the required majority to advance in the process.
Nevertheless, the proposed text provides a cleaner way of conveying the intent of this section, and it warrants consideration by ICC, recognizing that previous efforts to delete the section or argue that it is not needed have not been successful.

This text will make it clear that a sprinkler-protected assembly is an alternative to a fire-resistive assembly that requires approval of the building official, as opposed to being a fire-resistive assembly. This "alternative to" approach is consistent with terminology approved by ICC-ES for inclusion AC385 as a basis for evaluating assemblies that use window sprinklers.

Cost Impact: Will not increase the cost of construction
The proposal simply clarifies current provisions.

FS 1-15 : 703.4-SHAPIRO5682

FS 2-15

703.4

Proponent: Daniel Nichols, New York State Division of Building Standards and Codes, representing New York State Division of Building Standards and Codes (dnichols@dos.state.ny.us)

2015 International Building Code

Delete without substitution:

~~**703.4 Automatic sprinklers.** Under the prescriptive fire-resistance requirements of this code, the *fire-resistance rating* of a building element, component or assembly shall be established without the use of *automatic sprinklers* or any other fire suppression system being incorporated as part of the assembly tested in accordance with the fire exposure, procedures and acceptance criteria specified in ASTM E 119 or UL 263. However, this section shall not prohibit or limit the duties and powers of the *building official* allowed by Sections 104.10 and 104.11.~~

Reason: This proposal deletes language that prohibits the use of automatic sprinklers or other fire suppression systems from being considered in a fire resistance rating of a building material.
The use of fire protection systems, including sprinklers, are used to activate or provide passive fire protection features in several locations in the code, reference standards, and evaluation reports. Examples include:

Dropping magnet power on door hold-open devices when sprinkler flow activates the building notification system

Initiating the activation of fire-resistance rated power dividers to create separate fire areas within a building

Smoke and heat vent activation due to fire detection and/or sprinkler flow

Alternative elevator lobby products that activate due to automatic detector activiation

Water curtains around open escalator openings that are otherwise required to be enclosed

Water curtains on gasketed glass for atrium separation

The activation of all of these products makes each one of them go from no protection to full expected protection because of a fire protection system. Based on a review of the information regarding the inclusion of this code section, the potential failure of a sprinkler system was a main concern in the debate. I submit that the failure rate of sprinklers is the same whether it is part of a passive fire protection system or part of the activation sequence to get a passive fire protection system in place.

In regards to the specific language, it appears the goal was to prohibit the use of any system that utilized automatic sprinklers or fire suppression systems from the prescriptive requirements of this code. This is confusing language as it could be interpreted to only apply to IBC Section 721 (since the direct reference is not provided) or does it apply to all prescriptive designs, such as the UL directories? The language does not make it clear for the building official and, in turn, can potentially confuse the issue on the reference to 104.11.

From an application perspective, the use of automatic sprinkler water curtains has been permitted for many years as a method to increase the allowable openings in buildings (along with all of the above mentioned applications). Allowing sprinkler heads that are part of fire ratings met a need in several applications we have dealt with in New York (based on ES report approved products), including the protection of required openings for light in existing buildings undergoing change of occupancy, and glazing needed for security purposes (both for the visual needs and to address the needs of high-impact glazing).

Thank you for your consideration. I understand that this topic has been fully vetted in previous code development cycles and thorugh the ICC-ES process. However, I believe that the I-Codes should be coordinated to the point that the interaction and reliance between passive and active fire protection systems should be consistent.

Cost Impact: Will not increase the cost of construction
The passage of the proposal will allow more choice in compliance methods for fire rated products.

FS 2-15 : 703.4-NICHOLS5725

FS 3-15

703.5.1, Chapter 35

Proponent: Tony Crimi, representing North American Insulation Manufacturers Association (tcrimi@sympatico.ca)

2015 International Building Code

Revise as follows:

703.5.1 Elementary materials. Materials required to be noncombustible shall be tested in accordance with ASTM E 136 or ASTM E2652, using the acceptance criteria in ASTM E136.

Add new standard(s) as follows:

ASTM E2652 - Standard Test Method for Behavior of Materials in a Tube Furnace with a Cone- shaped Airflow Stabilizer, at 750°C.

Reason: Several of the I-Codes have varying definitions of the term "non-combustible material", each based upon the way in which the concept of "non-combustible" is used within that Code. Throughout the ICC code system, the concept of "noncombustible material" is based on the idea that the material should not ignite or burn when subjected to fire or heat

The concept of "noncombustible materials" and "noncombustibility" in terms of types of construction is widely used throughout the International Codes. The IBC, IFC, IEBC and IFGC do not contain a separate definition of "noncombustible", even though they use the terminology "non-combustible materials".

In common usage, the term "noncombustible" is used to denote materials which do not ignite or are not capable of sustaining combustion. The common Dictionary definitions for "noncombustible" are typically as follows:

> *Noncombustible, adj – incapable of being burned (Merriam -Webster's International Dictionary of the English Language, Unabridged, 2013)*

In the traditional use of the terminology and concept of "non-combustible" in the Codes has been based on acceptable performance when tested in accordance with ASTM E136, Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C. Materials passing the test are permitted limited flaming and other indications of combustion. However, these have traditional been acceptable. Understandably, ASTM E136 does not replicate the full spectrum of actual building fire exposure conditions. However, this test method does provide an assessment indicating those materials which do not act to aid combustion or add appreciable heat to an ambient fire.

ASTM has recently published another standard ASTM E2652-09, entitled Standard Test Method for Behavior of Materials in a Tube Furnace with a Cone-shaped Airflow Stabilizer, at 750°C. This test method is similar to ASTM E136, but based on the international standard for Noncombustibility. The key difference between the two standards is in the equipment. The apparatuses in this test method and in Test Method E 136 is that the furnace tube in this test method has a conical air-flow stabilizer section attached at its bottom. Both test methods use cylindrical furnace tubes. Unlike ASTM E136, the test ASTM E2652 Standard does not include mandatory pass/fail criterion. It allows those criteria to be determined by the Codes or other users. Appendix X3 also contains a comparison of results obtained from this apparatus versus ASTM E136. ASTM E136 has already been revised to include ASTM E2652 as an alternate methodology.

Cost Impact: Will not increase the cost of construction
This proposal provides an alternative methodology for use.

Analysis: A review of the standard proposed for inclusion in the code, ASTM E2652, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS 3-15 : 703.5.1-CRIMI4627

FS 4-15

703.7

Proponent: Albert Wege, representing Wege & Company (albertwege@yahoo.com)

2015 International Building Code

Revise as follows:

703.7 Marking and identification. ~~Where there is an accessible concealed floor~~
Fire walls, ~~floor-ceiling or *attic* space, *fire walls,*~~ *fire barriers*, *fire partitions*, *smoke barriers* and smoke partitions or any other wall required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling ~~in the concealed space~~. Such identification shall be located in accessible concealed floor, floor-ceiling or attic spaces; and either:

1. ~~Be~~Include lettering not less than 3 inches (76 mm) in height with a minimum 3/8 inch (9.5 mm) stroke in a contrasting color incorporating the suggested wording. "FIRE AND/OR SMOKE BARRIER-PROTECT ALL OPENINGS" or other wording, located within 15 feet (4572 mm) of the end of each wall and at intervals not exceeding 30 feet (9144 mm) measured horizontally along the wall or partition~~.~~; or
2. Include ~~lettering~~a contrasting color band of not less than 3 inches (~~76~~76mm) in height and lettering not less than 1/2 inch (12.7 mm) in height ~~with a minimum 3/8-inch (9.5 mm) stroke in a contrasting color~~ incorporating the suggested wording~~, "~~: "FIRE AND/OR SMOKE BARRIER—PROTECT ALL OPENINGS,~~"~~" or other wording, repeating at intervals not more than 24 inches (610 mm) measured horizontally and continuously along the entire length of the fire wall, fire barrier, fire partition, smoke barrier or smoke partition.

Exception: Walls in Group R-2 occupancies that do not have a removable decorative ceiling allowing access to the concealed space.

Reason: In the 2009 IBC, the marking and identification of fire rated wall assemblies was introduced, to identify critical wall assemblies that protect occupants from fire and smoke spread as a result of breaches within said wall assemblies. Often, maintenance and operation crews, in addition to contractors, breach these wall assemblies to install ductwork, cabling, etc, without knowing that these walls are critical to the protection of the occupants in the event of a fire.
The 2009 IBC allow marking and identification lettering at a minimum of one- half inch (½") (12.7mm) incorporating the suggested wording: "FIRE AND/OR SMOKE BARRIER—PROTECT ALL OPENINGS," to be repeated every thirty feet (30'-0") (9144 mm).

The 2012 IBC increased the marking and identification lettering to a minimum of 3" (76 mm) with a 3/8" (9.5mm) stroke incorporating the suggested wording: "FIRE AND/OR SMOKE BARRIER—PROTECT ALL OPENINGS," to be repeated every thirty feet (30'-0") (9144 mm) and within fifteen feet (15'-0") (4572 mm) of the end of each wall.

The challenge that has been encountered is that while the code section may be followed, placed at every thirty feet (30'-0) (9144 mm), the potential is still present that the lettering may still not be visible if placed behind above ceiling equipment, on other side of a duct, or if a maintenance worker happens to pop a ceiling tile mid-span and not see the text. Despite the three inch (3") (76 mm) lettering heights, these above ceiling spaces are not typically well- illuminated.

The proposal being brought forth in the code change request is to also allow marking and identification lettering at a minimum of one- half inch (½") (12.7mm) incorporating the suggested wording: "FIRE AND/OR SMOKE BARRIER—PROTECT ALL OPENINGS, but that the marking and identification is continuous along the entire length of the wall assembly; that is, end- to – end. The suggested wording shall repeat at intervals of every 24" (610 mm) horizontally within a contrasting color ban no less than 3" (76 mm) in height.

Cost Impact: Will not increase the cost of construction
Alternative format.

FS 4-15 : 703.7-WEGE3325

FS 5-15

703.7.1 (New)

Proponent: William Koffel, representing Firestop Contractors International Association (wkoffel@koffel.com)

2015 International Building Code

Add new text as follows:

703.7.1 Penetrations and Joints Tested through penetration firestop sytems and fire-resistant joint systems in walls requiring marking by Section 703.7 shall be permanently identified with a marking system. The marking system shall be located within 2 inches (50 mm) of the through penetration firestop system. For fire-resistant joint systems, the marking system shall be located within 15 feet (4570 mm) of the end of each wall or floor and at intervals not exceeding 30 feet (9144 mm) measured horizontally along the wall or partition.

The marking system shall be legible and contain, at a minimum, the following information:

Do Not Disturb - Firestop System or Fire-Resistant Joint System as appropriate
System Design Number:
Engineering Judgement Number:

Exception: Where an electronic marking and identification system is used, the identifier shall be legible to the reader equipment.

Reason: The purpose for the proposal is to require that firestop systems and joint systems be marked or identified so that code officials, special inspectors, building managers, contractors, and others can understand what system was used. This will reduce the need for expensive research time by special inspectors and code officials to find the appropriate system diagram that is needed to verify that the system used is appropriate for the application.
Secondly, should a repair be needed, knowing the system design number may allow the repair to occur without removing and replacing the entire system. The manufacturer, materials used, and all other pertinent system details will be available to those that need to inspect, maintain, or repair such systems.

Cost Impact: Will not increase the cost of construction
Most contractors will install the marking systems at no additional cost when required to do so. Over the useful life of the building, costs for repairs and maintenance should be reduced. Also, the cost to properly inspect and verify the systems during construction should also be reduced.

FS 5-15 : 703.7.1 (New)-KOFFEL5752

FS 6-15

Part I:
704.2
Part II:
704.3

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IBC-FIRE SAFETY COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THIS COMMITTEE.

Proponent: Jerry Tepe, JRT-AIA Architect, representing American Institute of Architects (JRTAIA@aol.com)

Part I

2015 International Building Code

Revise as follows:

704.2 Column protection. Where columns are required to have protection to achieve a *fire-resistance rating*, the entire column shall be provided individual encasement protection by protecting it on all sides for the full column height, including connections to other structural members, with materials having the required *fire-resistance rating*._ Where the column extends through a ceiling, the encasement protection shall be continuous from the top of the foundation or floor/ceiling assembly below through the ceiling space to the top of the column.

> **Exception:** Individual encasement protection is not required on unexposed sides provided the extent of protection on unexposed sides is in accordance with the required *fire-resistance rating*, as determined in Section 703.

Part II

2015 International Building Code

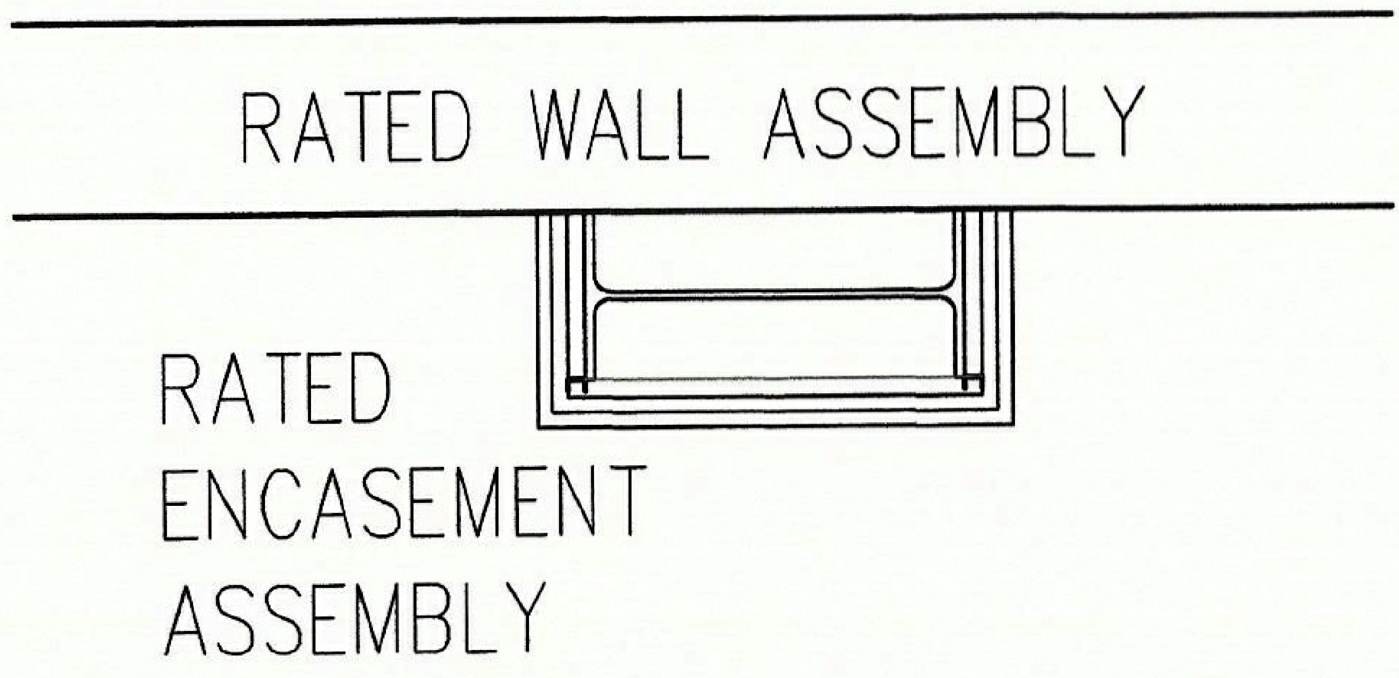
Revise as follows:

704.3 Protection of the primary structural frame other than columns. Members of the primary structural frame other than columns that are required to have protection to achieve a *fire-resistance rating* and support more than two floors or one floor and roof, or support a load-bearing wall or a nonload-bearing wall more than two stories high, shall be provided individual encasement protection by protecting them on all sides for the full length, including connections to other structural members, with materials having the required *fire-resistance rating*.

> **Exception:** Individual encasement protection ~~on all sides shall be permitted~~is not required on ~~all exposed~~unexposed sides provided the extent of protection on unexposed sides is in accordance with the required *fire-resistance rating*, as determined in Section 703.

Reason: If the face of the primary structural frame is unexposed, in all likelihood, the same face of the column is also unexposed, therefore a similar exception is proposed for columns in Section 704.2.
Examples might include the following:

- A column adjacent to a masonry wall, where the wall assembly has a different and individual fire resistance tested design equal to the hourly rating of the individual encasement requirements of the column.

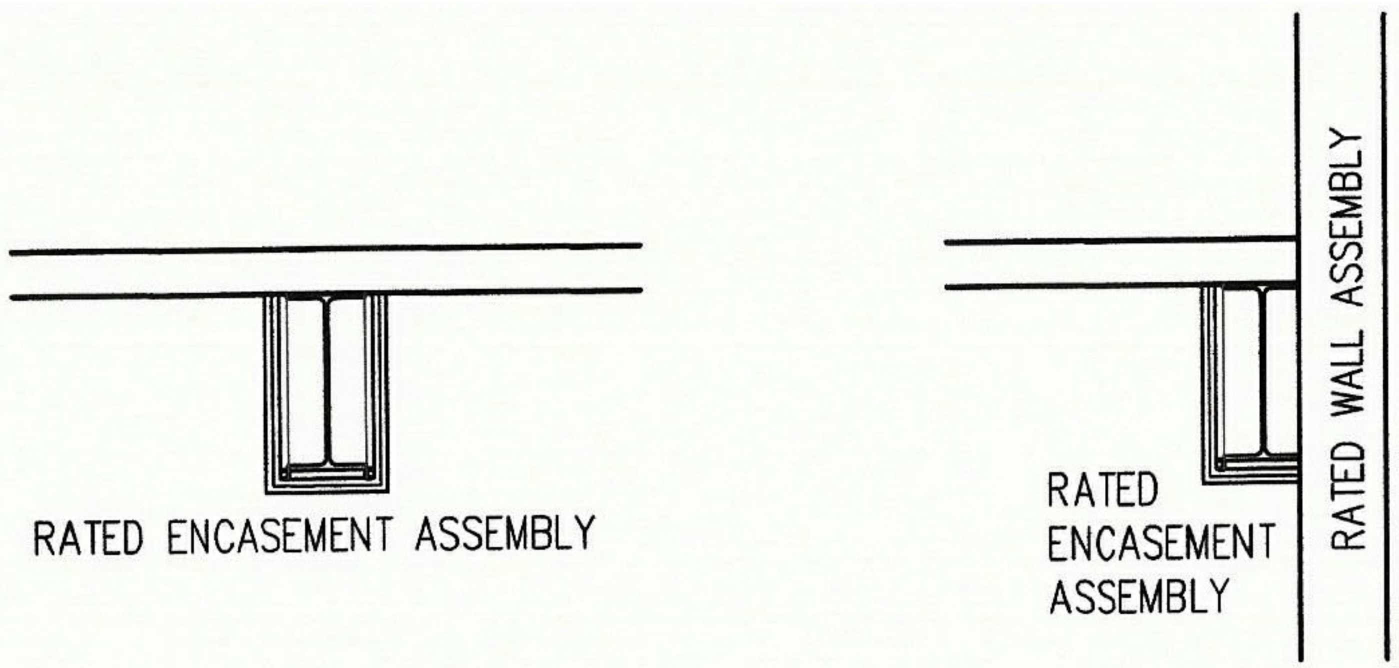


The issue is with the current language which is confusing at best, stating that "individual encasement protection shall be permitted" when that is what the main section requires. This and other ambiguities lead to multiple interpretations as to what is required when an unexposed side is covered by other construction. Some jurisdictions require individual encasement regardless of other construction, while others permit non-fire-resistance-rated adjacent construction.

The proposed changes to Section 704.3 is to address the ambiguities by more clearly stating the intent and goal of the application of the exception. The intent is to recognize that other fire resistant tested assemblies can be employed on the unexposed sides of the primary structural frame, other than columns, as long as those assemblies are equivalent to the minimum fire resistance rating of the individual encasement protection as required by the code.

Examples might include the following:

- A beam fire resistance tested design with a concrete/metal deck construction floor above (likely the original intent of the exception); or
- A beam adjacent to a masonry wall, where the wall assembly has a different and individual fire resistance tested design equal to the hourly rating of the individual encasement requirements of the beam.



An ICC Committee interpretation substantiated the intent of the exception as follows:

IBC COMMITTEE INTERPRETATION 41-14

Issued 1-6-2015

Q: Does the exception apply to all sides of the beam, i.e. top, bottom, and sides?

A: Yes.

This section is only applicable to the protection of the primary structural frame members that meet the parameters of the section and does not include columns. Even though the text states that the encasement must be on all four sides of the beam, the exception will allow tested assemblies that have the encasement on only the "exposed" sides of the beam. The assumption would be that the "exposed" side is the fire side.

Even though the usual application is a steel floor beam under a metal deck with a concrete slab, the exception does not limit its application to this scenario.

Therefore, regardless of whether it is the top, the bottom, or the side; and regardless of what type of building system is on the "unexposed" side, the "unexposed" side is not required to be encased.

Cost Impact:

Part I: Will not increase the cost of construction
The proposal may reduce the cost of construction by not requiring the owner, developer or design professional to submit for consideration a variance to the code provisions in accordance with 104.10 (Modifications) or 104.11 (Alternative materials, design and methods of construction and equipment) when other fire resistance tested designs will perform the same function as the intent of 704.2.

Part II: Will not increase the cost of construction
The proposal intends only to clarify the code, but does not make any technical changes to code requirements.

FS 6-15 : 704.3-TEPE4496

FS 7-15

704.2, 704.4.1

Proponent: David Tyree, American Wood Council, representing American Wood Council (dtyree@awc.org)

2015 International Building Code

Revise as follows:

704.2 Column protection. Where columns are required to have protection to achieve a *fire-resistance rating*, the entire column shall be provided individual encasement protection by protecting it on all sides for the full column height, including connections to other structural members, with materials having the required *fire-resistance rating*. Where the column extends through a ceiling, the encasement protection shall be continuous from the top of the foundation or floor/ceiling assembly below through the ceiling space to the top of the column.

> **Exception:** Columns located in a wall of light frame construction and located entirely between the top and bottom plates shall be permitted to have the fire resistance ratings provided by the membrane protection provided by the fire-resistance rated wall.

704.4.1 Light-frame construction. Studs, columns, and boundary elements that are integral elements in ~~*load-bearing*~~ *walls* of light-frame construction, and are located entirely between the top and bottom plates shall be permitted to have required *fire-resistance ratings* provided by the membrane protection provided for the ~~*load-bearing*~~ *wall*.

Reason: Reason: This proposal is to provide further clarification to a code change proposal that was approved last cycle and is included in the 2015 IBC in Section 704.4. Elements within fire-resistance rated walls of light-frame construction are addressed directly in Section 704.4.1 (Light-frame construction) and can be a part of a fire-resistance rated wall assembly without additional fire protection. Many buildings are built out of typical light frame construction; the concentrated loads from trusses or beams must have a continuous load path to the foundation. Some jurisdictions are interpreting that those construction boundary elements, such as, built-up and solid structural elements, are columns and are requiring them to be provided with individual fire protection. It is the intent of this provision, which has been verified by ICC staff, that it was never the intent to require individual fire protection of these elements, as they are not considered a portion of the primary structural frame.
This proposal was discussed and revised based on comments from the Colorado Chapter ICC Code Changes Committee and clarifies this provision is not intended to address continuous columns, does not have any connections to any elements of a structural frame, and is within a rated wall assembly.
For a complete list of AWC code change proposals and additional information please go to http://www.awc.org/Code-Officials/2015-IBC-Code-Changes.

Cost Impact: Will not increase the cost of construction
By revising this section, there is no additional cost as it clarifies the intent of this code provision. If anything, this proposal will actually save money as some building officials and designers have interpreted this section to require stud packs or built-up columns within a rated wall assembly to be individually fire protected which increases construction cost.

FS 7-15 : 704.4.1-TYREE4610

FS 8-15

704.2

Proponent: Timothy Saari, Colorado Code Consulting, LLC, representing Colorado Chapter ICC

2015 International Building Code

Revise as follows:

704.2 Column protection. Where columns are required to have protection to achieve a *fire-resistance rating*, the entire column shall be provided individual encasement protection by protecting it on all sides for the full column height, including connections to other structural members, with materials having the required *fire-resistance rating*._ Where the column extends through a ceiling, the encasement protection shall be continuous from the top of the foundation or floor/ceiling assembly below through the ceiling space to the top of the column.

Exception: Columns that meet the limitations of Section 704.4.1

Reason: We anticipate that the American Wood Council will be proposing a related change to Section 704.4.1, Light-frame consrtuction, that will better define when column elements that are part of, and integral to, a wall assembly, may be protected by fire-resistive wall materials. (Membrane protection) This code change proposal will link the later AWC concept to the charging language of this previoius section, and give clear direction to the code user when membrane protection is sufficient to meet the intent of the code.

This proposal is also clarifying for the structural elements that exceed the limits of Section 2308, and specifically 2308.8.1 and 2308. 8 2, and keep the code user in this section of code for all primary structural frame elements.

Cost Impact: Will not increase the cost of construction
If approved, this code clarification will lower the cost of construction by removing a perceived higher standard than the code intended, will simplify design and installation, and streamline construction.

FS 8-15 : 704.2-SAARI3985

FS 9-15

Part I:

704.2

Part II:

704.3

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IBC-FIRE SAFETY COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THIS COMMITTEE.

Proponent: Timothy Pate, City and County of Broomfield representing Colorado Chapter Code Change Committee, representing City and County of Broomfield (tpate@broomfield.org)

Part I

2015 International Building Code

Revise as follows:

704.2 Column protection. Where columns are required to have protection to achieve a *fire-resistance rating*, the entire column shall be provided individual encasement protection by protecting it on all sides for the full column height, including connections to other structural members, with materials having the required *fire-resistance rating*._ Where the column extends through a ceiling, the encasement protection shall be continuous from the top of the foundation or floor/ceiling assembly below through the ceiling space to the top of the column.

<u>**Exception:** Columns located in unusable space as designated in section 711.2.6 and in Type VA, IIA, or IIIA construction.</u>

Part II

2015 International Building Code

Revise as follows:

704.3 Protection of the primary structural frame other than columns. Members of the primary structural frame other than columns that are required to have protection to achieve a *fire-resistance rating* and support more than two floors or one floor and roof, or support a load-bearing wall or a nonload-bearing wall more than two stories high, shall be provided individual encasement protection by protecting them on all sides for the full length, including connections to other structural members, with materials having the required *fire-resistance rating*.

~~Exception~~<u>Exceptions</u>:

<u>1.</u> Individual encasement protection on all sides shall be permitted on all exposed sides provided the extent of protection is in accordance with the required *fire-resistance rating*, as determined in Section 703.

<u>2.Structural members located within unsuable space areas as designated in section 711.2.6 and in Type IIIA, IIA, or VA construction.</u>

Reason: Section 711.2.6 allows the deletion of installing the ceiling membrane of a 1 hour fire resistance rated floor/ceiling assembly over unusable spaces. These spaces are typically crawl spaces or under structural floor areas where the area is not being used for any building use such as mechanical equipment or storage. The concept is that there would not be anything that would start on fire so it does not make sense to delete the membrane of the floor/ceiling assembly but to still require the rating of any structural columns located within the unusable space.

There is not a definition of unusable space in the IBC but the IBC commentary gives the opinion that it is up to the Building Official to verify that there are no combustible materials other than construction elements which would allow effectively allow piping, conduits, and ductwork - nothing that would start a fire.

FOR REFERENCE PURPOSES ONLY:

711.2.6 Unusable space. In 1-hour fire-resistance-rated floor/ceiling aseemblies, the ceiling membrane is not required to be installed over unusable crawl spaces. In 1-hour fire resistance-rated roof assemblies, the floor membrane is not required to be installed where unusable attic space occurs above.

Cost Impact:

Part I: Will not increase the cost of construction
This change could potentially lower the cost of construction in jurisdictions that have required these primary structural columns in crawl spaces to be individually protected.

Part II: Will not increase the cost of construction

This change could potentially lower the cost of construction in jurisdictions that have required these primary structural members other than columns in crawl spaces to be individually protected.

FS 9-15 : 704.2-PATE3865

FS 10-15

704.3, Table 704.3 (New)

Proponent: Jonathan Humble, American Iron and Steel Institute, representing American Iron and Steel Institute (jhumble@steel.org)

2015 International Building Code

Revise as follows:

704.3 Protection of the primary structural frame other than columns. Members of the primary structural frame other than columns that are required to have protection to achieve a *fire-resistance rating* ~~and support more than two floors or one floor and roof, or support a load-bearing wall or a nonload-bearing wall more than two stories high,~~ shall be provided individual encasement protection by protecting them on all sides for the full length, including connections to other structural members, with materials having the required *fire-resistance rating*, or membrane protection, in accordance with Table 704.3.~~.~~

> **Exception:** Individual encasement protection on all sides shall be permitted on all exposed sides provided the extent of protection is in accordance with the required *fire-resistance rating*, as determined in Section 703.

Add new text as follows:

TABLE 704.3
PRIMARY STRUCTURAL FRAME PROTECTION

PRIMARY STRUCTURAL FRAME SUPPORTING	FIRE RESISTANCE PROTECTION
Supporting one (1) floor and roof.	Encasement protection, or membrane protection as determined in Section 711, or by a combination of both.
Supporting up to two (2) floors.	Encasement protection, or membrane protection as determined in Section 711, or by a combination of both.
Supporting a load bearing wall or non-load bearing wall up to two (2) stories.	Encasement protection, or membrane protection as determined in Section 711, or by a combination of both.
Supporting three (3) floors or more.	Encasement protection.
Supporting a load bearing wall or non-load bearing wall three (3) stories or more.	Encasement protection.

Reason: This proposal was generated as a result assessing that the language, and not the technical intent, was not as clear. Section 704.3 is a run on sentence which combines too many subjects to be understood clearly. Further, Section 704.3 fails to recognize Section 711 (Horizontal Separation) for those constructions which are less than what is required for encasement protection only.
We propose to reduce the charging statement to a discussion about fire-resistance only. This is achieved by removing the construction requirements.

The construction requirements are relocated into a new table. Next to each support category is the fire-resistance requirements for that category. This will make the enforcement of the provision clearer. Further, we have suggested that the original intent (e.g. Pre-2009 IBC) be reinstated where it clearly articulates the three options available for fire resistance of the primary structural frame which are below the encasement only requirements. In this case, recognition of Section 704.3, Section 711 (Horizontal Separation), or a combination of both.

Use of the term "membrane protection" is a recognized term in the code that refers to a ceiling consisting of gypsum board or a lay-in ceiling used as part of the overall fire-resistance of a fire-resistant rated assembly.

We do not propose any modifications to the exception in this proposal.

Cost Impact: Will not increase the cost of construction
This is a format change to an existing section of the code. There is no attempt to modify the technical content. Therefore, there is no cost increase.

FS 10-15 : 704.3-HUMBLE4662

FS 11-15

202 (New), 705.2

Proponent: Stephen Thomas, representing Colorado Chapter ICC (sthomas@coloradocode.net)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

PROJECTION A floor, roof or appendage extending beyond any exterior wall of a building; such as cornices, eave overhangs, exterior decks or balconies, canopies, porte cocheres and similar protrusions.

Revise as follows:

705.2 Projections. ~~Cornices, eave overhangs, exterior balconies and similar projections extending beyond the exterior wall~~ Projections shall conform to the requirements of this section and Section 1406. Exterior egress balconies and exterior exit stairways and ramps shall comply with Sections 1021 and 1027, respectively. Projections shall not extend any closer to the line used to determine the fire separation distance than shown in Table 705.2.

> **Exception:** Buildings on the same lot and considered as portions of one building in accordance with Section 705.3 are not required to comply with this section for projections between the buildings.

Reason: There appears to be some confusion as to what a projection is or isn't. We have provided a new definition to clarify what they may be. By defining what a projection is, the code user will be able to enforce the code more consistently. We have also revised Section 705.2 to remove the list of projections and replace it with the defined term. The term "projection" appears in many locations throughout the IBC. This definition will provided more guidance for the user.

Cost Impact: Will not increase the cost of construction
This change is a clarification of the code. If anything, the change will reduce the cost of construction because a projection will not be required to fire-resistant rated in some cases.

FS 11-15 : 705.2-THOMAS4442

FS 12-15

705.2

Proponent: Stephen Thomas, Colorado Code Consulting, LLC, representing Colorado Chapter ICC (sthomas@coloradocode.net)

2015 International Building Code

Revise as follows:

705.2 Projections. Cornices, eave overhangs, exterior balconies and similar projections extending beyond the exterior wall shall conform to the requirements of this section and Section 1406. Exterior egress balconies and exterior exit stairways and ramps shall comply with Sections 1021 and 1027, respectively. Projections shall not extend any closer to the line used to determine the fire separation distance than shown in Table 705.2. Projections extending past the limits in Table 705.2 shall be provided with an exterior wall extending the full width of the projection. Such exterior wall shall comply with Section 705

> **Exception:** Buildings on the same lot and considered as portions of one building in accordance with Section 705.3 are not required to comply with this section for projections between the buildings.

Reason: Section 705.2 limits the distance that a projection needs to be from the line used to determine the fire separation distance. However, the code doesn't tell you what to do if the design professional wants to take the projection closer to the line. This proposal provides that direction by requiring an exterior wall to extend the full width of the projection. The exterior wall would provide protection from fire to and from adjacent properties. The areas on either side would not be required to be protected similar to exterior walls of a building that are perpendicular to the line. The reference to Section 705 is to ensure that the wall is fire-resistant rated and has the openings in accordance with Section 705.8.

Cost Impact: Will not increase the cost of construction
This change is a clarification of the code. Therefore, there is no impact on the cost of construction.

FS 12-15 : 705.2-THOMAS4449

FS 13-15

Table 705.2

Proponent: Stephen Thomas, Colorado Code Consulting, LLC, representing Colorado Chapter ICC (sthomas@coloradocode.net)

2015 International Building Code

Revise as follows:

TABLE 705.2
MINIMUM DISTANCE OF PROJECTION

FIRE SEPARATION DISTANCE - FSD (~~FSD~~ feet)	MINIMUM DISTANCE FROM LINE USED TO DETERMINE FSD
0 ~~feet~~ to less than 2 ~~feet~~	Projections not permitted
~~Greater than~~ 2 ~~feet~~ to less than 3 ~~feet~~	24 inches
~~Greater than~~ 3 ~~feet~~ to less than ~~30~~ 5 ~~feet~~	24 inches plus 8 inches for every foot of FSD beyond 3 feet or fraction thereof
~~30 feet~~5 or greater	~~20 feet~~ 40 inches

For SI: 1 foot = 304.8 mm; 1 inch = 25.4 mm.

Reason: This table was changed over the last two code cycles. We were the proponent of the original change. Our intent was to simplify the projection distance requirements by putting the requirements in a table. The change in the 2015 edition attempted to address an anomoly within the table. However, that change created a much more restrictive requirement than what was in the 2012 IBC and earlier editions. There was no technical justification for this more restrictive requirement. In previous codes, the maximum distance that a projection would be required was 40 inches. In the current edition, a building that has a fire separation distance of 30 feet would be required to hold the projection back from the lot line by a minimum of 20 feet. We feel that this is over-restrictive. This change puts the requirement back to what was permitted in previous codes and eliminates the anomoly that was present in the 2012 edition.

Cost Impact: Will not increase the cost of construction
This change will most likely reduce the cost of construction by providing clarity to the code.

FS 13-15 : T705.2-THOMAS4448

FS 14-15

Table 705.2

Proponent: Victor Cuevas, representing City of Los Angeles

2015 International Building Code

Revise as follows:

TABLE 705.2
MINIMUM DISTANCE OF PROJECTION

FIRE SEPARATION DISTANCE (FSD)	MINIMUM DISTANCE FROM LINE USED TO DETERMINE FSD
0 feet to 2 feet	Projections not permitted
Greater than 2 feet to 3 feet	24 inches
Greater than 3 feet to less than 30 feet	~~24 inches plus 8 inches for every foot of FSD beyond 3 feet or fraction thereof~~ 2' + 2/3(FSD - 3')
30 feet or greater	20 feet

For SI: 1 foot = 304.8 mm; 1 inch = 25.4 mm.

Reason: Add formula 2' + 2/3(FSF - 3') to replace text "24 inches plus 8 inches for every foot of FSD beyond 3 feet or fraction thereof" to simplify use.

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction. Revisions to Table 705.2 will simplify the existing requirements and will not affect the current costs of construction.

FS 14-15 : T705.2-CUEVAS4802

FS 15-15

705.2.3, 705.2.3.1 (New), 705.2.4 (New), 1406.1, 1406.3, 1406.4

Proponent: Jonathan Siu, representing City of Seattle Department of Planning & Development (jon.siu@seattle.gov)

2015 International Building Code

Revise as follows:

705.2.3 Combustible projections. Combustible projections extending to within 5 feet (1524 mm) of the line used to determine the *fire separation distance* shall be of not less than 1-hour fire-resistance-rated construction, Type IV construction, fire-retardant-treated wood or as ~~required~~ permitted by Section ~~1406.3~~705.2.3.1.

> **Exception:** Type VB construction shall be allowed for combustible projections in Group R-3 and U occupancies with a fire separation distance greater than or equal to 5 feet (1524 mm).

Add new text as follows:

705.2.3.1 Balconies and similar projections. Balconies and similar projections of combustible construction other than fire-retardant-treated wood shall be fire-resistance rated where required by Table 601 for floor construction or shall be of Type IV construction in accordance with Section 602.4. The aggregate length of the projections shall not exceed 50 percent of the building's perimeter on each floor.

Exceptions:

1. On buildings of Type I and II construction, three stories or less above grade plane, fire-retardant-treated wood shall be permitted for balconies, porches, decks and exterior stairways not used as required exits.
2. Untreated wood is permitted for pickets and rails or similar guardrail devices that are limited to 42 inches (1067 mm) in height.
3. Balconies and similar projections on buildings of Type III, IV and V construction shall be permitted to be of Type V construction, and shall not be required to have a fire-resistance rating where sprinkler protection is extended to these areas.
4. Where sprinkler protection is extended to the balcony areas, the aggregate length of the balcony on each floor shall not be limited.

705.2.4 Bay and oriel windows. Bay and oriel windows shall conform to the type of construction required for the building to which they are attached.

Exception: Fire-retardant-treated wood shall be permitted on buildings three stories or less above grade plane of Type I, II, III or IV construction.

Delete without substitution:

~~**1406.1 General.** Section 1406 shall apply to *exterior wall coverings*; balconies and similar projections; and bay and oriel windows constructed of combustible materials.~~

~~**1406.3 Balconies and similar projections.** Balconies and similar projections of combustible construction other than fire-retardant-treated wood shall be fire-resistance rated where required by Table 601 for floor construction or shall be of Type IV construction in accordance with Section 602.4. The aggregate length of the projections shall not exceed 50 percent of the building's perimeter on each floor.~~

~~**Exceptions:**~~

1. ~~On buildings of Type I and II construction, three stories or less above *grade plane*, *fire-retardant-treated wood* shall be permitted for balconies, porches, decks and exterior stairways not used as required exits.~~
2. ~~Untreated wood is permitted for pickets and rails or similar guardrail devices that are limited to 42 inches (1067 mm) in height.~~
3. ~~Balconies and similar projections on buildings of Type III, IV and V construction shall be permitted to be of Type V construction, and shall not be required to have a *fire-resistance rating* where sprinkler protection is extended to these areas.~~
4. ~~Where sprinkler protection is extended to the balcony areas, the aggregate length of the balcony on each floor shall not be limited.~~

~~**1406.4 Bay and oriel windows.** Bay and oriel windows shall conform to the type of construction required for the building to which they are attached.~~

~~**Exception:** *Fire-retardant-treated wood* shall be permitted on buildings three stories or less above grade plane of Type I, II, III or IV construction.~~

Reason: This proposal is editorial in nature, making no technical changes. It simply relocates the provisions that state the protection and type of construction requirements for combustible decks and balconies, and bay and oriel windows from Chapter 14 to Chapter 7. Chapter 14 is mostly about exterior finishes, and these provisions are likely to be missed there. Chapter 7 is a more appropriate location for these provisions, since Section 705.2 already deals with type of construction and fire-resistance rated protection for projections.
Section 1406.1 is deleted since it only contained general charging language, which is not necessary now that only one section remains in Section 1406 (currently 1406.2, to be renumbered to 1406.1).

Cost Impact: Will not increase the cost of construction
Because this is an editorial relocation of existing provisions, there is no change in the regulations and therefore, no change in the cost of construction.

FS 15-15 : 705.2.3-SIU4694

FS 16-15

705.8

Proponent: Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

2015 International Building Code

Revise as follows:

705.8 Openings. Openings in *exterior walls* shall comply with Sections 705.8.1 through 705.8.6. <u>For structures or portions of structures not provided with surrounding exterior walls and with usable area under the horizontal projection of the roof or floor above, exterior wall shall mean the primary structural frame supporting the roof or floor above.</u>

Reason: The proposed code change addresses exterior opening protection for structures and buildings, and portions thereof that do not include surrounding exterior walls.

The IBC does not address the protection of covered exterior portions of a building that cannot be classified as projections and that provide shelter for useable space. The useable space is included in building area and fire area where applicable however the code does not seem to regulate the proximity of the useable space relative to the lot line.

- Projections appear to be elements attached to exterior walls that do not include useable space below.
- Exterior balconies are not defined and appear to be the exception and seem to be regulated similar to eaves and cornices and it is implied that they cantilever from the wall of the building.

Table 601 footnote (f) referenced under primary structural frame requires that the fire resistance of the structural frame to comply with Section 704.10 in addition to Table 601. As a consequence the structural frame on the outside of a building or structure without a surrounding exterior wall is required to comply with Table 602 as if it were a wall. However since the primary structural frame does not comply with the definition for wall it is necessary to modify Section 705.8 to make clear that openings within the primary structural frame are regulated.

Some structures addressed by this code change may include canopies over gasoline pump islands; canopies over play grounds or picnic areas; useable areas under portions of buildings where the upper stories are larger than portions below and closer to a lot line, etc.

Most Building Officials will consider that the face of the building to be the structural frame and would regulate the percentage of exterior openings within, however the IBC as written does not support this interpretation.

Currently as written the IBC implies that if an exterior wall is not provided then the openings on the exterior perimeter are not regulated since they are not openings in an exterior wall. A written interpretation from ICC confirms this.

Cost Impact: Will increase the cost of construction
The proposed code change is necessary for public safety and to provide more consistent application of the exterior wall opening protection requirements. The increased of construction will result is safer communities that are more resilient when faced with natural disasters that interrupt water supplies and power for extended periods of time since it ensures a protected building perimeter that can limit conflagration hazards.

FS 16-15 : 705.8-FATTAH5674

FS 17-15

705.8.1

Proponent: Stephen Thomas, representing Colorado Chapter (sthomas@coloradocode.net)

2015 International Building Code

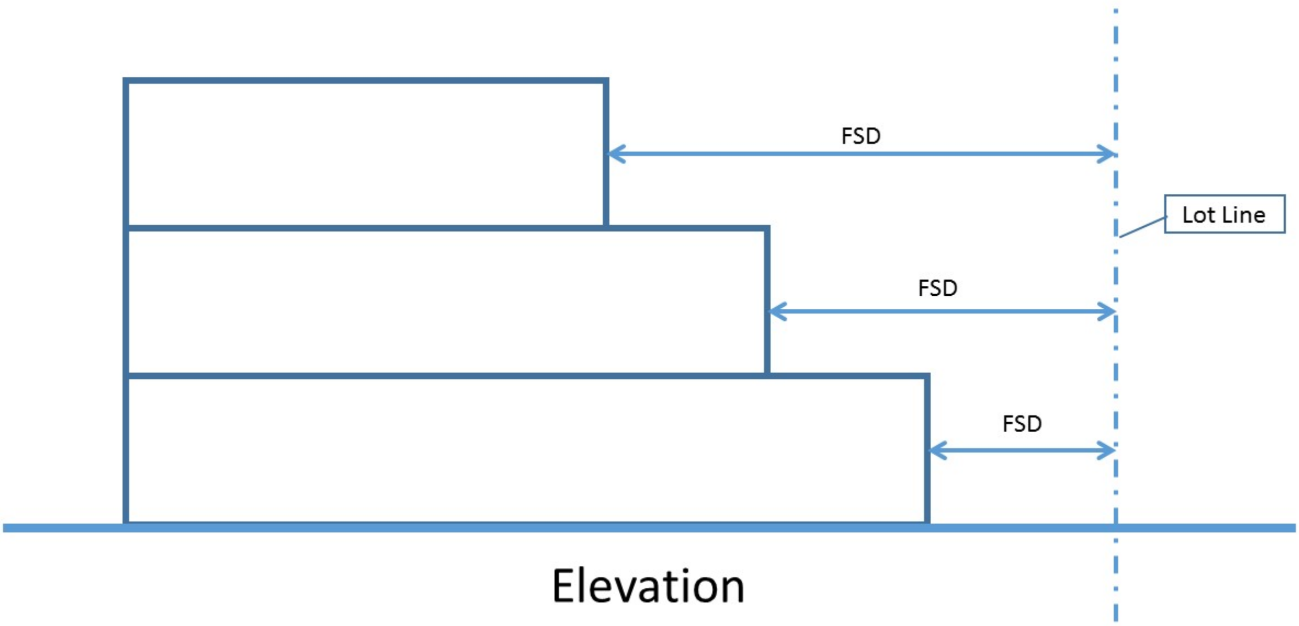
Revise as follows:

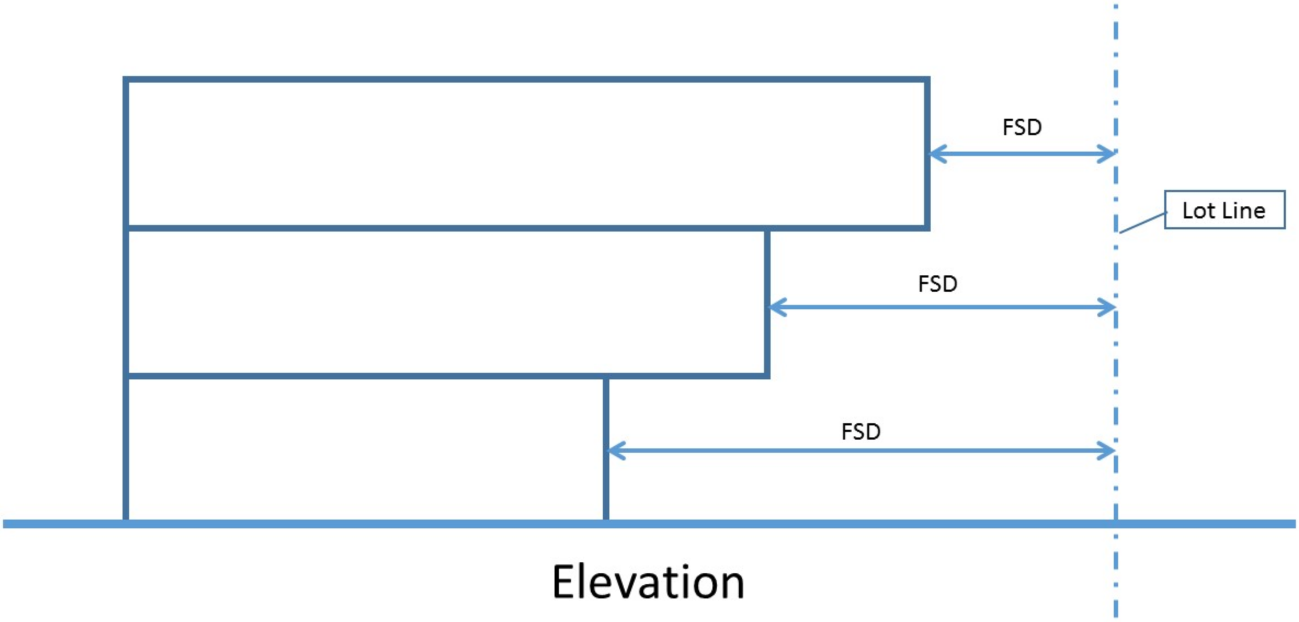
705.8.1 Allowable area of openings. The maximum area of unprotected and protected openings permitted in an *exterior wall* in any *story* of a building shall not exceed the percentages specified in Table 705.8 <u>based on the fire separation distance of each individual story</u>.

Exceptions:

1. In other than Group H occupancies, unlimited unprotected openings are permitted in the first *story* above grade plane either:
   1.1. Where the wall faces a street and has a *fire separation distance* of more than 15 feet (4572 mm); or
   1.2. Where the wall faces an unoccupied space. The unoccupied space shall be on the same lot or dedicated for public use, shall be not less than 30 feet (9144 mm) in width and shall have access from a street by a posted fire lane in accordance with the *International Fire Code*.
2. Buildings whose exterior bearing walls, exterior nonbearing walls and exterior primary structural frame are not required to be fire-resistance rated shall be permitted to have unlimited unprotected openings.

Reason: The intent of this change is to clarify that the limitation of openings in exterior walls is based on the fire separation distance of each individual story. There appears to be confusion on how to evaluate openings in exterior walls when an upper floor extends out over a lower floor. We believe that the opening protection is determined at the exterior wall of the story, not the wall plane of the story above. Just the opposite would be true if the building was a pyramid style building where the upper floors step back from the floor below. The opening protection would depend on the distance to the lot line at each story, not the first story. Please see attached diagrams.





Cost Impact: Will not increase the cost of construction
The change clarifies the intent of the code. There is no affect on the construction cost.

FS 17-15 : 705.8.1-THOMAS4446

FS 18-15

705.8.1

Proponent: Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

2015 International Building Code

Revise as follows:

705.8.1 Allowable area of openings. The maximum area of unprotected and protected openings permitted in an *exterior wall* in any *story* of a building shall not exceed the percentages specified in Table 705.8.

Exceptions:

1. In other than Group H occupancies, unlimited unprotected openings are permitted in the first *story* above grade plane either:
   1.1. Where the wall faces a street and has a *fire separation distance* of more than 15 feet (4572 mm); or
   1.2. Where the wall faces an unoccupied space. The unoccupied space shall be on the same lot or dedicated for public use, shall be not less than 30 feet (9144 mm) in width and shall have access from a street by a posted fire lane in accordance with the *International Fire Code*.
2. Buildings whose exterior bearing walls, exterior nonbearing walls and exterior primary structural frame are not required to be fire-resistance rated shall be permitted to have unlimited unprotected openings.
3. <u>In other than Group R-3 occupancies, or Group R-2 occupancies constructed of Type VB construction, unlimited unprotected openings are permitted for useable areas located under portions of a building above when the roof or floor above is located at a fire separation distance is 10 feet or greater.</u>

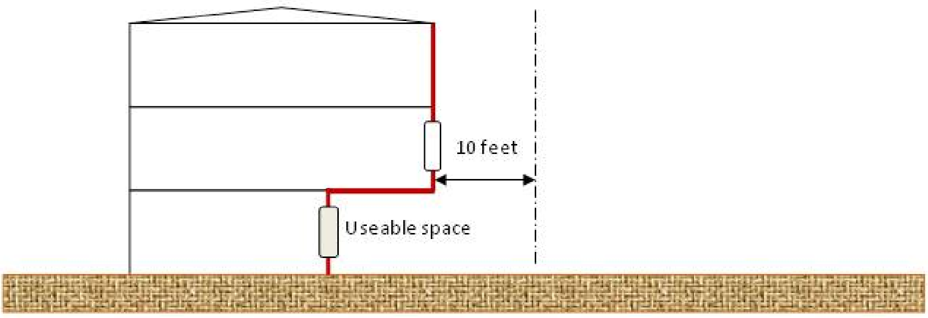
Reason: The IBC does not clearly regulate exterior opening protection when buildings include vertical offsets under which useable space occurs. The useable spaces below pose a hazard to structures and buildings on adjoining properties and no exterior walls exist under the projection of the building above.
Proposed exception # 3 addresses buildings with occupancies other than R-3, and Group R-2 constructed of Type VB construction, since they have been historically separated 5 ft from a lot line. Additionally these buildings will always be protected with sprinklers. The degree of openness provides fire protection benefits and the area will most likely include sprinkler protection unless the space is very tall.

The proposed code change treats outdoor areas under a building, for example outdoor dining in a restaurant part of which is indoors and part of which is under a larger second floor, similarly to parking garages and requires a fire separation distance of 10 ft for openings to not be limited when the structure has no surrounding wall adjacent to a lot line or imaginary line.

The IBC exempts exterior openings on open parking garages, that typically have a very limited or no surrounding exterior walls, from exterior wall opening limits in Table 705.8 when located at a fire separation distance of 10 feet or more.

No size limitation (area, depth) has been added to exempt attached structures with small depths to allow the Building Official flexibility in determining when such structures can be considered as projections if the area below is small enough to not be useable or pose a risk to buildings and structures on adjoining properties.

Most buildings of Type VB and IIB are exempt from exterior opening protection and wall protection when located at a fire separation distance of 10 ft per Table 602 footnote (g) and Section 705.8.1 exception 2. 10 ft appears to be a reasonable fire separation distance to address this issue.



Cost Impact: Will increase the cost of construction
The cost of construction may increase due to the need to enclose the attached structures. Fire resistance of the primary structural frame is required by Section 704.10 so increased fire resistance will not result. The code change will result in more uniform code application.

FS 18-15 : 705.8.1-FATTAH5675

FS 19-15

705.8.2

Proponent: Ronald Geren, RLGA Technical Services, LLC, representing Self (ron@specsandcodes.com)

2015 International Building Code

Revise as follows:

705.8.2 Protected openings. Where openings are required to be protected, *fire doors* and fire shutters shall comply with Section 716.5 and *fire window assemblies* shall comply with Section 716.6.

~~Exception~~Exceptions:

1. Opening protectives are not required where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 and the exterior openings are protected by a water curtain using automatic sprinklers *approved* for that use.
2. Fire-resistance-rated glazing tested as part of a fire-resistance-rated wall in accordance with ASTM E 119 or UL 263 and labeled in accordance with Section 703.6 shall not be required to comply with Section 716.6 and shall not be included in the aggregate area permitted for protected openings.

Reason: Since this section directly references the sections indicated for compliance (i.e. Sections 716.5 aand 716.6), it bypasses the exception to these requirements afforded in Section 716.2. Without a definition in Chapter 2 for what entails an "opening," as written, it can be construed from this section that assemblies tested per ASTM E 119 or UL 263 are considered openings for the purpose of applying the opening requirements to exterior walls. This proposal allows the same assemblies that are exempt from the interior fire window requirements of Section 716.6 to also be exempt from opening requirements for exterior walls.

Cost Impact: Will not increase the cost of construction
This proposal provides an design alternative to the minimum exterior wall opening requirements. The basic requirement is unaltered; thus there is no increase in cost.

FS 19-15 : 705.8.2-GEREN5151

FS 20-15

705.8.5

Proponent: Tony Crimi, representing International Firestop Council (tcrimi@sympatico.ca)

2015 International Building Code

Revise as follows:

705.8.5 Vertical separation of openings. Openings in *exterior walls* in adjacent *stories* shall be separated vertically to protect against fire spread on the exterior of the buildings where the openings are within 5 feet (1524 mm) of each other horizontally and the opening in the lower *story* is not a protected opening with a *fire protection rating* of not less than $^{3}/_{4}$ hour. Such openings shall be separated vertically not less than 3 feet (914 mm) by spandrel girders, *exterior walls* or other similar assemblies that have a *fire-resistance rating* of not less than 1 hour, rated for exposure to fire from both sides, or by flame barriers that extend horizontally not less than 30 inches (762 mm) beyond the *exterior wall*. Flame barriers shall have a *fire-resistance rating* of not less than 1 hour. The unexposed surface temperature limitations specified in ASTM E 119 or UL 263 shall not apply to the flame barriers ~~or vertical separation~~ unless otherwise required by the provisions of this code.

Exceptions:

1. This section shall not apply to buildings that are three *stories* or less above *grade plane*.
2. This section shall not apply to buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
3. Open parking garages.

Reason: The existing provision indicates that openings in exterior walls shall be separated vertically not less than 3 feet (914 mm) by spandrel girders, exterior walls or other similar assemblies that have a fire-resistance rating of not less than 1 hour, rated for exposure to fire from both sides. However, the last sentence of 705.8.5 then waives the unexposed surface temperature limitations specified in ASTM E 119 or UL 263. While this may be reasonable for the flame barriers because they extend horizontally beyond the build face, it is not justified for spandrel panels, exterior walls, or other similar assemblies that are mounted vertically above openings in the fire compartment.That vertical portion of the curtain wall is often immediately adjacent to cumbustible materials such as window coverings, drapes and carpets.

Our understanding of exterior fires and their mechanism of spread in buildings has been researched and reported. Building geometry and exterior projections of the curtain wall or building structural elements can have a beneficial or negative effect on flame length extension and heat flux exposure to curtain wall elements above the fire compartment. Such condition can allow the unrestricted passage of flames and hot gases from a fire on a floor below into the floor above. The position and geometry of the opening relative to the expected flame extension is important in assessing the risk of a leap frog event. The requirement to provide a fire-resistance-rating should not be waived for the vertical separation between openings.

Fire spread in high rise buildings from floor to floor occurs if flames emerge and extend on the façade of the building to cause ignition in the floor above fire floor. Even though considerable effort has been exerted to address this issue, the relevant physics is still under study and has been poorly clarified. Key factors that impact a curtain wall's fire performance are being addressed by the new Draft ASTM Test Method for Determining the Fire Resistance of Building Perimeter Containment Systems Due to External Spread of Fire. Such a test Standard could eventually be useful to provide enhanced protection or evaluate a curtain wall assembly's potential performance when subject to uncontrolled heat/flame exposure.

Cost Impact: Will increase the cost of construction
The current Code text is contradictory. It requires an ASTM E119 or UL 723 fire resistance rating from both sides, but then waives one of the most critical aspects. This proposals creates the intended level of safety. There may be some impact on cost where spandrel panels do not meet the existing ASTM E119 temperature rise conditions. In many cases, where one or more layers of gypsum board is used on the interior surface, there may be no additional cost depending on the type of spandrel construction.

FS 20-15 : 705.8.5-CRIMI4307

FS 21-15

705.8.6

Proponent: Gary Lampella, City of Redmond, Oregon, representing Oregon Building Officials Association (gary.lampella@ci.redmond.or.us)

2015 International Building Code

Revise as follows:

705.8.6 Vertical exposure. For buildings on the same lot, opening protectives having a *fire protection rating* of not less than $^3/_4$ hour shall be provided in every opening that is less than 15 feet (4572 mm) vertically above the roof of an adjacent building or structure based on assuming an imaginary line between them. The opening protectives are required where the *fire separation ~~distance~~distances* between the imaginary line~~ and the adjacent~~ to each building or structure is less than 15 feet (4572 mm).

Exceptions:

1. Opening protectives are not required where the roof assembly of the adjacent building or structure has a *fire-resistance rating* of not less than 1 hour for a minimum distance of 10 feet (3048 mm) from the *exterior wall* facing the imaginary line and the entire length and span of the supporting elements for the fire-resistance-rated roof assembly has a *fire-resistance rating* of not less than 1 hour.
2. Buildings on the same lot and considered as portions of one building in accordance with Section 705.3 are not required to comply with Section 705.8.6.

Reason: This proposal would clear up the confusion and uncertainty of when to apply the provisions of Section 705.8.6. Currently this section only addresses the the fire separation distance of one of the buildings, presumably the lower building. What this proposal will do is make it clear that in order to apply the fire-resistive provisions of this section, both buildings would have to have a fire separation distance of less than 15 feet to the imaginary line. This would also line up with the ICC interpretation that assumes the imaginary line to be equidistant between the two buildings.

Cost Impact: Will not increase the cost of construction
This is just a clarification of how to measure fire separation distance for 2 buildings on the same lot and should have no financial impact

FS 21-15 : 705.8.6-LAMPELLA5416

FS 22-15

705.8.6

Proponent: Gary Lampella, representing Oregon Builing Officials Association (gary.lampella@ci.redmond.or.us)

2015 International Building Code

Delete without substitution:

~~**705.8.6 Vertical exposure.** For buildings on the same lot, opening protectives having a *fire protection rating* of not less than $^3/_4$ hour shall be provided in every opening that is less than 15 feet (4572 mm) vertically above the roof of an adjacent building or structure based on assuming an imaginary line between them. The opening protectives are required where the *fire separation distance* between the imaginary line and the adjacent building or structure is less than 15 feet (4572 mm).~~

~~**Exceptions:**~~

1. ~~Opening protectives are not required where the roof assembly of the adjacent building or structure has a *fire-resistance rating* of not less than 1 hour for a minimum distance of 10 feet (3048 mm) from the *exterior wall* facing the imaginary line and the entire length and span of the supporting elements for the fire-resistance-rated roof assembly has a *fire-resistance rating* of not less than 1 hour.~~
2. ~~Buildings on the same lot and considered as portions of one building in accordance with Section 705.3 are not required to comply with Section 705.8.6.~~

Reason: When applying this section to buildings on the same lot with an imaginary line designed to determine fire separation distance, it adds additional requirements that are not required in an identical situation with a real property line between buildings and with the same identical physical arrangement. It makes absolutely no sense to apply different and more stringent requirements to two identical scenarios.

Both scenarios, an imaginary line and a real property line, have identical requirements of Table 602 for fire resistance based on fire separation distance, Table 705.2 for projections, Section 705.5 for exterior walls based on fire separation distance, Section 705.8 for exterior wall openings, Section 705.8.4 for mixed openings and Table 705.8 for exterior wall openings based on fire separation distance. Then we arrive at Section 705.8.6, for vertical exposure. This is the section that creates the conflict between imaginary lines and real property lines.

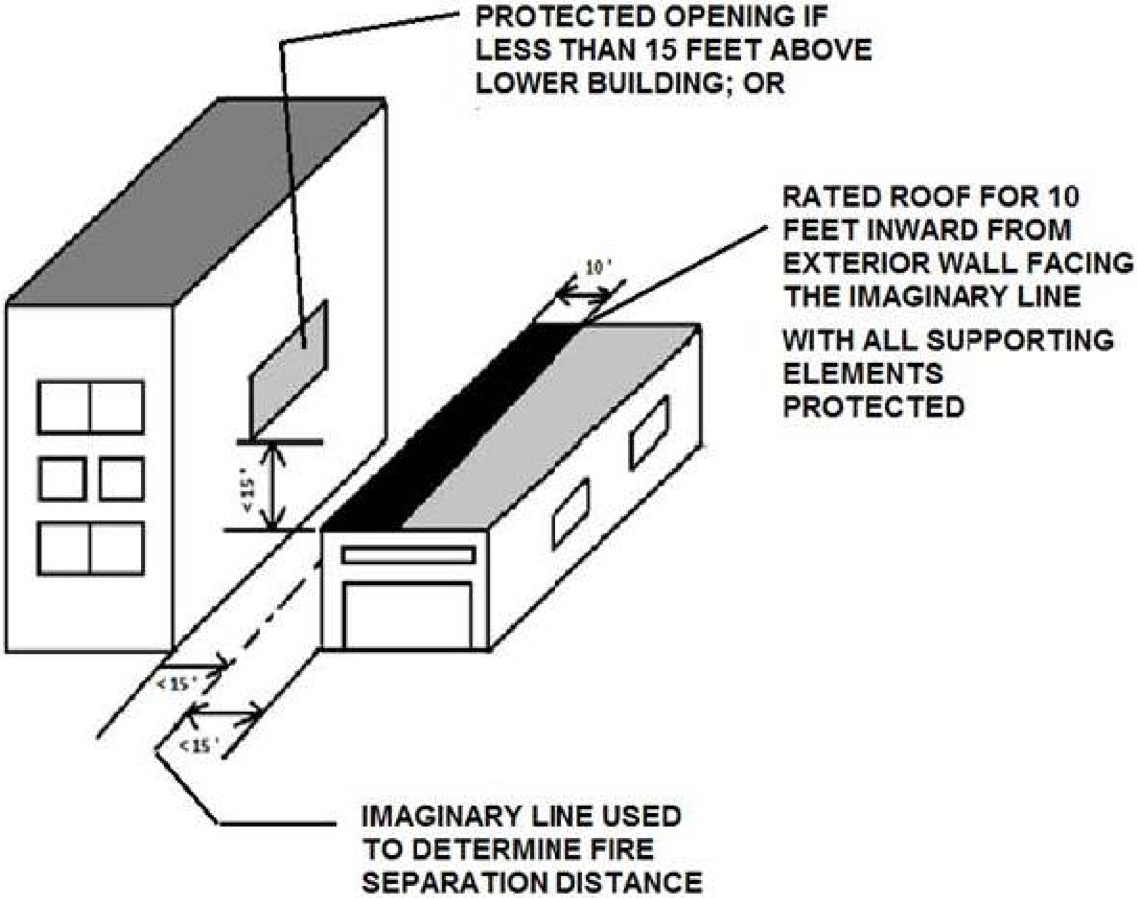


FIGURE 1

Section 705.8.6 currently requires either opening protectives or a rated roof only when you have two buildings on the same lot with an imaginary line between them. This is based on the ICC interpretation of this provision in the 2012 IBC.

Two additional and very substantial requirements are placed on two buildings on the same lot with an imaginary line to determine fire separation distance that are not applied to identical physical arrangements with real property lines. The code as written only addresses the fire separation distance of the lower building and has no verbiage for the building with the openings. Although there is an ICC interpretation propriate for both fire-resistance-rated and nonfire-resistance-rated walls.

705.8.6 Vertical exposure. For buildings on the same lot, opening protectives having a *fire protection rating* of not less than 3/4 hour shall be provided in every opening that is less than 15 feet (4572 mm) vertically above the roof of an adjacent building or structure based on assuming an imaginary line between them. The opening protectives are required where the *fire separation distance* between the imaginary line and the adjacent building or structure is less than 15 feet (4572 mm).

Exceptions:

1. Opening protectives are not required where the roof assembly of the adjacent building or structure has a *fire-resistance rating* of not less than 1 hour for a minimum distance of 10 feet (3048 mm) from the *exterior wall* facing the imaginary line and the entire length and span of the supporting elements for the fire-resistance-rated roof assembly has a *fire-resistance rating* of not less than 1 hour.
2. Buildings on the same lot and considered as portions of one building in accordance with Section 705.3 are not required to comply with Section 705.8.6.

Q: A covered mall building constructed in accordance with Section 402 is attached to a multistory anchor store. Is it the intent of Section 705.8.6 to require exterior opening protectives for the windows in the anchor store that are adjacent to and located above the roof of the covered mall building?

A: No. Although the anchor store is not considered part of the covered mall building, it is the intent of Section 402.4.2.2.1 to permit unprotected openings between the anchor store and the pedestrian area of the mall. It would be inconsistent to allow unprotected openings between the mall area and the anchor store and, at the same time, require exterior opening protectives in windows located in the anchor store above the roof of the covered mall building.

Q: Where Table 705.8 prohibits any openings in an exterior wall due to fire separation distance, is it the intent of Section 705.8.6 to permit openings in the exterior wall that is located above the roof of an adjacent building?

A: No. Section 705.8 regulates the maximum area of openings (protected and unprotected) in exterior walls. These limitations are applicable to each and every story of all exterior walls. The conditions addressed in Section 705.8.6 are also subject to the requirements of Section 705.8. Thus, the exterior wall of a building is required to comply with Section 705.8 for determining the maximum amount of openings permitted whether or not there is an adjoining building or adjacent structure with a lower roof height. Note b to Table 705.8 provides the cross-reference to Section 706.6.1 for exterior opening requirements above fire walls.

Q: When evaluating the opening protective requirements of Section 705.8.6, must the fire separation distances of both buildings be considered?

A: Yes. The hazard addressed in Section 705.8.6 is due to the fire exposure from an adjacent lower roof which is in close proximity to the exterior wall of the higher building. The requirements of this section are based on a 15-foot fire separation distance as defined in Section 702, whereas the requirements of previous editions of model codes were based on a 30-foot horizontal distance between adjacent buildings. The current requirements presume that the imaginary line or lot line is drawn equidistant between two adjacent buildings located no more than 30 feet apart.

The provisions of Section 705.8.6 are intended to be applied where the adjacent exterior walls of both buildings are required by Table 602 to be fire-resistance rated. This typically occurs where both buildings have a fire separation distance of 15 feet or less. The hazard addressed in Section 705.8.6 does not exist where one building is located at a fire separation distance of 15 feet or less and the adjoining building or adjacent structure is located at a fire separation distance of greater than 15 feet.

SECTION 706 FIRE WALLS

706.2 Structural stability. Fire walls shall have sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall for the duration of time indicated by the required *fire-resistance rating* or shall be constructed as double fire walls in accordance with NFPA 221.

Q: Are building elements, such as plumbing piping, HVAC ducts and fire sprinkler piping, that are permitted to penetrate a fire wall required to be designed for compliance with the provisions of Section 706.2 for structural stability?

A: Yes. A fire wall must remain wholly intact for the time duration specified. Building elements that are permitted to penetrate a fire wall must be designed and installed such that failure of any building element on either side of a fire wall will not cause premature failure of the fire wall, neither in its entirety or in part.

Q: Can a fire-resistance-rated floor/ceiling assembly be classified as a horizontal fire wall for the purpose of subdividing a multistory structure into separate buildings?

EXIBIT 1

The ICC interpretation determined that both buildings had to have a fire separation distance that required both buildings to have fire resistive walls due to fire separation distance. Although a published interpretation, the code still does not say that. It only addresses the fire separation of the lower building.

that "the current requirements presume that the imaginary line is equidistant between the two buildings" the code does not say that. It only refers to the adjacent (shorter building) having a fire separation distance if less then 15 feet. It also says "the provsisions of Section 705.8.6 are intended to be applied where the adjacent exterior walls of both buildings are required by Table 602 to be fire-resistive rated." Again, the code does not say that it only applies if the lower building has a fire separation distance of less than 15 feet. One could have an existing building that had up to 75% of openings in the exterior wall,

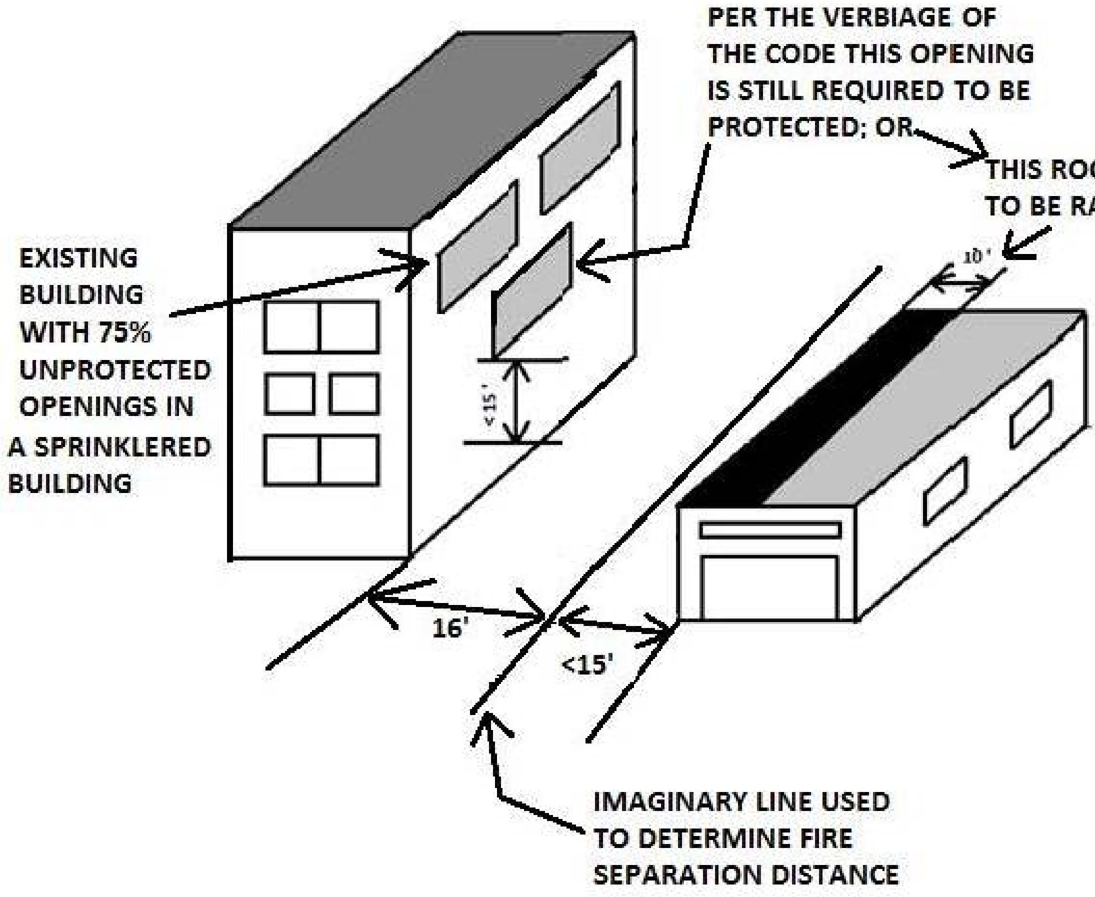


FIGURE 2

This imaginary line is placed such that the existing building can still have the 75% unprotected openings and not have to replace any glazing. Fifteen to less than 20 feet allows 75% of unprotected openings in a sprinklered building per Table 705.8.

The way the code reads in the last sentence of 705.8.6 only the shorter building has to have less than 15 feet to the imaginary line. So there is no code verbiage that regulates the fire separation distance of the taller building with the openings. Thus, the openings within 15 feet of the lower roof would still have to be protected although the building with the opening has a fire separation distance of more than 15 feet.

and another building was proposed to be constructed on the same lot 30 feet from it, one could place the imaginary line so the proposed building had a 14 foot fire separation distance and the taller one with the openings had a 16 foot fire sepration distance the openings could reamain unprotected in a non sprinklered building. But because of the code language, any opening that was less than 15 feet vertically above the adjacent roof would still be required to be protected because of the provision of measuring the fire separation distance for the lower building. Infact, you could have a much larger fire separation distance for the taller building but if the lower one was less than 15 feeet, you would still have to protect to openings within the 15 foot range due to the absence of any fire separation distance for the building with the openings. Replacing the imaginary line with an actual property line,

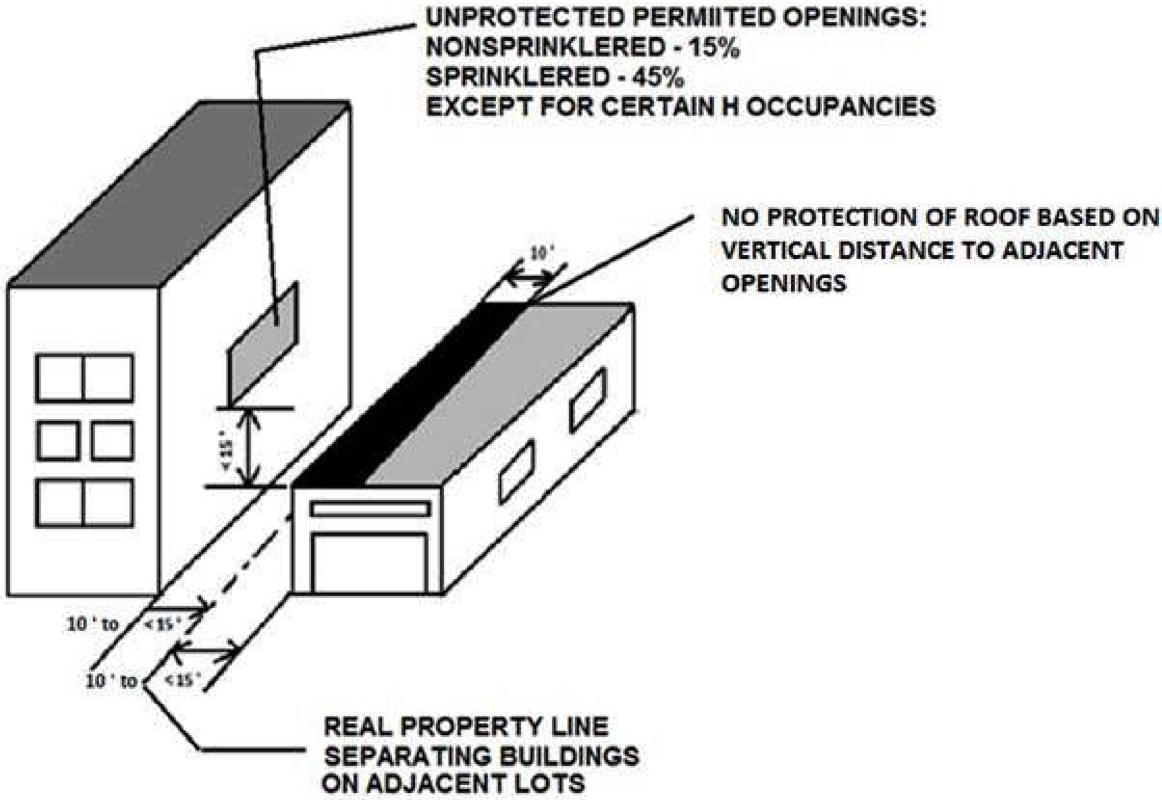


FIGURE 3

Now applying the same exact scenario to buildings with a real property line and you get virtually no requirements from Section 705.8.6 that are applicable to two buildings on the same lot with an imaginary line. You now can have a number of openings within the 15 foot vertical measurement without having to protect them or protecting the roof.

This is utilizing the 10 feet to < 15 feet in Table 705.8 as illustrating the difference in requirements between imaginary lnes and real property lines.

the buildings are now not subjected to the requirements of 705.8.6. With the two buildings with a real property line scenario you could have up to 15% of unprotected openings in a non sprinklered building and up to 45% in a sprinklered building without having to rate any of the openings in relation to the height above an adjacent roof. Furthermore, two adjacent building, each with a 5 to less than 10 foot fire separation distance to a real property line configured exactly like Figures 1 and 3 could have a wall with 10% unprotected openings without sprinklers and 25% unprotected openings when provided with sprinklers. We cannot find a similar provisions such as this anywhere in the code that regulates this type of arrangement. It is only applied when you have two buildings on the same lot with an imaginary line.

Statements from the Fire Safety committee in previous code hearings on this section were that you couldn't compare the two scenarios simply because with a property line you would have different owners and the buildings would not be constructed at the same time and how could you make two owners agree on which one does what, or how could you make an owner of an existing building retroactively modify a once code conforming building? I contend that you can relate them quite simply. If an existing building has less than a 15 foot fire separation distance to a property line, and another building is proposed on an adjacent lot with less than a 15 foot fire separation distance to the same property line, and there were one or more openings in one of the buildings that were less than 15 feet above the roof of the other building then Section 705.8.6 could be theoretically applied. The newer proposed building would have to have either a fire-rated roof or protected openings dependent upon whether it was the higher building or the lower building.

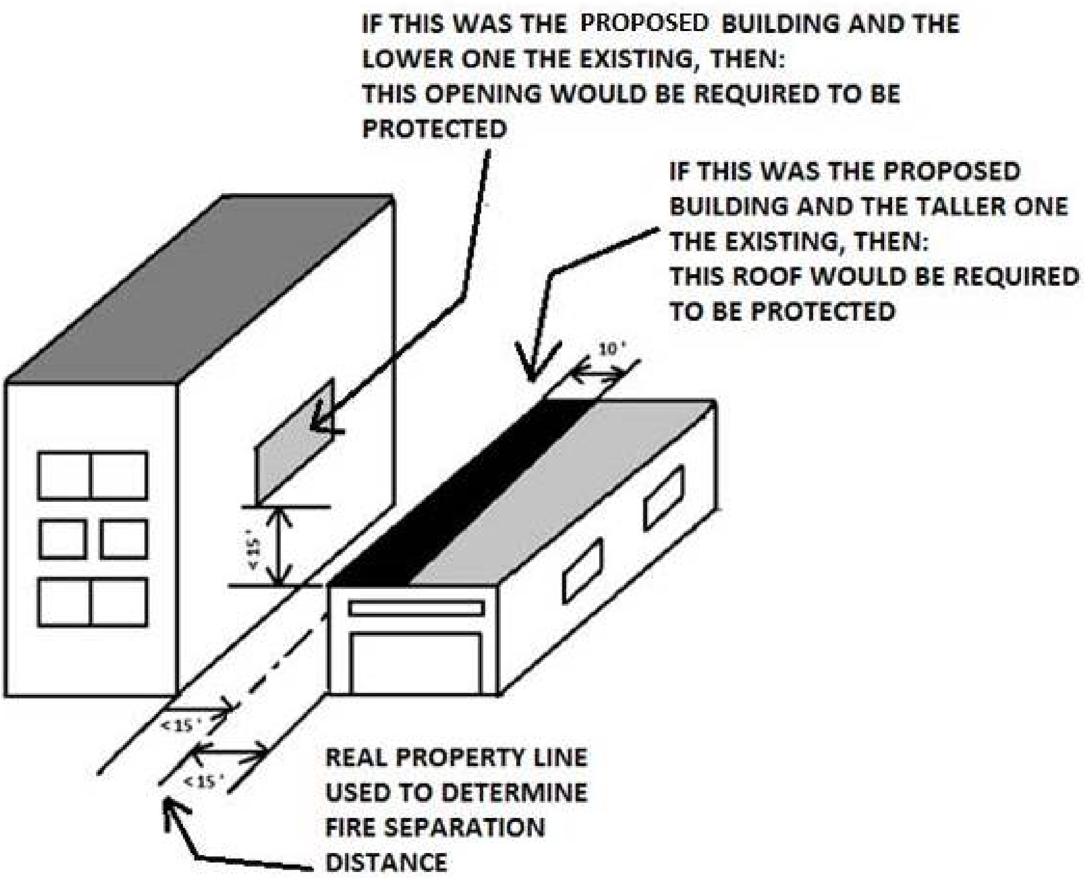


FIGURE 4

If a building was proposed to be constructed adjacent to another building on an adjacent lot, and the configuration of the two building met the provisions of Section 705.8.6, then you would apply the appropriate provision to the proposed building.

This puts no financial burden or threat of upgrading the existing building on the owner of that building. The newer building owner would be responsible to comply with 705.8.6. Of course this is merely conjecture and the code does not currently require that. But it is the exact same configuration and scenario Section 705.8.6 is addressing and is simply a way to show that you can compare the two scenarios – one with an imaginary line and one with a real property line.

So after analysis of situations with imaginary lines and real property lines, we can only presume that an imaginary line drastically changes physics and fire science to a degree that causes fire and smoke to behave very badly and function outside the realm of science – creating a hazard more severe than normal hazards associated with other structures located 30 feet from each other with a real property line between them.

Or maybe the surveying and platting of a legal and real property line also causes fire and smoke to work outside the physical realm of science and physics much like a black hole. Sucking oxygen, friction and fuel out of this magical 30 foot strip of soil and air, eradicating every known hazard and sending it millions of light years away for some unsuspecting unknown life form in a distance galaxy to deal with this very unpleasant array of toxic and harmful conditions created by an imaginary line.

It defies logic that fire and smoke would react differently with identical building locations, building shapes, and roof and opening locations due to having and imaginary line or a real property line. So why do we have different requirements for each?

If we want predictive and consistent codes, than this code section needs to be eliminated.

Cost Impact: Will not increase the cost of construction
This will not incerase to cost if approved. It is a deletion of a section that will no longer require fire-resistive assemblies.

FS 22-15 : 705.8.6-LAMPELLA3376

FS 23-15

705.8.6.1 (New)

Proponent: Gary Lampella, City of Redmond, Oregon, representing Oregon Building Officials Association (gary.lampella@ci.redmond.or.us)

2015 International Building Code

Add new text as follows:

705.8.6.1 Vertical exposure for buildings on adjacent lots Where a building is proposed adjacent to an existing building on an adjacent lot and the resulting fire separation distance for both buildings is less than 15 feet (4572 mm), and one of the buildings has openings less than 15 feet (4572 mm) above the roof of the adjacent building, one of the following provisions shall apply.

1. If the proposed building has openings less than 15 feet (4572 mm) vertically above the roof of the existing adjacent building, opening protectives having a fire protection rating of not less than 3/4 hour shall be provided for those openings; or

2. If the existing building has openings less than 15 feet vertically above the roof of the proposed adjacent building, the proposed building shall be provided with a roof assembly having a fire-resistive rating of not less than 1 hour for a distance of 10 feet (3048 mm) from the exterior face of the wall facing the property line and the entire length and span of the supporting elements for the fire-resistive-rated roof assembly shall have a fire-resistive-rating of not less than 1 hour.

Reason: The purpose of this proposal is to eliminate a conflict and align it with Section 705.8.6. Having a requirement for roof and opening protection for two buildings on the same lot with an imaginary line between them and ignoring the same exact scenario for two building on seprate lots is not logical. We can only assume that placing an imaginary line between two buildings on the same lot creates a more severe hazard than two buildings on separate lots separated by a real property line but with identical configurations. This seems to us that smoke and fire behave differently with an imaginary line than it does with a real property line. Either the imaginary line defies normal physics, fire science and behaves badly because of the imaginary line, or maybe a real property line contains some magical characteristic that removes all potential hazards and negates the need for fire-resistve protection that is required with an imaginary line. Fire and smoke behave the same between two buildings regardless if they have a real or imaginary line between them. It only changes by outside agencies such as wind, additional accelerants or by human intervension - which can happen with any building configuration. Having code provisions to control vertical fire spread for only buildings on the same lot with a fire separations distance of less than 15 feet for each building and ignoring the same exact scenario with a real property line perplexes us.
I have submiitted different variations of this proposal before the Fire Safety Committee numerous times without sucess. Feedback from this committee in previous code cycles on this section were that you couldn't compare the two scenarios simply because with a property line you would most likely have separate owners and the buildings would not be constructed at the same time, how could you make separate owners agree on which one does what, or how could you make an owner of an existing building retroactively modify a once code conforming building? I think we have addressed those concerns with this new section to clearly define the proposed building owner as the responsible party. This would be consistent with opening protection due to fire separation distance measured to a property line. If the fire separation distance of the two buildings results in both buildings having a fire separation distance of less the 15 feet by placement of the new building, and the proposed building meets either of the two provisions, openings in the wall facing the property line less than 15 feet above the existing building on the adjacent lot, or the roof of the proposed building is at an elevation that reults in existing openings in the existing building being less than 15 feet above the new roof, only the proposed building would be subject to the fire-resistive requirements. The existing building would not be required to be retrofitted or upgraded in any manner and could remain as is. See Figure 1.

If our goal is to have predictable and consistent codes that don't conflict, then this code proposal is needed and necessary to meet that goal.

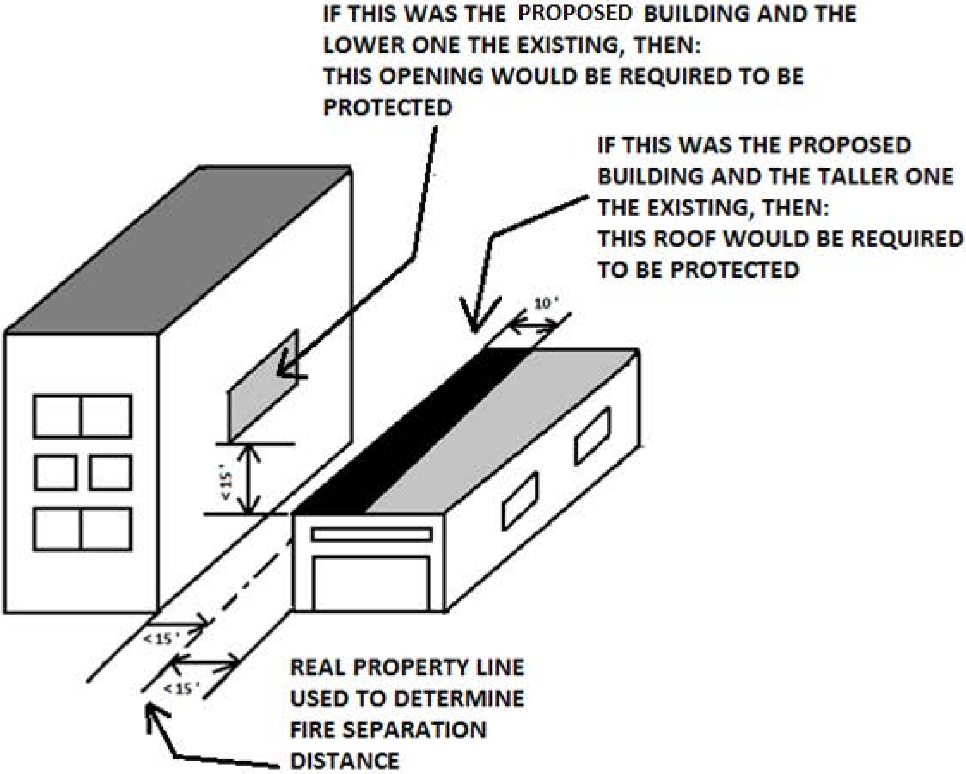


FIGURE 1

When the taller building is the proposed structure and the shorter the existing one, the opening depicted in the drawing would be required to have a fire-protection-rating of not less than ¾ hour. The existing lower building would require no fire-resistive construction for the roof.

When the shorter building is the proposed and the taller the existing building, then the roof would be required to be fire-resistive rated for 10 feet inward from the exterior wall and all supporting members rated. The taller existing building would be permitted to have unprotected openings.

Cost Impact: Will increase the cost of construction

The cost of costruction will increase only for projects that opt to construct buildings closer than 15 feet to a property line with another building on the adjacent lot also less than 15 feet from the propety line. We don't belive that this is common pratice so the cost in overall construction should be minimal

FS 23-15 : 705.8.6.1 (New)-LAMPELLA3558

FS 24-15

705.9 (New), 714.3, 1403.4

Proponent: Lee Kranz, City of Bellevue, WA, representing Lee Kranz

2015 International Building Code

Add new text as follows:

<u>**705.9** **Penetrations** Penetrations into or through fire-resistance rated *exterior walls* shall comply with Sections 714.3.1 through 714.3.3.</u>

Revise as follows:

714.3 Fire-resistance-rated walls. Penetrations into or through *fire walls*, *fire barriers*, *smoke barrier* walls ~~and~~<u>,</u> *fire partitions* <u>and fire-resistance rated *exterior walls*</u>shall comply with Sections 714.3.1 through 714.3.3. Penetrations in *smoke barrier* walls shall also comply with Section 714.4.4.

1403.4 Fire resistance. *Exterior walls* shall be fire-resistance rated as required by other sections of this code with opening protection <u>and penetration protection</u> as required by Chapter 7.

Reason: Section 714.3 conspicuously does not include fire-resistance rated exterior walls in the list of assemblies required to have protected penetrations. Listed fire-resistance rated exterior wall assemblies are not typically tested with unprotected penetrations and therefor do not address the multitude of possibilities for membrane and through-penetrations made at the job site. If approved this code change will require all fire-resistance rated exterior walls to have penetrations protected in accordance with Sections 714.3.1 through 714.3.3. This is consistent with the intent of the listed assembly requirements and maintains the type of construction fire-resistance rating requirements of Tables 601, 602 and other provisions requiring exterior walls to be of fire-resistance rated construction.

Cost Impact: Will increase the cost of construction
The cost will go up because more fire-resistance rated exterior wall penetrations will be protected from the effects of fire.

FS 24-15 : 705.9 (New)-KRANZ5084

FS 25-15

705.11

Proponent: Joseph Holland, representing Hoover Treated Wood Products (jholland@frtw.com)

2015 International Building Code

Revise as follows:

705.11 Parapets. Parapets shall be provided on *exterior walls* of buildings.

Exceptions: A parapet need not be provided on an *exterior wall* where any of the following conditions exist:

1. The wall is not required to be fire-resistance rated in accordance with Table 602 because of *fire separation distance*.
2. The building has an area of not more than 1,000 square feet (93 m^2) on any floor.
3. Walls that terminate at roofs of not less than 2-hour fire-resistance-rated construction or where the roof, including the deck or slab and supporting construction, is constructed entirely of noncombustible materials.
4. One-hour fire-resistance-rated *exterior walls* that terminate at the underside of the roof sheathing, deck or slab, provided:
    - 4.1. Where the roof/ceiling framing elements are parallel to the walls, such framing and elements supporting such framing shall not be of less than 1-hour fire-resistance-rated construction for a width of 4 feet (1220 mm) for Groups R and U and 10 feet (3048 mm) for other occupancies, measured from the interior side of the wall.
    - 4.2. Where roof/ceiling framing elements are not parallel to the wall, the entire span of such framing and elements supporting such framing shall not be of less than 1-hour fire-resistance-rated construction.
    - 4.3. Openings in the roof shall not be located within 5 feet (1524 mm) of the 1-hour fire-resistance-rated *exterior wall* for Groups R and U and 10 feet (3048 mm) for other occupancies, measured from the interior side of the wall.
    - 4.4. The entire building shall be provided with not less than a Class B roof covering.
5. ~~In Groups R-2 and R-3 where~~Where the entire building is provided with a Class ~~C~~ B roof covering, the *exterior wall* shall be permitted to terminate at the underside of the roof sheathing or deck in Type III, IV and V construction, provided one or both of the following criteria is met:

    Exception: Group R-2 and R-3 shall be permitted a Class C roof covering.

    - 5.1. The roof sheathing or deck is constructed of *approved* noncombustible materials or of *fire-retardant-treated wood* for a distance of 4 feet (1220 mm).
    - 5.2. The roof is protected with 0.625-inch (16 mm) Type X gypsum board directly beneath the underside of the roof sheathing or deck, supported by not less than nominal 2-inch (51 mm) ledgers attached to the sides of the roof framing members for a minimum distance of 4 feet (1220 mm).
6. Where the wall is permitted to have not less than 25 percent of the *exterior wall* areas containing unprotected openings based on *fire separation distance* as determined in accordance with Section 705.8.

Reason: The provision in Section 5.1 and 5.2 have for many years demonstrated they work as well as a parapet for residential construction. Change will allow the provision in other occupancies when the roof covering classification is a least a Class B. The R-2 and R-3 occupancies would still be permitted a Class C roof covering.

Cost Impact: Will not increase the cost of construction
Could save construction costs.Parapets require additional attention during construction. Parapets require additional attention during construction. They are an extension above the roof. Using FRTW for the sheathing in lieu of untreated wood and eliminating the labor and materials for the parapet will reduce construction costs.

FS 25-15 : 705.11-HOLLAND4428

FS 26-15

705.11.1

Proponent: Galen Taylor, County of Los Angeles Fire Department, representing self (galentaylor@me.com); Adria Reinertson, Riverside County Fire Department, representing California Fire Chiefs Association (adriar@moval.org)

2015 International Building Code

Revise as follows:

705.11.1 Parapet construction. Parapets shall have the same *fire-resistance rating* as that required for the supporting wall, and on any side adjacent to a roof surface, shall have noncombustible faces for the uppermost 18 inches (457 mm), including counterflashing and coping materials. The height of the parapet shall be not less than 30 inches (762 mm) and not more than 48 inches (1219 mm) above the point where the roof surface and the wall intersect. Where the roof slopes toward a parapet at a slope greater than two units vertical in 12 units horizontal (16.7-percent slope), the parapet shall extend to the same height as any portion of the roof within a *fire separation distance* where protection of wall openings is required, ~~but~~ in no case shall the height of the parapet be less than 30 inches (762 mm).

Exception: Parapets shall not be limited to 48 inches (1219 mm) in height where approved by the fire ode official.

Reason: Firefighting operations typically require accessing the roof, from the exterior, to perform critical ventilation operations. Firefighters performing such operations may also need to rapidly retreat from their roof-top positions. Excessively high parapets present an immovable obstacle to firefighters when sudden changes in roof-top firefighting operations require an immediate evacuation. Excessively high parapets also prevent firefighters from shouting or signally for help should their hand-held radio stop working.

This proponent has seen building projects involving parapets up to nine feet high on all four sides. Planning Departments also are prone to imposing view-screen requirements at the edge of building roofs which present an equivalent barrier to roof-top access and egress. With the advent of roof-top gardens, the use of parapets as a screening tool will likely increase. However, since the building code is silent regarding maximum parapet heights, jurisdictional authorities are hard pressed to impose a maximum height limit. This proposal would impose a limit on parapets heights while still allowing a reasonable degree of flexability on a case by case basis.

Cost Impact: Will not increase the cost of construction

Since no additional construction materials are involved in limiting maximum parapet height there should be no additional costs imposed by this code amendment.

FS 26-15 : 705.11.1-TAYLOR5108

FS 27-15

706.1.1.1 (New)

Proponent: Adolf Zubia, representing Fire Code Action Committee (fcac@iccsafe.org)

2015 International Building Code

Add new text as follows:

706.1.1.1 Fire walls not required Fire walls are not required on lot lines dividing a building for ownership purposes where the aggregate height and area of the portions of the building located on both sides of the lot line do not exceed the maximum height and area requirements of this code. The code official shall be provided with copies of dedicated access easements and contractual agreements that permit the owner of the portion of the building located on either side of the lot line access to the other side for purposes of maintaining fire and life safety systems necessary for the operation of the building.

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 10 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at:
http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc
Currently the only requirement for constructing a fire wall within the IBC is when a building exceeds the maximum height and area requirements of the code. This is reflected in Section 503.1 of the IBC and the user is pointed to Section 706 for the technical requirements applying to fire walls. At Section 706.1.1 the language states that if a wall is constructed on a lot line with the wall intended for use between two buildings it must be constructed as a fire wall. Two key issues are that the construction of a party wall is not mandated based upon the existence of a lot line; and, often a wall is built adjacent to a lot line, not on it, making this section moot in most cases.

This proposal is intended to recognize that it is increasingly common to have property subdivided with a lot line dividing a building for ownership purposes. this issue is addressed in Chapter 4 for malls where anchor stores have lot lines specific to the anchor store established for financial purposes along the wall that separates the mall from the anchor store. But this issue is not addressed for other types of buildings and as a result, designers, building owners and code officials are left to wrestle with the issue on a case by case basis.

The proposed language specifies that where a property line divides a building for ownership purposes, and the building portions on both sides of the line do not exceed the maximum height and area requirements of the code, a fire wall is not required to be constructed on the property line. This allowance is only permitted where copies of dedicated access easements and contractual agreements allowing for maintenance of required fire and life safety systems that straddle the separation wall be provided to the code official. This new section is intended to provide guidance to ensure consistency in application of the code to buildings divided by ownership lot lines.

Cost Impact: Will not increase the cost of construction
There will be a decrease in cost by providing for a systematic method of handling buildings that have a lot line bisecting them for ownership purposes, eliminating unnecessary alternative method applications, appeal processes and/or construction of walls not necessary for fire or life safety.

FS 27-15 : 706.1.1.1 (New)-ZUBIA4764

FS 28-15

706.2

Proponent: Edwin Huston, representing NCSEA Code Advisory Committee (huston@smithhustoninc.com)

2015 International Building Code

Revise as follows:

706.2 Structural stability. Fire walls shall be designed and constructed to allow collapse of the structure on either side without collapse of the wall under fire conditions. Fire walls designed and constructed in accordance with NFPA 221 shall be deemed to comply with this section.

> **Exception:** Modify NFPA 221, Section 4.2 to read as follows:
>
> 4.2 Design Loads. All walls and their support shall be designed for loads in accordance with IBC Chapter 16, and to withstand a minimum uniform load, Ak, of 8 lbs/ft2 (0.38 kPa) from either direction applied perpendicular to the face of the wall utilizing the load combinations for extraordinary events ASCE 7, Section 2.5.

Reason: The loading requirements for firewalls in NFPA 221 – 15 are based on Allowable Stress Design level loads. They need to be revised to coordinate with the current strength level loading of ASCE 7 and to clarify how to combine them with other loads. The 8 psf is the existing 5 psf load from 1607.14 multiplied by a load factor of 1.6 to increase it to a Strength Design load in accordance with ASCE 7 Section 2.5.

Cost Impact: Will not increase the cost of construction
This change clarifies the design loads for structural stability of the fire wall and does not add new requirements which would increase the cost of construction.

FS 28-15 : 706.2-HUSTON5246

FS 29-15

706.2

Proponent: Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com)

2015 International Building Code

Revise as follows:

706.2 Structural stability. Fire walls shall be designed and constructed to allow collapse of the structure on either side without collapse of the wall under fire conditions. Fire walls designed and constructed in accordance with NFPA 221 shall be deemed to comply with this section.

> **Exception:** Where double fire walls are used in accordance with NFPA 221, floor and roof sheathing not exceeding 3/4 inch (19.05 mm) thickness shall be permitted to be continuous through the wall assemblies of light frame construction.

Reason: There is widely accepted interpretation by many building departments and structural engineers that the roof and floor diaphragms must be continuous to properly perform its function. The sheathing which comprises these diaphragms in light frame construction is generally wood structural panels between 7/16 inches to 23/32 inches thickness. These panels represent a very small risk of causing failure of the wall on the unaffected side of a double fire wall assembly. The benefit of performing the seismic function as a diaphragm is generally regarded as well worth any very small risk caused by fire exposure from one side of a double fire wall.
The following link is to a Structural Engineers of Southern California recommendation to carry the floor sheathing through these fire walls.

http://www.icclabc.org/uploads/Opinion_from_SEAOSC_on_Firewall_Final.pdf

Cost Impact: Will not increase the cost of construction
This code change does not create a new requirement. It allows an additional option for compliance that is not required.

FS 29-15 : 706.2-MAIEL5795

FS 30-15

706.3

Proponent: Sam Francis, American Wood Council, representing American Wood Council (sfrancis@awc.org)

2015 International Building Code

Revise as follows:

706.3 Materials. *Fire walls* shall be constructed of any of the following materials*:*

1. Fire walls in buildings of Type I or Type II construction shall be of any approved noncombustible materials.

   ~~**Exception:** Buildings~~

2. Fire walls in buildings of Type III or Type IV construction shall be of any approved noncombustible materials or of cross-laminated timber protected by a layer of 5/8 inch Type X gypsum wallboard
3. Fire walls in buildings of Type V construction shall be of any approved material.

Reason: This proposal would permit cross-laminated timber fire walls to be used in Types III and IV construction in lieu of noncombustible materials. CLT is a prefabricated engineered wood product consisting of not less than three layers of solid-sawn lumber or structural composite lumber where the adjacent layers are cross oriented and bonded with structural adhesive toform a solid wood element. These solid wood elements can easily achieve a high fire resistance rating and have inherent structural advantages in fire conditions, when protected and rated appropriately. CLT has been shown by fire testing to perform well and will offer flexibility and practicality of design.

Cost Impact: Will not increase the cost of construction
there would be a decrease in construction costs with this proposal. Fire Walls could be constructed of the same material as the exterior walls utilizing methods and materials less expensive than noncombustible walls and with savings on labor as well. Fire tests conducted on this material has shown it to perform very well under fire conditions.

FS 30-15 : 706.3-FRANCIS5269

FS 31-15

706.3

Proponent: Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com)

2015 International Building Code

Revise as follows:

706.3 Materials. *Fire walls* shall be of any *approved* noncombustible materials.

~~Exception~~Exceptions:

1. Buildings of Type V construction.
2. Two 2-hour fire walls of wood or steel light frame construction, with structural wood panel sheathing, shall be permitted to be substituted for a 3-hour non-combustible fire wall in building of Type III construction.

Reason: Substituting two 2-hour light frame walls for a single required 3-hour wall provides flexibilty in design and construction while improving fire resistance, which outweighs material considerations. Some current fire walls designs in Type III construction call for the construction of three separate walls in order to accomplish the required rating with a noncombustible assembly in the center and a light frame assembly on each side with plywood sheathing providing vertical support and serving as a shear wall for the building on each side of the fire wall. Each of these walls could be utilized as a 2-hour fire wall with the floor sheathing continuous through at the floor and roof levels as proposed in a separate code change for Section 706.2. This proposed arangement provides a better structural solution and also is an opportunity to minimize air infiltration or loss through the space between walls. This allows improved effeciency of materials and design while also improving structural and energy performance. From a fire standpoint, it is felt two 2-hour walls walls are better or equivalent to one 3-hour wall.
The following link is to a Structural Engineers of Southern California recommendation to carry the floor sheathing through fire walls.

http://www.icclabc.org/uploads/opinion_from_SEAOSC_on_Firewall_Final.pdf

Cost Impact: Will not increase the cost of construction
This code change does not create a new requirement. It allows an additional option for compliance that is not required.

FS 31-15 : 706.3-MAIEL5792

FS 32-15

706.5.1

Proponent: Stephen Thomas, representing Colorado Chapter (sthomas@coloradocode.net)

2015 International Building Code

Revise as follows:

706.5.1 Exterior walls. Where ~~the~~ a *fire wall* intersects an *exterior* ~~walls~~*wall*, the *fire-resistance rating* and opening protection of the *exterior walls* shall comply with one of the following:

1. The *exterior walls* on both sides of the *fire wall* shall have a 1-hour *fire-resistance rating* with $^3/_4$-hour ~~protection where~~ opening ~~protection is required by Section 705.8~~protectives. The *fire-resistance rating* of the *exterior wall* shall extend not less than 4 feet (1220 mm) on each side of the intersection of the *fire wall* to *exterior wall*. The maximum area of protected openings located in the 4-foot (1220 mm) exterior wall segments shall not exceed 15 percent of the wall segment in any story. *Exterior wall* intersections at *fire walls* that form an angle equal to or greater than 180 degrees (3.14 rad) do not need *exterior wall* protection.
2. Buildings or spaces on both sides of the intersecting *fire wall* shall assume to have an imaginary *lot line* at the *fire wall* and extending beyond the exterior of the *fire wall*. The location of the assumed line in relation to the *exterior walls* and the *fire wall* shall be such that the *exterior wall* and opening protection meet the requirements set forth in Sections 705.5 and 705.8. Such protection is not required for *exterior walls* terminating at *fire walls* that form an angle equal to or greater than 180 degrees (3.14 rad).

Reason: The current language in the code is confusing regarding the exterior openings on each side of a fire wall terminating at the exterior wall. It references required protected openings in Section 705.8. Table 705.8 limits the area of unprotected and protected openings based on fire separation distance. It does not "require" protected openings anywhere. We have set a limitation of 15% of the area of the protected wall to limit the amount of openings. The 15% is based on the amount of protected openings permitted in Table 705.8 for a fire separation distance of 3-5 feet. We have also done some minor editorial revisions to make the section read better.

Cost Impact: Will not increase the cost of construction
This change is a clarification of the code language. It will not affect the cost of construction.

FS 32-15 : 706.5.1-THOMAS4434

FS 33-15

706.8

Proponent: David Kulina, representing Engel Architects (david@engelarch.com)

2015 International Building Code

Revise as follows:

706.8 Openings. Each opening through a *fire wall* shall be protected in accordance with Section 716.5 and shall not exceed 156 square feet (15 m^2). The aggregate width of openings <u>in a wall over 24 feet long</u> at any floor level shall not exceed 25 percent of the length of the wall.

Exceptions:

1. Openings are not permitted in party walls constructed in accordance with Section 706.1.1.
2. Openings shall not be limited to 156 square feet (15 m^2) where both buildings are equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.

Reason: Occassionally, a limited fire wall is needed to separate two buildings that are connected with a narrow corridor. For example, two 100,000 s.f. warehouses may be connected by a 12' access tunnel. The 25% rule limits the opening to 36". Assuming the firewall would be 48" outside each wall of the corridor, the proposed change would allow that opening to be 12' wide. The 24' limit proposed would allow for loads up to 16" wide, which would accomodate most wide industrial loads.

Cost Impact: Will not increase the cost of construction
Cost will not be increased.There's not a definite impact on cost. For example, a coiling fire door costs $1.50 / s.f., which is more than the cost of block. So, allowing a larger coiling fire door in a wall would mean additional cost. However, in some circumstances, it will allow two buildings to have a smaller link between the structures, thus saving money.

FS 33-15 : 706.8-KULINA4548

FS 34-15

Part I:

706.10, 706.10.1 (New), 706.10.2 (New), Chapter 35

Part II:

707.9, 707.10 (New), 715.4 (New), 715.4.1 (New), Chapter 35

Part III:

715.7 (New), Chapter 35

THIS IS A 3 PART CODE CHANGE. ALL PARTS WILL BE HEARD BY THE IBC-FIRE SAFETY COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THIS COMMITTEE.

Proponent: Tony Crimi, representing International Firestop Council (tcrimi@sympatico.ca)

Part I

2015 International Building Code

706.10 Joints. Joints made in or between *fire walls* shall comply with Section 715.

Add new text as follows:

706.10.1 Joints at floors. Where a fire wall is permitted to terminate at the underside of the roof sheathing, deck or slab in accordance with 706.6, joints at the intersection of a fire wall and the underside of a fire-resistance-rated roof assembly, slab or deck above shall comply with Section 715.

706.10.2 Joints at nonfire-resistance rated roof intersections in lieu of parapets. Where vertical continuity in accordance with section 706.6 is not provided by a parapet, joints at the intersection of a fire wall and a nonfire-resistance-rated roof assembly, roof slab, or roof deck shall be protected by an approved continuity head of wall joint system installed as tested in accordance with ASTM E2837. The system shall have an F rating/T rating of not less than that of the firewall.

Add new standard(s) as follows:
Add new Referenced Standard to Chapter 35 as follows:

ASTM E2837, Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed between Rated Wall Assemblies and Nonrated Horizontal Assemblies.

Part II

2015 International Building Code

Revise as follows:

707.9 ~~Voids~~Joints at intersections. The ~~voids created~~joints at the intersection of a *fire barrier* and ~~a nonfire-resistance-rated roof assembly or~~the underside of a nonfire-resistance-rated ~~exterior wall assembly~~sheathing, slab or deck above shall be filled._ An approved material or system shall be used to fill the ~~void~~joint, and shall be securely installed in or on the intersection for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.

Add new text as follows:

707.10 Joints at intersections of fire barriers and nonfire-resistance-rated exterior walls The joints at the intersection of a fire barrier and a nonfire-resistance-rated exterior wall assembly shall be filled. An approved material or system shall be used to fill the joint, and it shall be securely installed in or on the intersection for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.

715.4 Joints between fire barriers and nonfire-resistance-rated roofs Where required elsewhere in this code,joints at the intersection of fire barriers and the underside of a nonfire-resistance-rated roof sheathing, slab or deck above shall be protected by an approved continuity head-of-wall joint system installed as tested in accordance with ASTM E 2837 to provide a F rating for a time period not less than the required fire-resistance rating of the wall assembly in which it is installed.

715.4.1 Installation Continuity head-of-wall joint systems shall be securely installed in or over the joint for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.

Add new standard(s) as follows:
ASTM E 2837-13 Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems

Installed Between Rated Wall Assemblies and Nonrated Horizontal Assemblies

Part III

2015 International Building Code

Add new text as follows:

715.7 Joints at top of wall Intersections in fire barriers The voids created at the intersection of a fire barrier and a non-fire-resistance-rated floor or roof sheathing, slab or deck above shall be protected by an approved continuity head of wall joint system installed as tested in accordance with ASTM E2837. The system shall have an F rating/T rating of minimum 1 hour, but not less than that of the fire barrier.

Add new standard(s) as follows:
ASTM E 2837-13, Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed between Rated Wall Assemblies and Nonrated Horizontal Assemblies

Reason:

Part I: The Code allows several exceptions to the general requirement for vertical continuity of fire walls in section 706.6, and specifically to the requirement to have a parapet. However, unlike for fire barriers, the Code is silent as to how the joints created between the top of a fire wall and a fire-resistance rated and/or non-fire-resistance rated roof are to be protected from fire spread through the top-of-wall joint when any of the parapet exceptions are used.
In the case of fire barriers, which are a less critical building safety feature than fire walls, Section 707.9 was added to the 2012 IBC to clarify that voids created at the intersection of a fire barrier and a nonfire-resistance rated roof assembly must be filled with an approved material or system to prevent fire spread. One example of such an application is a fire barrier used to separate occupancies in a metal (typically pre-engineered) building that would not have a fire-rated roof. The ASTM E 2837 Standard evaluates continuity head-of-wall joint systems for this specific application. The joint systems tested and listed in accordance with ASTM E2837 provide an assurance that the installed joint detail will provide the continuity of fire resistance established by the rated wall assembly, right up to the deck above.

In the hierarchy of passive fire protection construction elements, fire walls are used in the most critical locations and applications. The code language proposed here parallels that of sections 707.8 and 707.9 for fire barriers, except that in 706.12, the ASTM E2837 standard has been referenced. Using tested joint systems at the top of the firewall where the firewall ends below the roof deck will provide an assurance that fire cannot get past the fire wall at this potential weak point. None of the joint systems listed by UL for this application require any modifications to the wall or to the roof deck. The test is focused only on the fire performance of the joint itself.

At the time Section 707.9 was proposed to address the top-of-wall joint for fire barriers intersecting a non-rated roof, no consensus test standard existed to test head-of-wall joint systems involving nonfire-resistance rated horizontal assemblies. Therefore, the 2012 code described how the void protection is to be provided. However, it is rather subjective for the designer and code official to determine. ASTM E 2837, "Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed Between Rated Wall Assemblies and Nonrated horizontal Assemblies" was developed precisely to address this condition. This standard allows for the objective evaluation of a joint's ability to prevent fire spread through the joint installed at the intersection of a rated wall assembly and a non-rated roof assembly.

The ASTM E 2837 F and T ratings directly address the top-of-wall joint performance requirements specified in 707.9 that the material or system will not dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases. For fire walls, the Code should specify a test method for the top-of-wall joint to ensure that this performance is achieved without any doubt.

Part II: The 2012 and later editions of the International Building Code have a provision whereby the voids created at the intersection of a fire barrier and the underside of a nonfire-resistance-rated roof sheathing, slab or deck above shall be filled with an approved material or system. While this language gives the code official the ability to accept some matching tested system, it does not acknowledge the existence of a new fire test standard and tested systems that specifically addresses the fire performance of these joints. This proposal then recognizes the existence of the new Standard ASTM E 2837, entitled "Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed Between Rated Wall Assemblies and Nonrated Horizontal Assemblies", along with the tested systems. Since there are a limited number of published systems at this time, the use of system is being proposed as an option to the current allowance of an approved material or system. If desired, at some later date, when more tested systems are available, the code language can be revised once again to mandated tested systems in much the same way systems tested to ASTM E 1966 or UL 2079 are mandated for rated-to-rated construction.

Part III: Chapter 7 of the IBC has numerous requirements for continuity of vertical and horizontal fire resistance rated assemblies. Wall continuity (i.e. continuity of fire resistance) is required at joint openings, which are typically linear voids, gaps, openings, or other discontinuities within an assembly, or at the intersection with other assemblies. For the intersection of a rated wall assembly and nonrated horizontal assembly above (floor or roof), the joint between the two assemblies would need to provide the same fire resistance as the rated wall assembly. A joint detail with fire resistance less than that of the wall would allow for the propagation of fire and/or smoke to the other side of the wall much earlier than the rated wall would, thus diminishing the life safety function of the rated wall, and even making the wall near useless if the fire and/or smoke are able to spread very quickly through the joint above the wall to the other side of the fire barrier.
Test methods ASTM E1966 and UL 2079, which are referenced in the IBC, are only applicable to the testing of joints between two intersecting assemblies if both of the assemblies are fire resistance rated. To allow the evaluation of the fire resistance of joint details between a fire resiatance rated wall and a non-fire rated roof or floor above, ASTM began work in 2007 on a new test method. That test standard was completed and issued in 2011, and was issued as "ASTM E2837, Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed between Rated Wall Assemblies and Nonrated Horizontal Assemblies". With the standard having existed for almost 4 years, both UL and Intertek now

have tested system listings in accordance with the standard.

It is important to note that none of the listed systems requires any modifications at all to the wall assembly or to the floor or roof assembly above. The listed systems simply specify the materials that are needed to fill and seal the joint in a manner that will prevent premature fire spread through that joint. As indicated by the title of the ASTM standard ("Continuity Head of Wall Joint Systems"), the test is designed to evaluate the continuity of the wall's fire resistance rating up to the underside of the floor or roof deck above. Passing the test means that the joint detail must not allow fire spread through the joint prior to the given fire resistance rating, which would normally be the fire resistance rating of the fire barrier wall.

Section 707.5 requires smoke barriers to form an effective membrane continuous from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, deck or slab above, including continuity through concealed spaces, such as those found above suspended ceilings, and interstitial structural and mechanical spaces. Section 707.9 of the IBC requires the joint opening at the top of the rated fire barrier wall assembly below the nonrated horizontal assembly to be protected, using performance language and dictating that the chosen material or system be approved. The ASTM E 2837 Standard was created to evaluate continuity head-of-wall joint systems for this specific application, providing exactly the code-mandated performance. Using a tested joint detail, instead of allowing joint details to be improvised for each and every building and then requiring the AHJ to approve the detail, will prvide a measure of consistency, predictability, and an even level of life safety from one building to the next.

To achieve the rating, the joint system must remains in the opening during the fire resistance test and the hose stream test, and will have withstood the fire resistance test for the rating period equal to the rated wall assembly by preventing flaming on the unexposed side of the test specimen and on the underside of the nonrated horizontal assembly on the unexposed side. The Integrity test also ensures no occurrence of ignition of the cotton pad, which is related to the passage of hot gases in the current IBC 707.9 requirements.

Cost Impact:

Part I: Will not increase the cost of construction
Based on the continuity provisions, these joints are already required to be addressed.

Part II: Will not increase the cost of construction
This code change will not increase the cost of construction as it does not mandate a tested system. In cases where a tested system would be the option chosen, the cost of construction will vary. In some cases, it may be decreased, due to the time saved (and therefore expense saved) by not needing to engineer and get approval for a custom-designed solution.

Part III: Will increase the cost of construction
This proposal may increase the cost of construction if the chosen joint detail for a given installation requires more work or higher cost materials than an inferior joint detail that an AHJ might have been willing to approve. This proposal may decrease the cost of construction in cases where it allows a contractor to simply specify a tested and listed detail, thus saving on the time and costs of designing a unique joint detail and getting that detail approved.

Analysis:

Part I: A review of the standard proposed for inclusion in the code, ASTM E2837, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

Part II: A review of the standard proposed for inclusion in the code, ASTM E2837, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

Part III: A review of the standard proposed for inclusion in the code, ASTM E2837, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS 34-15 : 706.10.1 (New)-CRIMI4301

FS 35-15

707.3.11 (New), 711.2.4.7 (New)

Proponent: Adolf Zubia, ICC Staff, representing Fire Code Action Committee (fcac@iccsafe.org)

2015 International Building Code

Add new text as follows:

707.3.11 Fire Pump Rooms. The *fire barriers* separating fire pump rooms from other building areas shall have a *fire-resistance rating* of not less than that is indicated in Section 913.2.1.

711.2.4.7 Fire Pump Rooms. The *horizontal assemblies* separating fire pump rooms from other building areas shall have a *fire-resistance rating* of not less than that is indicated in Section 913.2.1.

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 6 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc
Fire pump rooms are constructed of fire barriers and horizontal assemblies as stated in Section 913.2.1 but a pointer should be inserted in the fire barrier section for designers and code officials. F203–07/08 inserted 912.2.1, however, it was never correlated to the fire barrier or horizontal assembly section in Chapter 7.

Cost Impact: Will not increase the cost of construction
This change does not add any new requirements for fire resistance rated separation of fire pump rooms. It merely provides guidance to the designer by pointing to the existing requirements for both vertical and horizontal separation.

FS 35-15 : 707.3.11 (New)-ZUBIA4193

FS 36-15

707.6

Proponent: Joseph Hetzel, representing Door & Access Systems Manufacturers Association (Jhetzel@thomasamc.com)

2015 International Building Code

Revise as follows:

707.6 Openings. Openings in a *fire barrier* shall be protected in accordance with Section 716. Openings shall be limited to a maximum aggregate width of 25 percent of the length of the wall, and the maximum area of any single opening shall not exceed 156 square feet (15 m^2). Openings in enclosures for exit access stairways and ramps, interior exit stairways and ramps and exit passageways shall also comply with Sections 1019, 1023.4 and 1024.5, respectively.

Exceptions:

1. Openings shall not be limited to 156 square feet (15 m^2) where adjoining floor areas are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Openings shall not be limited to 156 square feet (15 m^2) or an aggregate width of 25 percent of the length of the wall where the opening protective is a fire door serving enclosures for exit access stairways and ramps, and interior exit stairways and ramps.
3. Openings shall not be limited to 156 square feet (15 m^2) or an aggregate width of 25 percent of the length of the wall where the opening protective has been tested in accordance with ASTM E 119 or UL 263 and has a minimum *fire-resistance rating* not less than the *fire-resistance rating* of the wall.
4. Fire window assemblies permitted in atrium separation walls shall not be limited to a maximum aggregate width of 25 percent of the length of the wall.
5. Openings shall not be limited to 156 square feet (15 m^2) or an aggregate width of 25 percent of the length of the wall where the opening protective is a fire door assembly in a *fire barrier* separating an enclosure for *exit access* stairways and ramps, and interior exit stairways and ramps from an exit passageway in accordance with Section 1023.3.1.
6. <u>Openings shall not be limited to 156 square feet (15 m2) or an aggregate width of 25 percent of the length of the wall where the opening protective is a rolling steel *fire door* tested in accordance with UL 10B or NFPA 252 and labeled in accordance with Section 716.5.7.2.</u>

Reason: The current Exceptions do not address rolling steel fire doors, the most common opening protective greater than 156 square feet (15 m^2). The proposed Exception reflects long-standing common practice where the use of rolling steel fire doors have been determined to be both necessary and practical as opening protectives. Rolling steel fire doors offer benefits and provide solutions for opening protection not available with other types of fire doors and should also qualify for exception.

Cost Impact: Will not increase the cost of construction
None.We believe the proposed change is consistent with common current practice and therefore only permits what is already being done. Since it is already being done, there is no effect on product or cost and therefore requires no further study.

FS 36-15 : 707.6-HETZEL3421

FS 37-15

707.9

Proponent: Masoud Sabounchi, representing masoud sabounchi (masoud@acecode.com)

2015 International Building Code

Revise as follows:

707.9 Voids at intersections. The voids created at the intersection of a *fire barrier* and~~ a nonfire-resistance-rated roof assembly or~~ a nonfire-resistance-rated exterior wall assembly shall be filled. An approved material or system shall be used to fill the void, and shall be securely installed in or on the intersection for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.

Reason: Section 707.5 requires fire barriers to be continuous through concealed spaces and be attached to the underside of the floor or roof sheathing, slab or deck. Section 707.9 creates a conflict with section 707.5 by allowing the fire barriers to terminate at the ceiling and the cavity space above the ceiling to be filled. Section 707.9 would allow fire barriers such as shafts, occupancy separations and similar to be discontinued through the cavity space of a non-fire resistance rated roof-ceiling assembly while the same fire barrier has to be continuous thru the cavity space of a fire resistance rated roof-ceiling assembly. This proposal coordinates section 707.9 with 707.5.

Cost Impact: Will not increase the cost of construction
This proposal is for coordiantion of section 707.9 with 707.5

FS 37-15 : 707.9-SABOUNCHI4361

FS 38-15

708.4, 718.4.2

Proponent: Marshall Klein, representing National Multtfamily Housing Council (makleinfpe@comcast.net)

2015 International Building Code

Revise as follows:

708.4 Continuity. Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above or to the fire-resistance-rated floor/ceiling or roof/ceiling assembly above, and shall be securely attached thereto. In combustible construction where the *fire partitions* are not required to be continuous to the sheathing, deck or slab, the space between the ceiling and the sheathing, deck or slab above shall be fireblocked or draftstopped in accordance with Sections 718.2 and 718.3 at the partition line. The supporting construction shall be protected to afford the required *fire-resistance rating* of the wall supported, except for walls separating tenant spaces in *covered and open mall buildings*, walls separating *dwellingunits*, walls separating *sleeping units* and *corridor* walls, in buildings of Type IIB, IIIB and VB construction.

Exceptions:

1. The wall need not be extended into the crawl space below where the floor above the crawl space has a minimum 1-hour *fire-resistance rating*.
2. Where the room-side fire-resistance-rated membrane of the *corridor* is carried through to the underside of the floor or roof sheathing, deck or slab of a fire-resistance-rated floor or roof above, the ceiling of the *corridor* shall be permitted to be protected by the use of ceiling materials as required for a 1-hour fire-resistance-rated floor or roof system.
3. Where the *corridor* ceiling is constructed as required for the *corridor* walls, the walls shall be permitted to terminate at the upper membrane of such ceiling assembly.
4. The fire partitions separating tenant spaces in a *covered or open mall building*, complying with Section 402.4.2.1, are not required to extend beyond the underside of a ceiling that is not part of a fire-resistance-rated assembly. A wall is not required in *attic* or ceiling spaces above tenant separation walls.
5. Attic fireblocking or draftstopping is not required at the partition line in Group R-2 ~~buildings that do not exceed~~occupancies up to and including four *stories* in height in buildings not exceeding 60 feet in height *abovegrade plane*, provided the *attic* space is subdivided by draftstopping into areas not exceeding 3,000 square feet (279 m^2) or above every two *dwellingunits*, whichever is smaller.
6. Fireblocking or draftstopping is not required at the partition line in buildings equipped with an *automatic sprinkler system* installed throughout in accordance with Section 903.3.1.1 or 903.3.1.2, provided that automatic sprinklers are installed in combustible floor/ceiling and roof/ceiling spaces.

718.4.2 Groups R-1 and R-2. Draftstopping shall be provided in *attics*, mansards, overhangs or other concealed roof spaces of Group R-2 buildings with three or more *dwellingunits* and in all Group R-1 buildings. Draftstopping shall be installed above, and in line with, *sleeping unit* and *dwellingunit* separation walls that do not extend to the underside of the roof sheathing above.

Exceptions:

1. Where *corridor* walls provide a *sleeping unit* or *dwellingunit* separation, draftstopping shall only be required above one of the *corridor* walls.
2. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. In occupancies in Group R-2 ~~that do not exceed~~up to and including four *stories*in height in buildings not exceeding 60 feet in height *abovegrade plane*, the *attic* space shall be subdivided by *draftstops* into areas not exceeding 3,000 square feet (279 m^2) or above every two *dwellingunits*, whichever is smaller.
4. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2, provided that automatic sprinklers are installed in the combustible concealed space where the draftstopping is being omitted.

Reason: Completing correlation between the I-Codes and NFPA 13R's scope, which was partially done last code cycle under Proposal F134-13, approved as modified. That proposal correlated Section 903.3.1.2 with NFPA 13R Section 1.1. This code proposal correlates these two exceptions with Section 903.3.1.2, recognizing that the intent of the exceptions is to cover buildings protected by NFPA 13R systems and limit the exceptions to buildings not exceeding 60-feet in height above grade plane. As currently written, the exceptions could be applied to buildings that are taller than 60 feet, which was not intended and should not be allowed.

Cost Impact: Will not increase the cost of construction
Code Proposal's intent is just to clarify the intended application of the exceptions.

FS 38-15 : 708.4-KLEIN5265

FS 39-15

708.4, 718.4.2

Proponent: Joseph Holland, representing Hoover Treated Wood Products (jholland@frtw.com)

2015 International Building Code

Revise as follows:

708.4 Continuity. Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above or to the fire-resistance-rated floor/ceiling or roof/ceiling assembly above, and shall be securely attached thereto. In combustible construction where the *fire partitions* are not required to be continuous to the sheathing, deck or slab, the space between the ceiling and the sheathing, deck or slab above shall be fireblocked or draftstopped in accordance with Sections 718.2 and 718.3 at the partition line. The supporting construction shall be protected to afford the required *fire-resistance rating* of the wall supported, except for walls separating tenant spaces in *covered and open mall buildings*, walls separating *dwellingunits*, walls separating *sleeping units* and *corridor* walls, in buildings of Type IIB, IIIB and VB construction.

Exceptions:

1. The wall need not be extended into the crawl space below where the floor above the crawl space has a minimum 1-hour *fire-resistance rating*.
2. Where the room-side fire-resistance-rated membrane of the *corridor* is carried through to the underside of the floor or roof sheathing, deck or slab of a fire-resistance-rated floor or roof above, the ceiling of the *corridor* shall be permitted to be protected by the use of ceiling materials as required for a 1-hour fire-resistance-rated floor or roof system.
3. Where the *corridor* ceiling is constructed as required for the *corridor* walls, the walls shall be permitted to terminate at the upper membrane of such ceiling assembly.
4. The fire partitions separating tenant spaces in a *covered or open mall building*, complying with Section 402.4.2.1, are not required to extend beyond the underside of a ceiling that is not part of a fire-resistance-rated assembly. A wall is not required in *attic* or ceiling spaces above tenant separation walls.
5. Attic fireblocking or draftstopping is not required at the partition line in Group R-2 buildings that do not exceed four *storiesabovegrade plane*, provided the *attic* space is subdivided by draftstopping into areas not exceeding 3,000 square feet (279 m^2) or above every two *dwellingunits*, whichever is smaller.
6. Fireblocking or draftstopping is not required at the partition line in buildings equipped with an *automatic sprinkler system* installed throughout in accordance with Section 903.3.1.1 or 903.3.1.2, provided <u>either:</u>
   - 6.1. that automatic sprinklers are installed in combustible floor/ceiling and roof/ceiling spaces<u> or,</u>
   - 6.2. <u>that the combustible floor/ceiling and roof/ceiling spaces are constructed entirely of fire-retardant-treated-wood complying with Section 2303.2</u>.

718.4.2 Groups R-1 and R-2. Draftstopping shall be provided in *attics*, mansards, overhangs or other concealed roof spaces of Group R-2 buildings with three or more *dwellingunits* and in all Group R-1 buildings. Draftstopping shall be installed above, and in line with, *sleeping unit* and *dwellingunit* separation walls that do not extend to the underside of the roof sheathing above.

Exceptions:

1. Where *corridor* walls provide a *sleeping unit* or *dwellingunit* separation, draftstopping shall only be required above one of the *corridor* walls.
2. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. In occupancies in Group R-2 that do not exceed four *storiesabovegrade plane*, the *attic* space shall be subdivided by *draftstops* into areas not exceeding 3,000 square feet (279 m^2) or above every two *dwellingunits*, whichever is smaller.
4. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2, provided <u>either:</u>
   - 4.1. that automatic sprinklers are installed in the combustible concealed space where the draftstopping is being omitted<u> or,</u>
   - 4.2. <u>that the combustible concealed space is constructed entirely of fire-retardant-treated-wood complying with Section 2303.2</u>.

Reason: FRTW is permitted in numerous areas of the Code in non-combustible construction because of its fire retardant properties and excellent fire data history. Even under the NFPA 13 Sprinkler Standard, combustible concealed spaces that are constructed entirely of FRTW are not required to have sprinkler protection (NFPA 13 Section 8.15.1.2.11).

Such an alternative also provides better for proper ventilation of the attic space above dwelling units. In typical multiple-family construction, with dwelling units along the front and back of the building, trusses run front to rear with soffit vents at each end. When draftstopping or firestopping are required at each dwelling unit, it usually blocks achieving proper cross ventilation, eliminating the use of ridge vents. Soffit and ridge venting allow natural air circulation that, in turn, lowers the roof sheathing temperature in the winter, relieving many of the problems associated with ice dams. Therefore, providing an alternative to drafttstopping, firestopping or sprinklering such concealed spaces would be reasonable not only from a life safety and fire protection standpoint, but also provide better ventilation and energy compliance.
In typical multiple-family construction, with dwelling units along the front to rear with soffit vents at each end. If draftstopping were required at each dwelling unit, it would block cross ventilation, eliminating the use of ridge vents. Soffit and ridge venting allow natural air circulation that, in turn, lowers the roof sheathing temperature in the winter, relieving many of the problems associated with ice dams.
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Cost Impact: Will not increase the cost of construction
Will not increase the cost of construction. Only provides a reasonable option to improve attic ventilation and energy compliance by using FRT that is permitted in other sections of the Code as an alternative for other similar life safety and fire protection Code requirements

FS 39-15 : 708.4-HOLLAND5459

FS 40-15

708.4

Proponent: Masoud Sabounchi, Representing Colorado Chapter of ICC, representing masoud sabounchi (masoud@acecode.com)

2015 International Building Code

Revise as follows:

708.4 Continuity. Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above or to the fire-resistance-rated floor/ceiling or roof/ceiling assembly above, and shall be securely attached thereto. In combustible construction where the *fire partitions* are not required to be continuous to the sheathing, deck or slab, the space between the ceiling and the sheathing, deck or slab above shall be fireblocked or draftstopped in accordance with Sections 718.2 and 718.3 at the partition line. The supporting construction shall be protected to afford the required *fire-resistance rating* of the wall supported, except for walls separating tenant spaces in *covered and open mall buildings*, walls separating *dwellingunits*, walls separating *sleeping units* and *corridor* walls, in buildings of Type IIB, IIIB and VB construction.

Exceptions:

1. The wall need not be extended into the crawl space below where the floor above the crawl space has a minimum 1-hour *fire-resistance rating*.
2. Where the room-side fire-resistance-rated membrane of the *corridor* is carried through to the underside of the floor or roof sheathing, deck or slab of a fire-resistance-rated floor or roof above, the ceiling of the *corridor* shall be permitted to be protected by the use of ceiling materials as required for a 1-hour fire-resistance-rated floor or roof system.
3. Where the *corridor* ceiling is constructed as required for the *corridor* walls, the walls shall be permitted to terminate at the upper membrane of such ceiling assembly.
4. The fire partitions separating tenant spaces in a *covered or open mall building*, complying with Section 402.4.2.1, are not required to extend beyond the underside of a ceiling that is not part of a fire-resistance-rated assembly. A wall is not required in *attic* or ceiling spaces above tenant separation walls.
5. Attic fireblocking or draftstopping is not required at the partition line in Group R-2 buildings that do not exceed four *storiesabovegrade plane*, provided the *attic* space is subdivided by draftstopping into areas not exceeding 3,000 square feet (279 m^2) or above every two *dwellingunits*, whichever is smaller.
6. Fireblocking or draftstopping is not required at the partition line in buildings equipped with an *automatic sprinkler system* installed throughout in accordance with Section 903.3.1.1 or 903.3.1.2, provided that automatic sprinklers are installed in combustible floor/ceiling and roof/ceiling spaces.
7. <u>Draftstopping is not required in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.</u>

Reason: Sections 718.3.2 exception #1, 718.3.3 exception, 718.4.2 exception #2, and 718.4.3 exception allow elimination of draft stops in concealed combustible floor or attic spaces when the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 (NFPA 13). Section 708.4 exception 6 allows elimination of draftstopping when a NFPA 13 sprinkler system is installed and the combustible floor and attic spaces are sprinkler protected, Exceptions in section 718.3 and 718.4 do not require sprinkler protection of combustible floor of attic spaces to allow elimination of draft stops when building is protected by a NFPA 13 automatic sprinkler system. NFPA 13 has specific provisions that would allow elimination of sprinkler protection in combustible concealed spaces (such as filling the combustible concealed spaces with non-combustible insulation). Either exceptions to section 718.3 and 718.4 have to be revised to indicate that draftstopping can only be eliminated when concealed combustible spaces are sprinkler protected or another exception would be required in Section 708.4 to coordinate the noted exceptions with each other. The proposed exception creates this consistency. The reason exception #6 of Section 708.4 remains unchanged is because this exception allows elimination of "fire blocking" as well as draftstopping while the proposed exception #7 only addresses draftstopping.

Cost Impact: Will not increase the cost of construction
The proposed addition of exception #7 to Section 708.4 will make provisions of this section consistent with the exceptions in Section 718.3 and 718.4 and will not increase the construction cost.

FS 40-15 : 708.4-SABOUNCHI4364

FS 41-15

708.4, 718.4.2

Proponent: Jeffrey Shapiro, National Multifamily Housing Council, representing National Multifamily Housing Council (jeff.shapiro@intlcodeconsultants.com); Anthony Apfelbeck, City of Altamonte Springs Building/Fire Safety, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Building Code

Revise as follows:

708.4 Continuity. Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above or to the fire-resistance-rated floor/ceiling or roof/ceiling assembly above, and shall be securely attached thereto. In combustible construction where the *fire partitions* are not required to be continuous to the sheathing, deck or slab, the space between the ceiling and the sheathing, deck or slab above shall be fireblocked or draftstopped in accordance with Sections 718.2 and 718.3 at the partition line. The supporting construction shall be protected to afford the required *fire-resistance rating* of the wall supported, except for walls separating tenant spaces in *covered and open mall buildings*, walls separating *dwellingunits*, walls separating *sleeping units* and *corridor* walls, in buildings of Type IIB, IIIB and VB construction.

Exceptions:

1. The wall need not be extended into the crawl space below where the floor above the crawl space has a minimum 1-hour *fire-resistance rating*.
2. Where the room-side fire-resistance-rated membrane of the *corridor* is carried through to the underside of the floor or roof sheathing, deck or slab of a fire-resistance-rated floor or roof above, the ceiling of the *corridor* shall be permitted to be protected by the use of ceiling materials as required for a 1-hour fire-resistance-rated floor or roof system.
3. Where the *corridor* ceiling is constructed as required for the *corridor* walls, the walls shall be permitted to terminate at the upper membrane of such ceiling assembly.
4. The fire partitions separating tenant spaces in a *covered or open mall building*, complying with Section 402.4.2.1, are not required to extend beyond the underside of a ceiling that is not part of a fire-resistance-rated assembly. A wall is not required in *attic* or ceiling spaces above tenant separation walls.
5. Attic fireblocking or draftstopping is not required at the partition line in Group R-2 buildings that do not exceed four *storiesabovegrade plane*, provided the *attic* space is subdivided by draftstopping into areas not exceeding 3,000 square feet (279 m^2) or above every two *dwellingunits*, whichever is smaller.
6. Fireblocking or draftstopping is not required at the partition line in buildings equipped with an *automatic sprinkler system* installed throughout in accordance with Section 903.3.1.1 or 903.3.1.2, provided that automatic sprinklers are installed in combustible floor/ceiling and roof/ceiling spaces.
7. <u>In attics exceeding 5,000 square feet in area or covering more than four dwelling units in R-2 occupancies, attic fireblocking or draftstopping is not required at the partition line where the attic space is subdivided by multi-layered draftstops into areas not exceeding 5,000 square feet or above every four dwelling units, whichever is smaller, using one of the following for draftstopping materials. Joints of each layer shall be staggered from other layers. If roof trusses are used, draftstopping material shall be permitted to be placed with multiple layers on one side of the truss or with one or more layers on opposite sides.</u>
    - 7.1. <u>2 or more layers of ½" gypsum board</u>
    - 7.2. <u>2 or more layers of 15/32" wood structural panel,</u>
    - 7.3. <u>3 or more layers of 7/16" oriented strand board (OSB),</u>
    - 7.4. <u>Other *approved* materials adequately supported.</u>

718.4.2 Groups R-1 and R-2. Draftstopping shall be provided in *attics*, mansards, overhangs or other concealed roof spaces of Group R-2 buildings with three or more *dwellingunits* and in all Group R-1 buildings. Draftstopping shall be installed above, and in line with, *sleeping unit* and *dwellingunit* separation walls that do not extend to the underside of the roof sheathing above.

Exceptions:

1. Where *corridor* walls provide a *sleeping unit* or *dwellingunit* separation, draftstopping shall only be required above one of the *corridor* walls.
2. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. In occupancies in Group R-2 that do not exceed four *storiesabovegrade plane*, the *attic* space shall be subdivided by *draftstops* into areas not exceeding 3,000 square feet (279 m^2) or above every two *dwellingunits*, whichever is smaller.

4. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2, provided that automatic sprinklers are installed in the combustible concealed space where the draftstopping is being omitted.
5. In attics exceeding 5,000 square feet in area or covering more than four dwelling units in R-2 occupancies, attic fireblocking or draftstopping is not required at the partition line where the attic space is subdivided by multi-layered draftstops into areas not exceeding 5,000 square feet or above every four dwelling units, whichever is smaller, using one of the following for draftstopping materials. Joints of each layer shall be staggered from other layers. If roof trusses are used, draftstopping material shall be permitted to be placed with multiple layers on one side of the truss or with one or more layers on opposite sides.
    5.1. 2 or more layers of ½" gypsum board.
    5.2. 2 or more layers of 15/32" wood structural panel.
    5.3. 3 or more layers of 7/16" oriented strand board (OSB).
    5.4. Other approved materials adequately supported.

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Reason: Concerns have been expressed by some fire officials regarding the expected time to failure of single layer attic draftstops; albeit, it is recognized that draftstops are not intended to offer significant fire resistance. The concept offered by this proposal is to provide draftstops that have a more robust fire performance at increased intervals, recognizing that staggered joints on multiple layers and increased material thickness to approximately one inch will significantly increase time to failure of an assembly versus what is currently permitted by the code. This improves the likelihood for an assembly to still be in place when the fire department arrives on the scene of a fire that has originated in or extended to an attic.
Using IBC Table 722.6.2(1) for guidance, 2 layers of ½" gypsum board or 2 layers of 15/32" wood structural panel (such as plywood) bonded with exterior glue may provide 20 minutes of fire resistance. OSB is also a wood structural panel, but because industry standard is to use 7/16" OSB (as compared to 15/32" plywood), 3 layers was determined to be appropriate, given the performance objectives of this section. The proposed 5,000 square foot or 4-dwelling unit (whichever is smaller) threshold for applying this exception is included to ensure that someone won't argue that attics with a total area that is smaller than these thresholds don't need any draftstopping at all.
If the proposal that rewrites the entirety of Section 708.4 is approved, it is the intent of this code change that the proposed exception become Exception 4 to the revised Section 708.4.2, and there would be no need to duplicate the exception in Section 718.

Cost Impact: Will not increase the cost of construction
This proposal offers an additional option for construction that is not mandatory; therefore, it will not increase the cost of construction.

FS 41-15 : 708.4-SHAPIRO5307

FS 42-15

708.1, 708.4, 708.4 (New), 708.4.1 (New), 708.4.2 (New), 718.3, 718.3.2, 718.3.3, 718.4, 718.4.2, 718.4.3

Proponent: Jeffrey Shapiro, National Multifamily Housing Council, representing National Multifamily Housing Council (jeff.shapiro@intlcodeconsultants.com)

2015 International Building Code

Revise as follows:

708.1 General. The following wall assemblies shall comply with this section.

1. Separation walls as required by Section 420.2 for ~~Groups~~Group I-1~~, R-1, R-2~~ and ~~R-3~~Group R occupancies.
2. Walls separating tenant spaces in *covered and open mall buildings* as required by Section 402.4.2.1.
3. Corridor walls as required by Section 1020.1.
4. Elevator lobby separation as required by Section 3006.2.
5. Egress balconies as required by Section 1019.2

Delete and substitute as follows:

~~**708.4 Continuity.** Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above or to the fire-resistance-rated floor/ceiling or roof/ceiling assembly above, and shall be securely attached thereto. In combustible construction where the *fire partitions* are not required to be continuous to the sheathing, deck or slab, the space between the ceiling and the sheathing, deck or slab above shall be fireblocked or draftstopped in accordance with Sections 718.2 and 718.3 at the partition line. The supporting construction shall be protected to afford the required *fire-resistance rating* of the wall supported, except for walls separating tenant spaces in *covered and open mall buildings*, walls separating *dwellingunits*, walls separating *sleeping units* and *corridor* walls, in buildings of Type IIB, IIIB and VB construction.~~

~~**Exceptions:**~~

1. ~~The wall need not be extended into the crawl space below where the floor above the crawl space has a minimum 1-hour *fire-resistance rating*.~~
2. ~~Where the room-side fire-resistance-rated membrane of the *corridor* is carried through to the underside of the floor or roof sheathing, deck or slab of a fire-resistance-rated floor or roof above, the ceiling of the *corridor* shall be permitted to be protected by the use of ceiling materials as required for a 1-hour fire-resistance-rated floor or roof system.~~
3. ~~Where the *corridor* ceiling is constructed as required for the *corridor* walls, the walls shall be permitted to terminate at the upper membrane of such ceiling assembly.~~
4. ~~The fire partitions separating tenant spaces in a *covered or open mall building*, complying with Section 402.4.2.1, are not required to extend beyond the underside of a ceiling that is not part of a fire-resistance-rated assembly. A wall is not required in *attic* or ceiling spaces above tenant separation walls.~~
1. ~~Attic fireblocking or draftstopping is not required at the partition line in Group R-2 buildings that do not exceed four *storiesabovegrade plane*, provided the *attic* space is subdivided by draftstopping into areas not exceeding 3,000 square feet (279 m^2) or above every two *dwellingunits*, whichever is smaller.~~
2. ~~Fireblocking or draftstopping is not required at the partition line in buildings equipped with an *automatic sprinkler system* installed throughout in accordance with Section 903.3.1.1 or 903.3.1.2, provided that automatic sprinklers are installed in combustible floor/ceiling and roof/ceiling spaces.~~

708.4 Continuity Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to:

1. The underside of the floor or roof sheathing, deck or slab above, or
2. The underside of a floor/ceiling or roof/ceiling assembly having a fire-resistance rating that is not less than the fire-resistance rating of the fire partition.

Fire partitions shall be securely attached to 1 or 2 above.

Exceptions:
1. Fire partitions shall not be required to extend into a crawl space below where the floor above the crawl space has a minimum 1-hour fire-resistance rating.
2. Fire partitions serving as a corridor wall shall not be required to extend above the lower membrane of a corridor ceiling provided the corridor ceiling membrane is equivalent to corridor wall membrane, and either:
2.1. The room-side membrane of the corridor wall extends to the underside of the floor or roof sheathing, deck or slab of a fire-resistance-rated floor or roof above, or

2.2. The building is equipped with an automatic sprinkler system installed throughout in accordance with Section 903.3.1.1 or 903.3.1.2, including automatic sprinklers installed in the space between the top of the fire partition and underside of the floor or roof sheathing, deck or slab above.
3. Fire partitions serving as a corridor wall shall be permitted to terminate at the upper membrane of the corridor ceiling assembly where the corridor ceiling is constructed as required for the corridor wall.
4. Fire partitions separating tenant spaces in a covered or open mall building complying with Section 402.4.2.1 shall not be required to extend above the underside of a ceiling. Such ceiling shall not be required to be part of a fire-resistance-rated assembly, and the attic or space above the ceiling at tenant separation walls shall not be required to be subdivided by fire partitions.

Add new text as follows:

708.4.1 Supporting construction. The supporting construction for a fire partition shall have a fire-resistance rating that is equal to or greater than the required fire-resistance rating of the supported fire partition.

Exception. In buildings of Type IIB, IIIB and VB construction, the supporting construction requirement shall not apply to fire partitions separating tenant spaces in covered and open mall buildings, fire partitions separating dwelling units, fire partitions separating sleeping units, and fire partitions serving as corridor walls.

708.4.2 Fireblocks and draftstops in combustible construction In combustible construction where fire partitions do not extend to the underside of the floor or roof sheathing, deck or slab above, the space above and along the line of the fire partition shall be provided with one of the following:

1. Fire-blocking up to the underside of the floor or roof sheathing, deck or slab above using materials complying with 718.2.1, or
2. Draftstopping up to the underside of the floor or roof sheathing, deck or slab above using materials complying with Section 718.3.1 for floors or 718.4.1 for attics.

Exceptions:
1. Buildings equipped with an automatic sprinkler system installed throughout in accordance with Section 903.3.1.1, or in accordance with Section 903.3.1.2 provided that protection is provided in the space between the top of the fire partition and underside of the floor or roof sheathing, deck or slab above as required for systems complying with Section 903.3.1.1.
2. Where corridor walls provide a sleeping unit or dwelling unit separation, draftstopping shall only be required above one of the corridor walls.
3. In Group R-2 occupancies with less than 4 dwelling units, fire-blocking and draftstopping shall not be required.
4. In Group R-2 occupancies that do not exceed four stories above grade plane, the attic space shall be subdivided by draftstops into areas not exceeding 3,000 square feet (279 m2) or above every two dwelling units, whichever is smaller.
5. In Group R-3 occupancies with less than 3 dwelling units, fire-blocking and draftstopping shall not be required in floor assemblies. This exception shall not apply to Group R-4.

Revise as follows:

718.3 Draftstopping in floors. ~~In combustible construction, draftstopping~~
Draftstopping shall be installed to subdivide floor/ceiling assemblies ~~in the locations prescribed~~where required by Section 708.4.2. In other than Group R occupancies, draftstopping shall also be installed to subdivide combustible floor/ceiling assemblies so that horizontal floor areas do not exceed 1,000 square feet (93 m2).

Exception: Buildings equipped throughout with an automatic sprinkler system in ~~Sections 718.3.2 through 718.3.3.~~accordance with Section 903.3.1.1.

Delete without substitution:

~~**718.3.2 Groups R-1, R-2, R-3 and R-4.** Draftstopping shall be provided in floor/ceiling spaces in Group R-1 buildings, in Group R-2 buildings with three or more *dwellingunits*, in Group R-3 buildings with two *dwellingunits* and in Group R-4 buildings. Draftstopping shall be located above and in line with the *dwellingunit* and *sleeping unit* separations.~~

~~**Exceptions:**~~

~~1. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~
~~2. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2, provided that automatic sprinklers are installed in the combustible concealed spaces where the draftstopping is being omitted.~~

~~**718.3.3 Other groups.** In other groups, draftstopping shall be installed so that horizontal floor areas do not exceed 1,000 square feet (93 m^2).~~

~~Exception:~~ ~~Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~

Revise as follows:

718.4 Draftstopping in attics. ~~In combustible construction, draftstopping~~ Draftstopping shall be installed to subdivide *attic* spaces where required by Section 708.4.2. In other than Group R-1 and R-2 occupancies, draftstopping shall also be installed to subdivide combustible attic spaces and combustible concealed roof spaces ~~in the locations prescribed in Sections 718.4.2 and 718.4.3~~such that any horizontal area does not exceed 3,000 square feet (279 m2). Ventilation of concealed roof spaces shall be maintained in accordance with Section 1203.2.

Exceptions. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

Delete without substitution:

~~**718.4.2 Groups R-1 and R-2.** Draftstopping shall be provided in *attics*, mansards, overhangs or other concealed roof spaces of Group R-2 buildings with three or more *dwellingunits* and in all Group R-1 buildings. Draftstopping shall be installed above, and in line with, *sleeping unit* and *dwellingunit* separation walls that do not extend to the underside of the roof sheathing above.~~

~~**Exceptions:**~~

1. ~~Where *corridor* walls provide a *sleeping unit* or *dwellingunit* separation, draftstopping shall only be required above one of the *corridor* walls.~~
~~2.~~ ~~Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~
2. ~~In occupancies in Group R-2 that do not exceed four *storiesabovegrade plane*, the *attic* space shall be subdivided by *draftstops* into areas not exceeding 3,000 square feet (279 m^2) or above every two *dwellingunits*, whichever is smaller.~~
~~3.~~ ~~Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2, provided that automatic sprinklers are installed in the combustible concealed space where the draftstopping is being omitted.~~

~~**718.4.3 Other groups.** Draftstopping shall be installed in *attics* and concealed roof spaces, such that any horizontal area does not exceed 3,000 square feet (279 m^2).~~

~~Exception:~~ ~~Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~

Reason: 708.1 Editorial correlation with 2015 IBC Section 420.1, which added the requirement for separation walls in R-4 occupancies to be fire partitions. It is understood that Section 310.6 requires Group R-4 to meet requirements of Group R-3 unless otherwise specified by the IBC (that's also the reason that Section 708.4.2, Exception 5 for Group R-3 has to exclude R-4 to keep the exception consistent with current requirements). However, changing 708.1 to include all Group R occupancies will eliminate the appearance that R-4 has been omitted from the requirements of this section, particularly considering that R-4 is specifically listed in Section 420.1, which triggers provisions in Section 708.1.
708.4 The proposed rewrite results from an initial intent of adding another exception to this section (which I've now done in a separate proposal). I hadn't read the text of this section in quite some time because I knew what it was supposed to say. However, when I actually read the text, I found it unintelligible. The base paragraph has several different things going on...basic continuity, draftstopping/fire-blocking above, and supporting construction requirements. Then the 6 exceptions that follow aren't clear with respect to which parts of the main paragraph they apply to. Making matters worse, there is overlap and conflict between 708.4 and 718.3.2 and 718.4.2. I decided to undertake rewriting all of the provisions in an attempt to fix these issues while maintaining the current technical requirements. Although there has been no deliberate intent to change how the code applies, there were cases where interpretations were necessary to clarify conflicting provisions.

Deciphering the apparent intent of the code, pulling the sections and exceptions into pieces and reassembling them into comprehensible requirements took many hours, and I invite all "code groupies" and industry experts to closely compare the current and proposed provisions and notify me if any unintentional technical changes have occurred.

718.3.2 and 718.4.2. The existing draftstopping thresholds in 718.3.2 and 718.4.2 are specific to certain occupancies. These conflict with the draftstopping requirements in Section 708.4.2, which relate to continuity of fire partitions (recognizing that all dwelling and sleeping unit separations are fire partitions, as required by Sections 420.1 and 420.2). Based on the "specific over general" rule in Section 102.1 and the fact that there would be no reason for the current code to include the thresholds in 718.3.2 and 718.4.2 if they weren't intended to override Section 708.4.2, the existing special thresholds in 718.3.2 and 718.4.2 were moved to Section 708.4 to eliminate the conflict and consolidate all of the draftstopping requirements for Group R in a single location.

The current text related to mansards and overhangs is irrelevant because the following sentence in the current Section 718.4.2 ties this text only to continuity of fire partitions that form separations for sleeping units and dwelling units. By referencing the revised 708.4 in this proposal, any space above a fire partition (mansard, overhang, or whatever) requires the same level of protection based on the "continuity of fire partitions" requirement.

One additional change that should be considered by the Code Development Committee, but was skipped in this proposal because it is a technical change, is extending the Group R exception in Section 718.4 of this proposal (for attics) to include all Group R occupancies, as is the case for floor assemblies under 718.3.2 of the 2015 IBC. There is no apparent reason for 718.3 and 718.4 to have handled Group R occupancies differently for floors vs. attic spaces, and it makes more sense for all Group R attics to follow Section 708.4.2. Without fixing this, R-3 and R-4 will continue to have conflicting requirements in 708.4.2 and 718.4.

Cost Impact: Will not increase the cost of construction
There will be no impact on the cost of construction other than the cost savings associated with countless hours of design time that was saved by people who no longer had to study these sections for hours to figure out what the actually required.

FS 42-15 : 708.1-SHAPIRO5284

FS 43-15

Part I:
708.6
Part II:
709.5, 716.6.7

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IBC-FIRE SAFETY COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THIS COMMITTEE.

Proponent: Robert Davidson, Davidson Code Concepts, LLC, representing SAFTI FIRST (rjd@davidsoncodeconcepts.com)

Part I

2015 International Building Code

Revise as follows:

708.6 Openings. Openings in a *fire partition* shall be protected in accordance with Section 716. The total area of the fire-protection-rated glazing in fire door side lights and transoms and in fire window assemblies shall not exceed 25 percent of the area of a common wall with any room.

Part II

2015 International Building Code

Revise as follows:

709.5 Openings. Openings in a *smoke barrier* shall be protected in accordance with Section 716. The total area of the fire-protection-rated glazing in fire door side lights and transoms and in fire window assemblies shall not exceed 25 percent of the area of a common wall with any room.

Exceptions:

1. In Group I-1 Condition 2, Group I-2 and ambulatory care facilities, where a pair of opposite-swinging doors are installed across a corridor in accordance with Section 709.5.1, the doors shall not be required to be protected in accordance with Section 716. The doors shall be close fitting within operational tolerances, and shall not have a center mullion or undercuts in excess of $^3/_4$ inch (19.1 mm), louvers or grilles. The doors shall have head and jamb stops, and astragals or rabbets at meeting edges. Where permitted by the door manufacturer's listing, positive-latching devices are not required.
2. In Group I-1 Condition 2, Group I-2 and *ambulatory care facilities*, horizontal sliding doors installed in accordance with Section 1010.1.4.3 and protected in accordance with Section 716.

716.6.7 Interior fire window assemblies. Fire-protection-rated glazing used in *fire window assemblies* located in *fire partitions*, *smoke barriers* and *fire barriers* shall be limited to use in assemblies with a maximum *fire-resistance rating* of 1 hour in accordance with this section.

Reason: The intent of this proposal is to address an anomaly in the current code language. For fire barriers there is a limitation on the total amount of openings permited of any type:

> "707.6 Openings. Openings in a fire barrier shall be protected in accordance with Section 716. Openings shall be limited to a maximum aggregate width of 25 percent of the length of the wall, and the maximum area of any single opening shall not exceed 156 square feet (15 m2). Openings in enclosures for exit access stairways and ramps, interior exit stairways and ramps and exit passageways shall also comply with Sections 1019, 1023.4 and 1024.5, respectively."

In addition to that restriction the code also limits fire-protection-rated glazing to 1 hour or less fire-resistance-rated assemblies. And the amount of fire-protection-rated fire windows in a wall section is further restricted:

> "716.6.7 Interior fire window assemblies. Fire-protection-rated glazing used in fire window assemblies located in fire partitions and fire barriers shall be limited to use in assemblies with a maximum fire-resistance rating of 1 hour in accordance with this section."
>
> > " 716.6.7.2 Area limitations. The total area of the glazing in fire-protection-rated window assemblies shall not exceed 25 percent of the area of a common wall with any room."

The combination of the overall opening limitation in Section 707.6 for fire barriers, and the fire window fire-protection-rated glazing protection requirements in Section 716.6.7 limit the total amount of fire-protection-rated glazing that can be utilized for the purpose of limiting the use of a product that allows radiant heat to go through the protected opening.

However, when you get to the Fire Partition portion of the code there is no overall limitation in openings. The fire-protected-rated fire windows still must comply with the limitations of Section 716.6.7 but what is lost is control of the amount of fire-protection-rated glazing used in fire door sidelights and transoms because there is no overall restriction on the amount of openings which would include the entire fire door assembly. This allows for additional fire-protection-rated glazing and radiant heat transfer beyond the amount restricted by Section 716.6.7.2 for fire windows.

The proposed language is intended to capture fire-protection-rated glazing in fire door sidelites and transoms for appllication of the restriction found at Section 716.6.7.2.

NFPA 80, "Standard for Fire Doors and Other Opening Protectives" includes background on radiant heat concerns in Annex I; the following is an extract of that information:

NFPA 80-2013

"I.1 Background. Fire windows were originally designed for protecting openings in exterior walls. In such applications, radiant heat transfer was not a significant consideration, since the main function of fire windows was to contain the flames within the building. However, where fire windows are used in interior partitions, users of this standard might need to consider radiant heat transfer during fire. Exiting through corridors and past fire windows could be compromised, and combustible materials on the unexposed side of fire windows could be ignited. The information that follows is a guide to the evaluation of radiant heat transfer through fire windows.

Recent revisions to this standard have permitted very large areas of fire protection–rated glazing materials to be used in interior partitions, limited only by the size of the test furnace. Also, recent technological advances in the glazing industry have compounded the problem of radiant heat transfer by making it possible to provide glazing materials with fire protection ratings of 60 minutes and 90 minutes. Historically, fire windows, including glass block, have been limited to a 45-minute rating by the standard fire test, NFPA257, Standard on Fire Test for Window and Glass Block Assemblies. This time limit was predicated on the failure of wired glass at approximately 1600°F (870°C). [1] Some manufacturers also have developed fire resistance–rated glazing assemblies that meet the requirements of a fire resistance–rated wall assembly (currently up to 2 hours). These glazing materials, however, do not transmit excessive radiant heat, since they are re-quired to limit the temperature rise on the unexposed face to 250°F (121°C). "

Cost Impact:

Part I: Will increase the cost of construction
This proposal could create a minimal increase in the cost of construction by limiting the amount of fire-protection rated glazing in a given common wall in a room.

Part II: Will increase the cost of construction
This proposal could create a minimal increase in the cost of construction by limiting the amount of fire-protection rated glazing in a given common wall in a room.

FS 43-15 : 708.6-DAVIDSON5293

FS 44-15

709.5

Proponent: John Williams, CBO, CBO, Chair, Adhoc Healthcare Committee, representing Adhoc Health Care Committee (AHC@iccsafe.org); Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

709.5 Openings. Openings in a *smoke barrier* shall be protected in accordance with Section 716.

Exceptions:

1. In Group I-1 Condition 2, Group I-2 and ambulatory care facilities, where a pair of opposite-swinging doors are installed across a corridor in accordance with Section 709.5.1, the doors shall not be required to be protected in accordance with Section 716. The doors shall be close fitting within operational tolerances, and shall not have a center mullion or undercuts in excess of $^3/_4$ inch (19.1 mm), louvers or grilles. The doors shall have head and jamb stops, and astragals or rabbets at meeting edges. Where permitted by the door manufacturer's listing, positive-latching devices are not required. Factory applied or field applied protective plates are not required to be labeled.
2. In Group I-1 Condition 2, Group I-2 and *ambulatory care facilities*, horizontal sliding doors installed in accordance with Section 1010.1.4.3 and protected in accordance with Section 716.

Reason:
Smoke barrier doors are typically installed across corridors and patient treatment areas. These doors see a very high volume of gurney and bed traffic, as well as carts, wheeled equipment and transport devices. As a result they are often damaged. This proposal would allow the installation of a non-labeled protective plate, usually made of steel or other resilient material, to be installed on these doors to protect them from excessive wear and damage. Due to the size of equipment being wheeled through, these protective plates need to be allowed to be greater than 48" high. Currently NFPA 80 would require that the protective plates on rated doors be limited to 48" and that they be labeled. The doors in smoke barriers do not function as true fire doors. This section contains many special directives and requirements exempting smoke barriers doors from meeting fire door requirements. This code change follows with the established intent of this section. Smoke barriers are intended to be substantial construction and providing protective plates provides additional protection to the doors keeping the original construction free from damage thus in a more substantial manner. They do not provide the same fire resistance rating as a true 1 hour fire barrier.

A correlative change is planned for the IFC Section 1105.6.3 as part of the Group B proposals.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx .

Cost Impact: Will not increase the cost of construction
Allowing the use of non-labled plates will be less costly than requiring labeled plates.

FS 44-15 : 709.5-WILLIAMS4241

FS 45-15

709.5, 709.5.1

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Building Code

Revise as follows:

709.5 Openings. Openings in a *smoke barrier* shall be protected in accordance with Section 716.

Exceptions:

1. In Group I-1 Condition 2, Group I-2 and ambulatory care facilities, where a pair of opposite-swinging doors are installed across a corridor in accordance with Section 709.5.1, the doors shall ~~not~~ be required to be protected in accordance with Section 716. The doors shall be close fitting within operational tolerances, and shall not have a center mullion or undercuts in excess of $^3/_4$ inch (19.1 mm), louvers or grilles. The doors shall have head and jamb stops, and astragals or rabbets at meeting edges. Where permitted by the door manufacturer's listing, positive-latching devices are not required.
2. In Group I-1 Condition 2, Group I-2 and *ambulatory care facilities*, horizontal sliding doors installed in accordance with Section 1010.1.4.3 and protected in accordance with Section 716.

709.5.1 Group I-2 and ambulatory care facilities. In Group I-2 and ambulatory care facilities, where doors are installed across a corridor, the doors shall be automatic-closing by smoke detection in accordance with Section 716.5.9.3 and shall have a vision panel with fire-protection-rated glazing materials in fire-protection-rated frames, the area of which shall not exceed that tested in accordance with the testing requirements of Section 716 for fire-protection-rated glazing.

Reason: Exception 1 is the only application in the code where non-fire-rated and non-smoke-rated doors are allowed to "protect" openings in required smoke barriers. Elsewhere in the code, openings in smoke barriers are required to be protected with opening protectives which comply with Section 716. The occupancies and uses of Exception 1 (other than I-1) are also the only occupancies and uses identified in the code where required fire response plans may allow a defend-in-place strategy. From an objective perspective, openings in the required smoke barriers in an occupancy which may have defend-in-place fire safety procedures should be held to no less of a performance standard than required for other occupancies. Also missing in the application of Exception 1, by allowing non-fire-rated doors and non-smoke-rated doors, is the code requirement these doors be installed in accordance with NFPA 80 for fire doors, or NFPA 105 for smoke doors; and the ongoing IFC requirement these doors be maintained in accordance with NFPA 80 and / or NFPA 105. This code proposal proposes to address this discrepancy by deleting "not" from Exception 1.
In 709.5.1, the phrase "the area of which shall not exceed that tested" raises the question of "Tested to what performance requirement(s)?" This proposal attempts to answer that question.

Cost Impact: Will increase the cost of construction
Installing opening protectives (door assemblies) which comply with the requirements of IBC Section 716 Opening Protectives cost more than installing doors which do not.

FS 45-15 : 709.5-WOESTMAN5510

FS 46-15

712.1.10.1

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Revise as follows:

712.1.10.1 Automobile ramps. Vertical openings for automobile ramps in ~~open and enclosed~~ parking garages shall be permitted where constructed in accordance with Sections 406.5 and 406.6~~, respectively~~.

Reason: The current language in the code is redundant and confusing. The new language allows openings that may be used for other purposes including occupant mobility.

Cost Impact: Will not increase the cost of construction
This change should reduce the cost of construction as it will clarify how openings are permitted in floors of parking garages.

FS 46-15 : 712.1.10.1-COLLINS4479

FS 47-15

713.2, Chapter 35

Proponent: Rebecca Baker, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (bbaker@co.jefferson.co.us)

2015 International Building Code

Revise as follows:

713.2 Construction. Shaft enclosures shall be constructed as *fire barriers* in accordance with Section 707 or horizontal assemblies in accordance with Section 711, or both.

Exception: Shaft construction shall not be required for exhaust ducts where a listed and labeled field applied duct enclosure material or system specifically evaluated for such purpose in accordance with ASTM E 2336 is installed on exhaust ducts complying with the following:

1. A single or manifolded duct shall originate on the same floor, space or fire area.
2. The duct shall terminate to the outdoors from the space of origin.
3. The field applied enclosure shall serve a single duct with a minimum one-hour fire resistance rating and shall be equal to the fire resistance rating of the construction penetrated.
4. Fire dampers, smoke dampers or combination fire/smoke dampers shall not be installed in the duct.
5. Duct passing through four or more stores shall have a two-hour fire resistance rating.
6. Exposed enclosure systems shall be protected from damage.
7. Field applied duct enclosure systems installed on grease ducts shall be in accordance with the *International Mechanical Code.*
8. Enclosure systems shall be installed in accordance with the manufacturers installation instructions.

Add new standard(s) as follows:

ASTM E2336-04(2013) Standard Test Methods for Fire Resistive Grease Duct Enclosure System

Reason: It's time to recognize that this tested and listed method of replacing a shaft with a field applied duct wrap system is overdue. Just like the design for grease duct enclosure systems, other exhause ducts like hazardous or that from a Type II kitchen can benefit from this option. The enclosure system already carries a one and two hour fire resistance rating. This option can provide significant savings in cost and labor and has been proven to provide an equivalent measure of safety as that of a shaft. This does not apply to supply ducts as an entire supply system has not been tested to the fullest extent possible. This proposal only applies to exhause ducts.

Cost Impact: Will not increase the cost of construction
This proposal increases design flexibility and allows the owner/applicant to choose the method of complaince based which works best and is most economical for the situation.

Analysis: The referenced standard, ASTM E2336, is currently referenced in the International Mechanical Code.

FS 47-15 : 713.2-BAKER3348

FS 48-15

713.2, Chapter 35

Proponent: Janine Snyder, City of Thornton, representing Colorado Association of Plumbing & Mechanical Officials (CAPMO) (Janine.Snyder@cityofthornton.net)

2015 International Building Code

Revise as follows:

713.2 Construction. Shaft enclosures shall be constructed as *fire barriers* in accordance with Section 707 or horizontal assemblies in accordance with Section 711, or both.

Exception: Shaft construction shall not be required for exhaust ducts where a listed and labeled field applied duct enclosure material or system specifically evaluated for such purpose in accordance with ASTM E 2336 is installed on exhaust dusts complying with the following.

1. A single or manifolded duct shall originate on the same floor, space or fire area.
2. The duct shall terminate to the outdoors from the space of origin.
3. There shall be no interconnecting ducts beyond the space of origin.
4. The field applied enclosure shall serve a single duct with a minimum one hour fire resistance rating and shall be equal to the fire resistance rating of the construction penetrated.
5. Fire dampers, smoke dampers or combination fire/smoke dampers shall not be installed in the duct.
6. Duct passing through four or more stories shall have a two hour fire resistance rating.
7. Exposed enclosure systems shall be protected from damage.
8. Field applied duct enclosure system installed on grease ducts shall be in accordance with the International Mechanical Code.
9. Enclosure systems shall be installed in accordance with the manufacturers installation instructions.

Add new standard(s) as follows:

ASTM E2336-04 (2013) Standard Test Methods for Fire Resistive Grease Duct Enclosure System.

Reason: Its time to recognize that this tested and listed method of replacing a shaft with a field applied duct wrap system is overdue. Just like the design for grease duct enclosures systems, other exhaust ducts like hazardous or that from a Type II kitchen can benefit from this option. The enclosure system already carries a one and two hour fire resistance rating. This option can provide significant savings in cost and labor and has been provide to provide an equivalent measure of safety as that of a shaft. This does not apply to supply ducts as an entire supply system has not been tested to the fullest extent possible. This proposal only applies to exhaust ducts.

Cost Impact: Will not increase the cost of construction
This will not increase the cost of construction as technology has caught up with the codes and expensive shaft construction will not be necessary with these provisions.

Analysis: The referenced standard, ASTM E2336, is currently referenced in the International Mechanical Code.

FS 48-15 : 713.2-SNYDER4452

FS 49-15

713.8.2 (New)

Proponent: Matthew Davy, representing Arup (matt.davy@arup.com)

2015 International Building Code

713.8 Penetrations. Penetrations in a shaft enclosure shall be protected in accordance with Section 714 as required for *fire barriers*. Structural elements, such as beams or joists, where protected in accordance with Section 714 shall be permitted to penetrate a shaft enclosure.

713.8.1 Prohibited penetrations. Penetrations other than those necessary for the purpose of the shaft shall not be permitted in shaft enclosures.

Add new text as follows:

713.8.2 Membrane penetrations Membrane penetrations shall be permitted on the outside of shaft enclosures. Such penetrations shall be protected in accordance with Section 714.3.2.

Reason: The purpose of Section 713.8 and 713.8.1 is to limit through penetrations into a shaft enclosure; however, membrane penetrations should be permitted on the outside of the shaft enclosure. As currently written, an electrical box is not permitted on the outside of the shaft enclosure.
This section needs to clarify the intent of Section 713.8.

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction since it will allow membrane penetrations in shaft enclosures without the need for additional construction/material on the outside of the shaft enclosure. Also, it increases net area for the building.

FS 49-15 : 713.8.2 (New)-DAVY5357

FS 50-15

713.13

Proponent: Ali Fattah, City of San Diego Development Services, representing SD Area Chapter ICC

2015 International Building Code

Revise as follows:

713.13 Waste and linen chutes and incinerator rooms. Waste and linen chutes shall comply with the provisions of NFPA 82, Chapter ~~5~~6 and shall meet the requirements of Sections 713.13.1 through 713.13.6. Incinerator rooms shall meet the provisions of Sections 713.13.4 through 713.13.5.

Exception: Chutes serving and contained within a single dwelling unit.

Reason: The code section as published is in error. Chapter 5 of NFPA 82 includes requirements for incinerators however Ch 6 includes requirement for waste and linen chutes. Section 713.13.5 appropriately references a section in Ch 5 of NFPA 82 for incinerator rooms. This corrected reference will result in correct code application.

Bibliography: 2014 edition of NFPA 82 "STANDARD ON INCINERATORS AND WASTE AND LINEN HANDLING SYSTEMS AND EQUIPMENT"

Cost Impact: Will not increase the cost of construction
No cost impact editorial code change.

FS 50-15 : 713.13-FATTAH3824

FS 51-15

713.13, 713.14, 3002.1

Proponent: Lee Kranz, City of Bellevue, WA, representing Lee Kranz

2015 International Building Code

Revise as follows:

713.13 Waste and linen chutes and incinerator rooms. Waste and linen chutes shall comply with the provisions of NFPA 82, Chapter 5 and shall meet the requirements of Sections 712 and 713.13.1 through 713.13.6. Incinerator rooms shall meet the provisions of Sections 713.13.4 through 713.13.5.

Exception: Chutes serving and contained within a single dwelling unit.

713.14 Elevator, dumbwaiter and other hoistways. Elevator, dumbwaiter and other hoistway enclosures shall be constructed in accordance with ~~Section~~Sections 712, 713 and Chapter 30.

3002.1 Hoistway enclosure protection. Elevator, dumbwaiter and other hoistway enclosures shall be *shaft enclosures* complying with ~~Section~~Sections 712 and 713.

Reason: The proposed references in Sections 713.13, 713.14 and 3002.1 to Section 712 are necessary to permit the use of the exceptions contained in Section 712 for shaft construction. By referencing only Section 713 from these sections it could be misunderstood that the exceptions of Section 712 are not applicable for waste and linen chutes and incinerator rooms of Section 713.13, for elevator, dumbwaiter and other hoistways of Section 713.14, or for hoistway enclosures of Section 3002.1. Section 712 is where the exceptions for shaft enclosures were relocated in the 2012 IBC and the reference to that section from Sections 713.13, 713.14 and 3002.1 were overlooked for the 2015 code.

Cost Impact: Will not increase the cost of construction
This change will have no bearing on the cost of construction for shafts because it permits the use of the exceptions contained in Section 712.

FS 51-15 : 713.13-KRANZ5122

FS 52-15

713.13.1

Proponent: Masoud Sabounchi, Representing Colorado Chapter of ICC, representing masoud sabounchi (masoud@acecode.com)

2015 International Building Code

Revise as follows:

713.13.1 Waste and linen. A shaft enclosure containing a recycling, or waste or linen chute shall not be used for any other purpose and shall be enclosed in accordance with Section 713.4. A shaft enclosure shall be permitted to contain recycling and waste chutes. Openings into the shaft, from access rooms and discharge rooms, shall be protected in accordance with this section and Section 716. Openings into chutes shall not be located in *corridors*. Doors into chutes shall be self-closing. Discharge doors shall be self- or automatic-closing upon the actuation of a smoke detector in accordance with Section 716.5.9.3, except that heat-activated closing devices shall be permitted between the shaft and the discharge room.

Reason: Section 713.13.1 implies that a recycling chute is not permitted to be located in the same shaft with a waste chute. Hazard associated with a recycling chute is not any different than that of a waste chute. To provide two side by side shaft enclosures to enclose the recycling and the waste chute does not provide additional safety especially since chutes have specific installation requirements, sprinkler protection, ventilation and similar.

Cost Impact: Will not increase the cost of construction
This proposal does not increase the cost of construction because the proposed revision allows one shaft to contain a recycling and a waste chute where two separate shaft enclosures might be required otherwise. This proposal reduces cost of construction.

FS 52-15 : 713.13.1-SABOUNCHI4392

FS 53-15

713.13.3

Proponent: Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

713.13.3 Chute access rooms. Access openings for waste or linen chutes shall be located in rooms or compartments enclosed by not less than 1-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. Openings into the access rooms shall be protected by opening protectives having a *fire protection rating* of not less than $^{3}/_{4}$ hour. Doors shall be self- or automatic-closing upon the detection of smoke in accordance with Section 716.5.9.3. <u>The room or compartment shall be configured to allow the access door to the room or compartment to close and latch with the access panel to the refuse or laundry chute in any position.</u>

Reason: The proposed would ensure the intent of the code that the room and door provide a minimum level of protection to the shaft enclosing the chute and the chute access doors. This intended protection is made clear in Section 713.13.1. If the room design does not allow the door to close upon failure of the self-closing requirement of the chute access door the intent of the section is defeated. This proposal brings clarity to the implied intent of the code.

Cost Impact: Will increase the cost of construction
This proposal will increase construction costs by requiring that chute access rooms be configured to address an added performance feature contained within this proposal.

FS 53-15 : 713.13.3-DIGIOVANNI3827

FS 54-15

714.2 (New), Chapter 35

Proponent: William Koffel, representing Firestop Contractors International Association (wkoffel@koffel.com)

2015 International Building Code

Add new text as follows:

714.2 **Contractor Qualifications** In buildings of Group I-2 occupancy, listed through-penetration firestop systems shall be installed by contractors certified by an organization accredited to the criteria set forth ISO 17065 by a recognized accreditation body complying to ISO 17011. Documentation shall be submitted to the code official verifying certification of the contractor.

Exception: Repairs, Level 1 Alterations, and Level 2 Alterations as defined in the International Existing Building Code.

Add new standard(s) as follows:

ISO 17011-15 - Conformity assessment — General requirements for accreditation bodies accrediting conformity assessment bodies

ISO 17065-15 - Conformity assessment — Requirements for bodies certifying products, processes and services

Reason: The proposed language addresses the issues and concerns expressed in the past by the Code Development Committee

1. Availability of contractors - The application of the section has been restricted to buildings of Group I-2. Such construction projects, especially Level 3 Alternations and new construction generally attract regional general contractors and therefore firestop contractors will also be attracted from a regional basis. Presently there are contractors in every state. It is also anticipated that additional contractors will seek the necessary qualification between the time when the proposal is approved and the code is adopted and enforced.

2. References to specific qualification programs - The proposed language eliminates the references to the existing UL and FM programs and instead provides the criteria for the certification process and certifying organization. This approach is similar to what is being proposed for ICC 1000 and the text is similar to a definition being developed by the IAS for a certification agency.

3. Small projects - By exempting Repairs, Level 1 Alterations, and Level 2 Alterations, smaller construction projects will not required outside specialty contractors.

Proper design, selection, installation, and inspection of through penetration firestop systems are critical to maintaining the integrity of the fire resistance rated assembly that is being penetrated. There are existing approval or qualification programs administered by FM Approvals and UL for contractors who install materials that become firestop systems. Contracting firms are eligible to obtain the FM Approval and/or UL Qualification. The costs range from $6,000 to $10,000 for the initial audit and about $3,000 annually for ongoing audits. Currently, companies of all sizes are FM 4991 Approved or UL Qualified in areas where the I-Codes are adopted.

Cost Impact: Will increase the cost of construction

While the cost of construction may increase for certain projects, there will also be substantial cost savings on other projects in which substantial remediation activities have been necessary to correct improper or deficient installations. Most owners will be getting the job done correctly at a lower cost by eliminating the need for corrective actions immediately after the construction is completed.

Analysis: A review of the standard proposed for inclusion in the code, ISO 17011 and ISO 17065, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS 54-15 : 714.2 (New)-KOFFEL4841

FS 55-15

714.2 (New)

Proponent: William Koffel, representing Firestop Contractors International Association (wkoffel@koffel.com)

2015 International Building Code

Add new text as follows:

<u>**714.2** **Installation** A listed through-penetration firestop system shall be securely installed in accordance with the manufacturer's installation instructions and the listing criteria.</u>

Reason: The intent of the paragraph is to require that all listed systems be installed in accordance with the listing critieria (including manufacturer's instructions). The manufacturer's instructions provide additional details that are not commonly identified in the listing criteria, including environmental conditions and tooling.

Cost Impact: Will not increase the cost of construction
Listed systems should already be installed in accordance with the manufacturer's installation instructions.

FS 55-15 : 714.2 (New)-KOFFEL5417

FS 56-15

714.3.1.1, 714.4.1.1

Proponent: Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

2015 International Building Code

Revise as follows:

714.3.1.1 Fire-resistance-rated assemblies. ~~Penetrations~~ *Through penetrations* shall be protected using materials installed as tested in ~~an~~ the *approved* fire-resistance-rated assembly.

714.4.1.1 ~~Installation~~Fire-resistance-rated assemblies. *Through penetrations* shall be protected using materials installed as tested in the *approved* fire-resistance-rated assembly.

Reason: As written, these two similar sections, covering wall assemblies and horizontal assemblies, state penetrations shall be installed as tested in the approved fire-resistance-rated assembly. By definition, a penetration is a breach in the floor, floor-ceiling or wall assembly. This proposal clarifies that it is the method of protecting the penetration, not the penetration itself, that is the subject of these sections. It also revises the title of Section 714.4.1.1 to be consistent with that of Section 714.3.1.1.

Cost Impact: Will not increase the cost of construction
This simply clarifies the existing requirements.

FS 56-15 : 714.4.1.1-ROBERTS4052

FS 57-15

714.3.2, 714.4.2, 717.6.1 (IMC 607.6.1)

Proponent: James Smith, ICC Region III Code Development Committee, representing ICC Region III Code Development Committee

2015 International Building Code

Revise as follows:

714.3.2 Membrane penetrations. Membrane penetrations shall comply with Section 714.3.1. Where walls or partitions are required to have a *fire-resistance rating*, recessed fixtures shall be installed such that the required fire resistance will not be reduced.

Exceptions:

1. Membrane penetrations of maximum 2-hour fire-resistance-rated walls and partitions by steel electrical boxes that do not exceed 16 square inches (0.0 103 m^2) in area, provided the aggregate area of the openings through the membrane, including those listed in exception 6, does not exceed 100 square inches (0.0645 m^2) in any 100 square feet (9.29 m^2) of wall area. The *annular space* between the wall membrane and the box shall not exceed $^1/_8$ inch (3.2 mm). Such boxes on opposite sides of the wall or partition shall be separated by one of the following:
   1.1. By a horizontal distance of not less than 24 inches (610 mm) where the wall or partition is constructed with individual noncommunicating stud cavities;
   1.2. By a horizontal distance of not less than the depth of the wall cavity where the wall cavity is filled with cellulose loose-fill, rockwool or slag mineral wool insulation;
   1.3. By solid fireblocking in accordance with Section 718.2.1;
   1.4. By protecting both outlet boxes with *listed* putty pads; or
   1.5. By other *listed* materials and methods.
2. Membrane penetrations by *listed* electrical boxes of any material, provided such boxes have been tested for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the listing. The *annular space* between the wall membrane and the box shall not exceed $^1/_8$ inch (3.2 mm) unless *listed* otherwise. Such boxes on opposite sides of the wall or partition shall be separated by one of the following:
   2.1. By the horizontal distance specified in the listing of the electrical boxes;
   2.2. By solid fireblocking in accordance with Section 718.2.1;
   2.3. By protecting both boxes with *listed* putty pads; or
   2.4. By other *listed* materials and methods.
3. Membrane penetrations by electrical boxes of any size or type, that have been *listed* as part of a wall opening protective material system for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the listing.
4. Membrane penetrations by boxes other than electrical boxes, provided such penetrating items and the *annular space* between the wall membrane and the box, are protected by an *approved membrane penetration* firestop system installed as tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch (2.49 Pa) of water, and shall have an F and T rating of not less than the required *fire-resistance rating* of the wall penetrated and be installed in accordance with their listing.
5. The *annular space* created by the penetration of an automatic sprinkler, provided it is covered by a metal escutcheon plate.
6. Membrane penetrations of maximum 2-hour fire resistance-rated walls and partitions by steel electrical boxes that exceed 16 square inches (0.0 103 m^2) in area, or steel electrical boxes of any size having an aggregate area through the membrane, including those listed in exception 1, exceeding 100 square inches (0.0645 m^2) in any 100 square feet (9.29 m^2) of wall area, provided such penetrating items are protected by listed putty pads or other listed materials and methods, and installed in accordance with the listing.

714.4.2 Membrane penetrations. Penetrations of membranes that are part of a *horizontal assembly* shall comply with Section 714.4.1.1 or 714.4.1.2. Where floor/ceiling assemblies are required to have a *fire-resistance rating*, recessed fixtures shall be installed such that the required *fire resistance* will not be reduced.

Exceptions:

1. *Membrane penetrations* by steel, ferrous or copper conduits, pipes, tubes or vents, or concrete or masonry items where the *annular space* is protected either in accordance with Section 714.4.1 or to prevent the free passage of flame and the products of combustion. The aggregate area of the openings through the membrane, including those listed in exception 2, and the exception to section 717.6.1 shall not exceed 100 square inches (64 500 mm^2) in any 100 square feet (9.3 m^2) of ceiling area in assemblies tested without penetrations.
2. Ceiling *membrane penetrations* of maximum 2-hour *horizontal assemblies* by steel electrical boxes that do not exceed 16 square inches (10 323 mm^2) in area, provided the aggregate area of such penetrations, including those listed in exception 1, and the exception to section 717.6.1, does not exceed 100 square inches (44 500 mm^2) in any 100 square feet (9.29 m^2) of ceiling area, and the *annular space* between the ceiling membrane and the box does not exceed $^1/_8$ inch (3.2 mm).
3. *Membrane penetrations* by electrical boxes of any size or type, that have been *listed* as part of an opening protective material system for use in *horizontal assemblies* and are installed in accordance with the instructions included in the listing.
4. *Membrane penetrations* by *listed* electrical boxes of any material, provided such boxes have been tested for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the listing. The *annular space* between the ceiling membrane and the box shall not exceed $^1/_8$ inch (3.2 mm) unless *listed* otherwise.
5. The *annular space* created by the penetration of a fire sprinkler, provided it is covered by a metal escutcheon plate.
6. Noncombustible items that are cast into concrete building elements and that do not penetrate both top and bottom surfaces of the element.
7. The ceiling membrane of 1- and 2-hour fire-resistance-rated horizontal assemblies is permitted to be interrupted with the double wood top plate of a wall assembly that is sheathed with Type X gypsum wallboard, provided that all penetrating items through the double top plates are protected in accordance with Section 714.4.1.1 or 714.4.1.2 and the ceiling membrane is tight to the top plates.

717.6.1 Through penetrations. In occupancies other than Groups I-2 and I-3, a duct constructed of *approved* materials in accordance with the *International Mechanical Code* that penetrates a fire-resistance-rated floor/ceiling assembly that connects not more than two *stories* is permitted without shaft enclosure protection, provided a *listed fire damper* is installed at the floor line or the duct is protected in accordance with Section 714.4. For air transfer openings, see Section 712.1.9.

Exception: A duct is permitted to penetrate three floors or less without a *fire damper* at each floor, provided such duct meets all of the following requirements:

1. The duct shall be contained and located within the cavity of a wall and shall be constructed of steel having a minimum wall thickness of 0.0187 inches (0.4712 mm) (No. 26 gage).
2. The duct shall open into only one *dwelling or sleeping unit* and the duct system shall be continuous from the unit to the exterior of the building.
3. The duct shall not exceed 4-inch (102 mm) nominal diameter and the ~~total~~ aggregate area of such ducts and other penetrating elements, including those listed in exceptions 1 and 2 of section 714.4.2, shall not exceed 100 square inches (0.065 m^2) in any 100 square feet (9.3 m^2) of floor area.
4. The *annular space* around the duct is protected with materials that prevent the passage of flame and hot gases sufficient to ignite cotton waste where subjected to ASTM E 119 or UL 263 time-temperature conditions under a minimum positive pressure differential of 0.01 inch (2.49 Pa) of water at the location of the penetration for the time period equivalent to the *fire-resistance rating* of the construction penetrated.
5. Grille openings located in a ceiling of a fire-resistance-rated floor/ceiling or roof/ceiling assembly shall be protected with a *listedceiling radiation damper* installed in accordance with Section 717.6.2.1.

Reason: There are three areas of the code that include exceptions to the requirements for the use of tested and listed firestop assemblies that are based on "total" and "aggregate" area of the penetration. Only one out of the three used the word "total" and we felt it best to be consistent and use the word "aggregate" instead of "total" in section 717.6.1 as well.
In addition, we felt the intent of these exceptions was to acknowledge that as long as there were limited penetrations (only 100 square inches in 100 square feet of surface area) of noncombustible elements there was not a need to protect them with firestop systems. We also felt there was not an intent to allow 300 square inches in 100 square feet of surface area. For that reason we referenced each of these exceptions to one another to assure the aggregate area included each of those being addressed individually. Without the cross references we feel it could be interpreted that in any given 100 square foot surface area of a horizontal assembly one could have 100 square inches of steel pipe/conduit (section 714.4.2 exception 1) + 100 square inches of steel electrical boxes (section 714.4.2 exception 2) + 100 square inches of ductwork (section 717.6.1) for a total 300 square inches of elements penetrating the membrane that provides the fire resistance integrity of the horizontal assembly. We believe the intent is to keep the integrity of the surface limited to that 100 square inches per 100 square feet in area.

We also felt it was appropriate to refer to each of the other similar exceptions for the sake of clarity and consistency. For instance we reference back and forth within each of the exceptions that refer to the penetration of walls. We use the same methodology for horizontal assemblies by refering back and forth to the similar provisions that are found in each section of the code that touches on items that penetrate horizontal assemblies. By doing so we feel both the designers and code oficials will be on the same page when applying and interpreting these code sections.

Cost Impact: Will increase the cost of construction
Although we must state that this change would have the potential to increase the cost of contruction, we also feel the number of instances when this would happen would be extremely limited. We feel that in most cases the designers and contrators will coordinate placement of penetrating items in such a manner that they will be dispersed in a way to stay below the 100 square inch per 100 square feet of surface area trigger. Accordingly, because it will only be in those rare instances where that cannot be accomplished, the cost will be minimal when compared to the overall cost of construction. We also believe many contractors already coordinate in this manner so as to minimize the probability of being surprised by the field interpretation of an inspector.

FS 57-15 : 714.3.2-SMITH4042

FS 58-15

714.3.2

Proponent: Tony Crimi, representing International Firestop Council (tcrimi@sympatico.ca)

2015 International Building Code

Revise as follows:

714.3.2 Membrane penetrations. Membrane penetrations shall comply with Section 714.3.1. Where walls or partitions are required to have a *fire-resistance rating*, recessed fixtures shall be installed such that the required fire resistance will not be reduced.

Exceptions:

1. Membrane penetrations of maximum 2-hour fire-resistance-rated walls and partitions by steel electrical boxes that do not exceed 16 square inches (0.0 103 m^2) in area, provided the aggregate area of the openings through the membrane does not exceed 100 square inches (0.0645 m^2) in any 100 square feet (9.29 m^2) of wall area. The *annular space* between the wall membrane and the box shall not exceed $^1/_8$ inch (3.2 mm). Such boxes on opposite sides of the wood or steel stud wall or partition shall be separated by one of the following:
   1.1. By a horizontal distance of not less than 24 inches (610 mm) where the wall or partition is constructed with individual ~~noncommunicating~~non-staggered stud cavities;
   1.2. By a horizontal distance of not less than the depth of the wall cavity where the wall cavity is filled with cellulose loose-fill, rockwool or slag mineral wool insulation;
   1.3. By solid fireblocking in accordance with Section 718.2.1;
   1.4. By protecting both outlet boxes with *listed* putty pads; or
   1.5. By other *listed* materials and methods.
2. Membrane penetrations by *listed* electrical boxes of any material, provided such boxes have been tested for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the listing. The *annular space* between the wall membrane and the box shall not exceed $^1/_8$ inch (3.2 mm) unless *listed* otherwise. Such boxes on opposite sides of the wall or partition shall be separated by one of the following:
   2.1. By the horizontal distance specified in the listing of the electrical boxes;
   2.2. By solid fireblocking in accordance with Section 718.2.1;
   2.3. By protecting both boxes with *listed* putty pads; or
   2.4. By other *listed* materials and methods.
3. Membrane penetrations by electrical boxes of any size or type, that have been *listed* as part of a wall opening protective material system for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the listing.
4. Membrane penetrations by boxes other than electrical boxes, provided such penetrating items and the *annular space* between the wall membrane and the box, are protected by an *approved membrane penetration* firestop system installed as tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch (2.49 Pa) of water, and shall have an F and T rating of not less than the required *fire-resistance rating* of the wall penetrated and be installed in accordance with their listing.
5. The *annular space* created by the penetration of an automatic sprinkler, provided it is covered by a metal escutcheon plate.
6. Membrane penetrations of maximum 2-hour fire resistance-rated walls and partitions by steel electrical boxes that exceed 16 square inches (0.0 103 m^2) in area, or steel electrical boxes of any size having an aggregate area through the membrane exceeding 100 square inches (0.0645 m^2) in any 100 square feet (9.29 m^2) of wall area, provided such penetrating items are protected by listed putty pads or other listed materials and methods, and installed in accordance with the listing.

Reason: This Code proposal is intended to clearly articulate the application of this section. First, it clarifies that the requirements apply to both steel and wood stud walls. Second, it attempts to better express what is meant by "noncommunicating stud cavities".
The use of both wood and steel studs is common in fire resistance rated assemblies. The provision for separation of non-communicating stud cavities should recognise and include steel studs as well as wood studs. The term "noncommunicating" is problematic in that it is not a common construction term. Similarly, Merriam-Webster does not have a clear definition for the term The closest approximation is in their Medical Dictionary, which states:

> Communicating: to cause to pass from one to another(e.g. some diseases are easily communicated)

What was intended with this proposal was to address walls or partitions which did not use staggered studs. As written, steel studs are often interpreted as never creating non-communicating stud cavities because of the cut-outs. This unfairly penalizes steel stud assemblies. Because the existing language for membrane penetration protection does not explicitly exclude staggered studs walls, there are many questions as to which of these same methods can be applied in these assemblies. This proposed language will clarify the application.

Cost Impact: Will not increase the cost of construction
The proposal may reduce the cost of construction by providing additional exceptions. The additional clarity will reduce inspection time and cost.

FS 58-15 : 714.3.2-CRIMI4306

FS 59-15

714.3.3, 714.4.3

Proponent: Gregory Keeler, representing Self (design_tech@windstream.net)

2015 International Building Code

Revise as follows:

714.3.3 Dissimilar materials. Noncombustible penetrating items shall not connect to combustible items beyond the point of ~~firestopping~~fireblocking unless it can be demonstrated that the fire-resistance integrity of the wall is maintained.

714.4.3 Dissimilar materials. Noncombustible penetrating items shall not connect to combustible materials beyond the point of ~~firestopping~~fireblocking unless it can be demonstrated that the fire-resistance integrity of the *horizontal assembly* is maintained.

Reason: This proposal is editorial in nature in that all other uses of the word "firestopping" have been removed from the code. The term "firestopping" is also not defined in Chapter 2. This revision will make Section 714 more consistent.

Cost Impact: Will not increase the cost of construction
THis proposal is editorial in nature and will not increase the cost of construction.

FS 59-15 : 714.3.3-KEELER3441

FS 60-15

714.4.1

Proponent: William Koffel, representing Firestop Contractors International Association (wkoffel@koffel.com)

2015 International Building Code

Revise as follows:

714.4.1 Through penetrations. Through penetrations of *horizontal assemblies* shall comply with Section 714.4.1.1 or 714.4.1.2.

Exceptions:

1. Penetrations by steel, ferrous or copper conduits, pipes, tubes or vents or concrete or masonry items through a single fire-resistance-rated floor assembly where the *annular space* is protected with materials that prevent the passage of flame and hot gases sufficient to ignite cotton waste when subjected to ASTM E 119 or UL 263 time-temperature fire conditions under a minimum positive pressure differential of 0.01 inch (2.49 Pa) of water at the location of the penetration for the time period equivalent to the *fire-resistance rating* of the construction penetrated. Penetrating items with a maximum 6-inch (152 mm) nominal diameter shall not be limited to the penetration of a single fire-resistance-rated floor assembly, provided the aggregate area of the openings through the assembly does not exceed 144 square inches (92 900 mm^2) in any 100 square feet (9.3 m^2) of floor area. Such penetrations shall be contained and located within the concealed space of a horizontal assembly or within the cavity of a wall above or below the floor.
2. Penetrations in a single concrete floor by steel, ferrous or copper conduits, pipes, tubes or vents with a maximum 6-inch (152 mm) nominal diameter, provided the concrete, grout or mortar is installed the full thickness of the floor or the thickness required to maintain the *fire-resistance rating*. The penetrating items shall not be limited to the penetration of a single concrete floor, provided the area of the opening through each floor does not exceed 144 square inches (92 900 mm^2). Such penetrations shall be contained and located within the concealed space of a horizontal assembly or within the cavity of a wall above or below the floor.
3. Penetrations by *listed* electrical boxes of any material, provided such boxes have been tested for use in fire-resistance-rated assemblies and installed in accordance with the instructions included in the listing.

Reason: The purpose for this change is not to eliminate the exceptions from the Code but to provide the necessary protection from thermal conductivity as required for other protection methods. There are several areas within the Code that address a concern with regard to the potential for fire spread due to thermal conductivity. The proposed language will result in the exceptions being consistent with the overall intent of the Code by addressing thermal conductivity.
The never ending variations of the potential existence and presence of combustibles in areas where penetrations are not concealed within the protection of a wall is a liability and is currently addressed inconsistently wihtin the Code.

Cost Impact: Will increase the cost of construction
It is anticipated that the cost of construction may increase on some projects since there will be additional cost if the exceptions are to be used. However, other alternative compliance options remain in the Code unchanged.

FS 60-15 : 714.4.1-KOFFEL5746

FS 61-15

714.4.1.2

Proponent: Tony Crimi, representing International Firestop Council (tcrimi@sympatico.ca)

2015 International Building Code

Revise as follows:

714.4.1.2 Through-penetration firestop system. *Through penetrations* shall be protected by an *approvedthrough-penetration firestop system* installed and tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (2.49 Pa). The system shall have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.

Exceptions:

1. Floor penetrations contained and located within the cavity of a wall above the floor or below the floor do not require a T rating.
2. Floor penetrations by floor drains, tub drains or shower drains contained and located within the concealed space ~~of~~below a ~~horizontal assembly~~floor do not require a T rating.
3. Floor penetrations of maximum 4-inch (102 mm) nominal diameter penetrating directly into metal-enclosed electrical power switchgear do not require a T rating.

Reason: This proposed change clarifies and potentially expands (depending on interpretation) the existing exception for floor penetrations by floor drains, tub drains or shower drains contained and located within the concealed space of a horizontal assembly. The existing language uses the term "horizontal assembly", which is a defined term in the IBC and denotes a fire resistance-rated floor or roof assembly. If the concealed space is part of a floor/ceiling assembly, which is a horizontal assembly that includes the use of a fire-rated ceiling membrane, then the penetration would be concealed behind a fire rated material. If the concealed space referred to in exception No. 2 is simply a floor assembly, which does not incorporate the use of a fire rated membrane, then a penetration that would be concealed would be above a non-rated ceiling. In either case, the horizontal concealed space of a floor/ceiling assembly (with rated membrane) or of a floor assembly (with non-rated ceiling) is comparable in construction and protection, to that of a wall cavity in the current exception for floor penetrations contained and located within the cavity of a wall above the floor or below the floor. In the wall exception (714.4.1.2, Exception 1), the wall concealing the penetration may be either non-rated or fire rated. Thus, the level of protection that the proposed wording would make clear is comparable to that provided in the current exception for penetrations concealed within a wall, and is consistent with the proponent's intent in FS69-09/10 that added Exception No.2 to the IBC.
Floor drains, tub drains and shower drains would never be located such that the pipe penetrating the floor would be within the cavity of a wall. Thus, those drains would not be able to use the existing T-rating exception for walls (Exception No. 1). Many jurisdictions are already interpreting Eception No, 2 to apply the logic of the existing exception for walls, to include the situation of penetrating items concealed above a a non-rated ceiling, as there is some intuitive recognition that the situations really are analogous.

Cost Impact: Will not increase the cost of construction
The proposal expands the exception to include fire-resistance rated floors in which the membrane is not part of the rating.

FS 61-15 : 714.4.1.2-CRIMI4303

FS 62-15

714.4.1.2

Proponent: Ken Cornwall, representing ProVent Systems, Inc. (kcornwall@prosetsystems.com)

2015 International Building Code

714.4.1.2 Through-penetration firestop system. *Through penetrations* shall be protected by an *approvedthrough-penetration firestop system* installed and tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (2.49 Pa). The system shall have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.

Exceptions:

1. Floor penetrations contained and located within the cavity of a wall above the floor or below the floor do not require a T rating.
2. Floor penetrations by floor drains, tub drains or shower drains contained and located ~~within the concealed space of~~inside a ~~horizontal assembly do not require a T rating~~bathroom and connected with PVC or ABS drainage pipe shall comply with Section 714.4.1.2.
3. Floor penetrations of maximum 4-inch (102 mm) nominal diameter penetrating directly into metal-enclosed electrical power switchgear do not require a T rating.

Reason: The "T" rating requires the penetration to close off within 5 to 7 minutes from the start of the ASTM E-814 fire test. If the "T"" rating is complied with, there would be none to very litlle smoke transmission through the openings. If the "T" rating is zero and not required, the normal closure can take up to 18 minutes. Bedrooms are usually located next to bathrooms where toxic smoke can fill the entire habitable sleeping area and cause fatal smoke inhalation.

Cost Impact: Will not increase the cost of construction
There should not be any additonal cost because the ASTM E-814 or UL1479 fire tests for these penetrations now requires "F" and "T" ratings.

FS 62-15 : 714.4.1.2-CORNWALL4772

FS 63-15

714.4.1.2

Proponent: Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

2015 International Building Code

Revise as follows:

714.4.1.2 Through-penetration firestop system. *Through penetrations* shall be protected by an *approvedthrough-penetration firestop system* installed and tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (2.49 Pa). The system shall have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.

Exceptions:

1. Floor penetrations contained and located within the cavity of a wall above the floor or below the floor do not require a T rating.
2. Floor penetrations by floor drains, tub drains or shower drains contained and located within the concealed space of a horizontal assembly do not require a T rating.
3. Floor penetrations of cable or maximum 4-inch (102 mm) nominal diameter metal conduit or tubing penetrating directly into metal-enclosed electrical power switchgear do not require a T rating.

Reason: In its current form, Exception 3 of Section 714.4.1.2 is incomplete in that it does not specify what is penetrating the floor into the top of the switchgear. The reason statement that was submitted with FS75-12, which led to Exception 3, references "metal EMT or conduit". However, these devices are also wired with cable. As such, this proposal suggests wiring methods which reflect all these options.

Cost Impact: Will not increase the cost of construction
It simply clarifies the current requirements.

FS 63-15 : 714.4.1.2-ROBERTS4043

FS 64-15

714.4.1.2

Proponent: Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com)

2015 International Building Code

Revise as follows:

714.4.1.2 Through-penetration firestop system. *Through penetrations* shall be protected by an *approvedthrough-penetration firestop system* installed and tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (2.49 Pa). The system shall have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.

Exceptions:

1. Floor penetrations contained and located within the cavity of a wall above the floor or below the floor do not require a T rating.
2. Floor penetrations by floor drains, tub drains or shower drains contained and located within the concealed space of a horizontal assembly do not require a T rating.
3. Floor penetrations of maximum 4-inch (102 mm) nominal diameter penetrating directly into metal-enclosed electrical power switchgear do not require a T rating.
4. <u>Floor penetrations in the parking garages do not require F and T ratings</u>

Reason: It makes no sense to have a large unprotected openings between floors such as vehicle ramps and then a small floor opening next to such ramp to have F and T ratings!!

Cost Impact: Will not increase the cost of construction
This code change will decrease the cost of construction. In order to effectively compartmentalize a fire, a floor must prevent the passage of smoke and flame and also prevent the temperature on the non-fire side from rising high enough to ignite materials stored on non-fire side. To achieve these requirements, certain listed/approved fire stopping assemblies need to be installed; thus the added cost. By adopting this new exception, that requirements goes away and with it the added cost of fire stopping assemblies.

FS 64-15 : 714.4.1.2-MAIEL4340

FS 65-15

714.4.1.2

Proponent: John Valiulis, Hilti, Inc., representing Hilti, Inc. (john.valiulis@hilti.com)

2015 International Building Code

Revise as follows:

714.4.1.2 Through-penetration firestop system. *Through penetrations* shall be protected by an *approvedthrough-penetration firestop system* installed and tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (2.49 Pa). The system shall have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.

Exceptions:

1. Floor penetrations contained and located within the cavity of a wall above the floor or below the floor do not require a T rating.
2. Floor penetrations by floor drains, tub drains or shower drains contained and located within the concealed space of a horizontal assembly do not require a T rating.
3. Floor penetrations of maximum 4-inch (102 mm) nominal diameter penetrating directly into metal-enclosed electrical power switchgear do not require a T rating.
4. <u>Floor penetrations of a concrete floor by steel, ferrous, or copper conduits, pipes, tubes or vents with a maximum 6-inch (152 mm) nominal diameter, where the area of the opening through the floor does not exceed 144 square inches (92 900 mm^2) if the penetrating item penetrates more than a single floor, do not require a T-rating.</u>

Reason: <u>Overview</u>
This code change aims to rectify the significant inconsistency in performance requirements for floor penetrations of fire rated concrete floor assemblies covered by different code sections. The proposed exception would set equal heat transfer performance expectations for the different code-permitted options for sealing some specific through-penetrations of a concrete floor.

<u>Code requirements when the penetration is firestopped</u>

The most common code-compliant way of firestopping a though-penetration of a fire resistance rated floor assembly is to protect the penetration in accordance with a tested through-penetration firestop system, as detailed in 714.4.1.2. Using a tested firestop system will require that the system have an F-rating equal to the rating of the penetrated assembly. The F-rating is a measure of the firestop system's ability to prevent fire passage. In addition, a floor penetration firestop system may also require a T-rating equal to the fire rating of the assembly, unless one of the three T-rating exceptions are met, as enumerated in 714.4.1.2, shown above. The T-rating is a measure of the firestop system's ability to limit temperature rise on the non-fire side of the penetration.

<u>Code requirements when the penetration is sealed with concrete/grout/mortar</u>

The IBC and the legacy codes have allowed an exception to the requirement for an approved, tested firestop system, under certain strict limitations, as covered in 714.4.1 Exception No. 2. Using Exception No. 2, the prescriptive code allows filling the annular space with full-depth concrete, grout, or mortar, if the penetration meets all of these conditions:
a) Is a steel, ferrous, or copper conduit, pipe, tube or vent
b) Has a maximum 6 inch nominal diameter
c) The area of the opening through the floor does not exceed 144 square inches if the penetrating item penetrates more than a single floor.

The level of fire safety provided by 714.4.1 Exception 2 is found to be lacking by some in the fire protection community, but the fact remains that it is in the 2015 IBC, was in the legacy codes, and has been used for several decades. This code change proposal acknowledges the continued existence of that exception, without commenting on its merits or lack thereof, and aims to make other sections of the code, namely 714.4.1.2, consistent with this exception, assuming that this exception remains in the Code.

<u>Measured performance of penetrations sealed with concrete/grout/mortar</u>

Using 714.4.1 Exception No.2, there is no requirement for the penetration sealing method (concrete, grout or mortar) to restrict the temperature rise of the penetrating item on the non-fire side to less than 325F (i.e. no requirement for a T-rating). A steel or copper penetrating item will in fact get hot quite fast on the non-fire side (above the floor) if sealed with the concrete/grout/mortar solution. A fire test conducted by UL in 2005 (see Reference No. 1) measured the penetrant temperature on the non-fire side (i.e. above the floor) for three separate floor penetrations, sealed with 1) hydraulic cement, 2) grout and 3) mortar. The penetrating items and hole sizes where within the parameters allowed by 714.4.1 Exception No. 2. The fire test exposure was the standard ASTM E119 time-temperature curve, which is the same time-temperature curve used for other required fire resistance ratings required within the IBC. The test demonstrated that for all three penetrations tested, the T-rating limit of 325F temperature rise was exceeded within 17 minutes. Thus, the penetrations sealed with concrete, grout or mortar would be 43 minutes short of achieving even a minimal 1-hour T-rating. This is inconsistent with 714.4.1.2, which requires an approved firestop system to have a T-rating of at least 1 hour, and not less than the required rating of the floor penetrated.

<u>Making the options more consistent in their performance demands</u>

It is this inconsistency that this present code change aims to correct. Under conditions where the Code does not require a penetrating item to maintain any specific maximum temperature rise (T-rating), that same performance requirement (or lack of requirement) should be maintained regardless of the methodology chosen to accomplish the penetration seal. It is not logical to require a tested and listed firestop system to restrict temperature rise to 325F on the non-fire side for 4 times the amount of time that this same temperature rise can be limited by the penetration sealed with concrete grout or mortar. The performance criteria required by any one of a number of code-accepted alternatives should be equivalent, not divergent by a factor of four as in this instance.

Thus, for the very specific and limited applications where the code allows the concrete, grout or mortar solution (i.e. 6 inch copper or steel penetrant, with maximum hole size 144 sq. in. where penetrating item penetrates more than one floor), the T-rating should not be required when a tested and listed firestop system is used. The proposed new exception would not diminish the tested and proven ability of the firestop system to resist the passage of fire, as expressed by the F-rating, which still must equal the fire resistance rating of the penetrated assembly.

The words used for the proposed new exception are the same words used in 714.4.1 Exception No. 2 to describe the penetrating items that fall under that exception. This provides consistency not only of intent but also of verbiage between the two methodologies.

Establishing consistent temperature transmittal (T-rating) performance requirements between the concrete/grout/mortar solution, and the firestop solution, will have the advantage of allowing design and installation professionals to make a better, objective choice between the options. This change allows non-fire performance objectives of the penetration and fire safety to be considered without any other bias. For example, firestop systems can allow for movement of the penetrating item (depending on the firestop system selected), can provide a hermetic, water-tight seal, and would prevent the corrosion issues that are known to exist (depending on pipe and concrete composition) when a metallic pipe is cemented into a floor.

Bibliography: 1. "Fact-finding investigation of through-penetrations sealed with hydraulic cement, grout , or mortar", Underwriters' Laboratories, File R22102, Project 05CA06187, 2005

Cost Impact: Will not increase the cost of construction
The proposed new exception does not add any new requirements. Rather, under the specified conditions, it makes the option of using a tested and listed solution a more practical and therefore likely less expensive option that would be consistent with the level of heat transfer (T-rating) allowed for the prescriptive solution specified in 714.4.1 Exception 2.

FS 65-15 : 714.4.1.2-VALIULIS5542

FS 66-15

714.4.2

Proponent: Tony Crimi, representing International Firestop Council (tcrimi@sympatico.ca)

2015 International Building Code

Revise as follows:

714.4.2 Membrane penetrations. Penetrations of membranes that are part of a *horizontal assembly* shall comply with Section 714.4.1.1 or 714.4.1.2. Where floor/ceiling assemblies are required to have a *fire-resistance rating*, recessed fixtures shall be installed such that the required *fire resistance* will not be reduced.

Exceptions:

1. *Membrane penetrations* by steel, ferrous or copper conduits, pipes, tubes or vents, or concrete or masonry items where the *annular space* is protected either in accordance with Section 714.4.1 or to prevent the free passage of flame and the products of combustion. The aggregate area of the openings through the membrane shall not exceed 100 square inches (64 500 mm^2) in any 100 square feet (9.3 m^2) of ceiling area in assemblies tested without penetrations.
2. Ceiling *membrane penetrations* of maximum 2-hour *horizontal assemblies* by steel electrical boxes that do not exceed 16 square inches (10 323 mm^2) in area, provided the aggregate area of such penetrations does not exceed 100 square inches (44 500 mm^2) in any 100 square feet (9.29 m^2) of ceiling area, and the *annular space* between the ceiling membrane and the box does not exceed $^1/_8$ inch (3.2 mm).
3. *Membrane penetrations* by electrical boxes of any size or type, that have been *listed* as part of an opening protective material system for use in *horizontal assemblies* and are installed in accordance with the instructions included in the listing.
4. *Membrane penetrations* by *listed* electrical boxes of any material, provided such boxes have been tested for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the listing. The *annular space* between the ceiling membrane and the box shall not exceed $^1/_8$ inch (3.2 mm) unless *listed* otherwise.
5. The *annular space* created by the penetration of a fire sprinkler, provided it is covered by a metal escutcheon plate.
6. Noncombustible items that are cast into concrete building elements and that do not penetrate both top and bottom surfaces of the element.
7. The ceiling membrane of 1- and 2-hour fire-resistance-rated horizontal assemblies is permitted to be interrupted with th~~e double~~ wood top plate of a wall assembly that is sheathed with Type X gypsum wallboard, provided that all penetrating items through the ~~double~~ top plates are protected in accordance with Section 714.4.1.1 or 714.4.1.2 and the ceiling membrane is tight to the top plates.

Reason: This code change was originally introduced in the 2012 IBC by FS75-09/10. It provided a new exception to section 712.4.1.2 to allow the ceiling membrane of a 1 or 2 hour fire rated floor/ceiling or roof/ceiling assembly to be interrupted by a double wood top plate of a fire rated wall. All penetrations of the top plates are protected by approved through penetration firestop systems. The proposal codified a typical condition that we see with Type VA construction where the wood framed walls extend up and attach directly to the underside of wood floor joists/trusses or roof joists/trusses for structural requirements. This code change was in line with the UL testing criteria and general information section. From the standpoint of firestopping, a double top plate is not necessary in order to effectively protect the penetrations. Many penetrations complying with Section 714.4.1.1 or 714.4.1.2 can be installed in a single wood top plate.

Cost Impact: Will not increase the cost of construction
This proposal will add design flexibility and potentially reduce the cost of construction for some situations. Some existing tested and Listed systems already exist for the revised condition.

FS 66-15 : 714.4.2-CRIMI4300

FS 67-15

714.4.2

Proponent: Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

2015 International Building Code

Revise as follows:

714.4.2 Membrane penetrations. Penetrations of membranes that are part of a *horizontal assembly* shall comply with Section 714.4.1.1 or 714.4.1.2. Where floor/ceiling assemblies are required to have a *fire-resistance rating*, recessed fixtures shall be installed such that the required *fire resistance* will not be reduced.

Exceptions:

1. *Membrane penetrations* by steel, ferrous or copper conduits, pipes, tubes or vents, or concrete or masonry items where the *annular space* is protected either in accordance with Section 714.4.1 or to prevent the free passage of flame and the products of combustion. The aggregate area of the openings through the membrane shall not exceed 100 square inches (64 500 mm^2) in any 100 square feet (9.3 m^2) of ceiling area in assemblies tested without penetrations.
2. Ceiling *membrane penetrations* of maximum 2-hour *horizontal assemblies* by steel electrical boxes that do not exceed 16 square inches (10 323 mm^2) in area, provided the aggregate area of such penetrations does not exceed 100 square inches (44 500 mm^2) in any 100 square feet (9.29 m^2) of ceiling area, and the *annular space* between the ceiling membrane and the box does not exceed $^1/_8$ inch (3.2 mm).
3. *Membrane penetrations* by electrical boxes of any size or type, that have been *listed* as part of an opening protective material system for use in *horizontal assemblies* and are installed in accordance with the instructions included in the listing.
4. *Membrane penetrations* by *listed* electrical boxes of any material, provided such boxes have been tested for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the listing. The *annular space* between the ceiling membrane and the box shall not exceed $^1/_8$ inch (3.2 mm) unless *listed* otherwise.
5. The *annular space* created by the penetration of a fire sprinkler, provided it is covered by a metal escutcheon plate.
6. Noncombustible items that are cast into concrete building elements and that do not penetrate both top and bottom surfaces of the element.
7. The ceiling membrane of 1- and 2-hour fire-resistance-rated horizontal assemblies is permitted to be interrupted with the double wood top plate of a wall assembly that is sheathed with Type X gypsum wallboard, provided that all penetrating items through the double top plates are protected in accordance with Section 714.4.1.1 or 714.4.1.2 and the ceiling membrane is tight to the top plates.
8. Ceiling membrane penetrations by listed luminaires (light fixtures) or by luminaires protected with listed materials, which have been tested for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the listing.

Reason: This proposal recognizes the listings of recessed incandescent and fluorescent can lights, or enclosure materials which protect recessed can lights or troffer light fixtures, which have been tested as a ceiling membrane penetration of fire-resistance-rated horizontal assemblies. There are currently twenty six UL listed can lights which incorporate integral fire protection which have evaluated for use in fire-resistance-rated horizontal assemblies. Similarly there are eleven UL listed enclosure materials which have been evaluated for their ability to protect penetrations in ceiling membranes by non fire rated can lights or troffer light fixtures.

Cost Impact: Will not increase the cost of construction
These products are already in use within the construction industry.

FS 67-15 : 714.4.2-ROBERTS5081

FS 68-15

715.1

Proponent: Paul Coats, PE CBO, representing American Wood Council (pcoats@awc.org)

2015 International Building Code

Revise as follows:

715.1 General. Where *joints* are provided to accommodate openings that are created due to building tolerances, or are designed to allow independent movement of the building in any plane caused by thermal, seismic, wind, or any other loading, they shall be protected in accordance with this section. Joints installed in or between fire-resistance-rated walls, floor or floor/ceiling assemblies and roofs or roof/ceiling assemblies shall be protected by an approved *fire-resistant joint system* designed to resist the passage of fire for a time period not less than the required *fire-resistance rating* of the wall, floor or roof in or between which the system is installed. *Fire-resistant joint systems* shall be tested in accordance with Section 715.3.

Exception: *Fire-resistant joint systems* shall not be required for joints in all of the following locations:

1. Floors within a single *dwelling unit*.
2. Floors where the joint is protected by a shaft enclosure in accordance with Section 713.
3. Floors within atriums where the space adjacent to the atrium is included in the volume of the atrium for smoke control purposes.
4. Floors within malls.
5. Floors and ramps within open and enclosed parking garages or structures constructed in accordance with Sections 406.5 and 406.6, respectively.
6. Mezzanine floors.
7. Walls that are permitted to have unprotected openings.
8. Roofs where openings are permitted.
9. Control joints not exceeding a maximum width of 0.625 inch (15.9 mm) and tested in accordance with ASTM E 119 or UL 263.

Reason: This proposal is editorial in nature and makes no change to the current requirements. The proposed wording comes directly from the current definition of Joint in Chapter 2: "Joint. The opening in or between adjacent assemblies that is created due to building tolerances, or is designed to allow independent movement of the building in any plan caused by thermal, seismic, wind or any other loading."
Inserting the definition of "joint" here will preclude confusion with other common uses of the term. The purpose of Section 715 is to maintain fire resistance in and between assemblies where spaces are intentionally provided to allow movement of building elements. Where such space is not needed nor provided, such as in platform frame construction, there is no requirement for a fire resistance rated joint system between fire resistance rated assemblies. The proposed wording will clarify the application.

Additional information about this proposal may be posted at http://www.awc.org/Code-Officials/2015-IBC-Code-Changes/

Cost Impact: Will not increase the cost of construction
This will have no impact on the cost of construction.The cost impact of this proposal will be zero since it is a clarification of current requirements and is editorial in nature.

FS 68-15 : 715.1-COATS4011

FS 69-15

715.1

Proponent: Tony Crimi, representing International Firestop Council (tcrimi@sympatico.ca)

2015 International Building Code

Revise as follows:

715.1 General. Joints installed in or between fire-resistance-rated walls, floor or floor/ceiling assemblies and roofs or roof/ceiling assemblies shall be protected by an approved *fire-resistant joint system* designed to resist the passage of fire for a time period not less than the required *fire-resistance rating* of the wall, floor or roof in or between which the system is installed. *Fire-resistant joint systems* shall be tested in accordance with Section 715.3.

Exception: *Fire-resistant joint systems* shall not be required for joints in all of the following locations:

1. Floors within a single *dwelling unit*.
2. Floors where the joint is protected by a shaft enclosure in accordance with Section 713.
3. Floors within atriums where the space adjacent to the atrium is included in the volume of the atrium for smoke control purposes.
4. Floors within malls.
5. Floors and ramps within open and enclosed parking garages or structures constructed in accordance with Sections 406.5 and 406.6, respectively.
6. Mezzanine floors.
7. Walls that are permitted to have unprotected openings.
8. Roofs where openings are permitted.
9. Control joints not exceeding a maximum width of 0.625 inch (15.9 mm) and tested in accordance with ASTM E 119 or UL 263.
10. The intersection of exterior curtain wall assemblies and the roof slab or roof deck.

Reason: The purpose of this code proposal is to clarify that a fire-resistant joint system is not required for the joint between an exterior curtain wall and a rated, or unrated, roof slab or deck.. The IBC has never had any requirement for that joint to be protected. However, given that the code does not say that you do or don't have to provide some protection at that joint, it is occasionally assumed and misinterpreted that some protection is required. Adding this joint to the list of joints that do not require a fire-resistant joint system will prevent such mis-application of the code.
There are currently no systems available to protect these joints, and no test methods available for this condition. So even if a request was made for a fire-resistant joint system at this location, it would be impossible to comply with that request. In addition, Section 711.4 already exempts penetrations of roof assemblies from needing protection. However, that should not be confused with continued need to protect penetrations through membranes of fire-resistance rated roof/ceiling assemblies.

In this case, it is specifically the joint between the roof slab or roof deck and the exterior curtain wall that would be exempted in a manner similar to through penetrations of a roof slab or roof deck.

Cost Impact: Will not increase the cost of construction
The proposals clarifies/adds an additional exemption to the need for a fire-resistant joint system.

FS 69-15 : 715.1-CRIMI4302

FS 70-15

715.2

Proponent: William Koffel, representing Firestop Contractors International Association (wkoffel@koffel.com)

2015 International Building Code

Revise as follows:

715.2 Installation. A *fire-resistant joint system* shall be securely installed in accordance with the manufacturer's installation instructions and the listing criteria in or on the joint for its entire length so as not to ~~dislodge, loosen or otherwise~~ impair its ability to accommodate expected building movements and to resist the passage of fire and hot gases.

Reason: It is appropriate to install the fire-resistant joint system in accordance with the listing (including manufacturer's instructions) and in a manner to accommodate building movement. The text proposed to be deleted is subjective and does not provide enforceable Code text.
The manufacturer's installation instructions provide additional details that are not commonly identified in the listing criteria. This includes environmental conditions, tooling, and additional details regarding how the fire-resistant joint system is to be installed.

Cost Impact: Will not increase the cost of construction
The proposed text will not result in an increase in the cost of construction. Listed systems should already be installed in accordance with the manufacturer's installation instructions.

FS 70-15 : 715.2-KOFFEL4845

FS 71-15

715.2, 715.4

Proponent: Vickie Lovell, InterCode Incorporated, representing 3M (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

715.2 Installation. ~~A~~ ~~*fire-resistant*~~*Fire-resistant* *joint* ~~*system*~~*systems* and other approved materials used to protect the void created at the intersection of a floor/ceiling assembly and the exterior wall assembly shall be securely installed~~ in accordance with the listing criteria in or on the joint~~ for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to resist the passage of fire and hot gases. *Fire-resistant joint systems* required by this section to be tested and listed shall be installed in accordance with their listing criteria.

715.4 Exterior curtain wall/floor intersection. Where ~~fire resistance-rated~~fire-resistance rated floor or floor/ceiling assemblies are required, voids created at the intersection of the exterior curtain wall assemblies and such floor assemblies shall be sealed with an *approved* system to prevent the interior spread of fire. Such systems shall be securely installed and tested in accordance with ASTM E 2307 to provide an *F rating* for a time period not less than the *fire-resistance rating* of the floor assembly. Height and fire-resistance requirements for curtain wall spandrels shall comply with Section 705.8.5.

> **Exception:** Voids created at the intersection of the exterior curtain wall assemblies and such floor assemblies where the vision glass extends to the finished floor level shall be permitted to be sealed with an approved material to prevent the interior spread of fire. Such material shall be securely installed for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movement, and be capable of preventing the passage of flame and hot gases sufficient to ignite cotton waste where subjected to ASTM E 119 time-temperature fire conditions under a minimum positive pressure differential of 0.01 inch (0.254 mm) of water column (2.5 Pa) for the time period not less than the *fire-resistance rating* of the floor assembly.

Reason: The intent of this section of the code is to ensure that one of the largest joints in a multi-story building, the perimeter joint at the intersection of the exterior wall and the floor, is adequately protected. The text describes the appropriate systems and materials for use in such joints. The section states that fire-resistant joint systems and other approved materials used to protect the void created at the intersection of a floor/ceiling assembly and the exterior wall assembly systems and materials shall perform two functions: 1) to prevent or retard the passage of fire and hot gases; and 2) to be securely installed so as to accommodate building movement.
The code text identifies two different approaches to fire testing. One is a fire-resistance rated perimeter joint system tested to ASTM E 2307; the other is an assemblage of approved materials that has been deemed to provide adequate fire resistance based on historical testint to ASTM E 119 and anecdotal field experience. The shortfall in both approaches is that there is no requirement in this section of the code that requires the perimeter joint system nor the generic fire resistive materials to accommodate the expected movement of the joint. The code only states that both shall be "securely installed," presumably at the time of construction, but does not require that the material REMAIN securely installed throughout the life of the building. Throughout a building's life cycle, joints experience rotational, vertical and/or horizontal movement and would possibly dislodge the systems and materials over time. This proposal conveys that the systems and materials have to anticipate the expected movement of the building and make the code more consistent.

Cost Impact: Will not increase the cost of construction
This proposal should not increase the cost of construciton since joints are already required to be tested for cyclic movement within the standard ASTM E 2307. This proposal requires that the method of protecting the perimeter joint system be appropriate for the expected movement of the joint, which is implied but not currently required by the code.

FS 71-15 : 715.2-LOVELL4867

FS 72-15

715.3

Proponent: Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

2015 International Building Code

Revise as follows:

715.3 Fire test criteria. *Fire-resistant joint systems* shall be tested in accordance with the requirements of either ASTM E 1966 or UL 2079. Nonsymmetrical wall joint systems shall be tested with both faces exposed to the furnace, and the assigned *fire-resistance rating* shall be the shortest duration obtained from the two tests. Where evidence is furnished to show that the wall was tested with the least fire-resistant side exposed to the furnace, subject to acceptance of the *building official*, the wall need not be subjected to tests from the opposite side.

> **Exception:** For *exterior walls* with a horizontal *fire separation distance* greater than ~~5~~ 10 feet (~~1524~~3048 mm), the joint system shall be required to be tested for interior fire exposure only.

Reason: Section 705.5 of the 2015 International Building Code (IBC) states the required fire-resistance rating of exterior walls with a fire separation distance of greater than 10 feet shall be rated for exposure to fire from the inside only. This distance was increased from 5 feet to 10 feet with the 2009 edition of the IBC. This proposed change to the Exception of Section 715.3 is intended to bring consistency between the requirements for exterior walls and fire-resistant joint systems installed within exterior walls.

Cost Impact: Will increase the cost of construction
Any tested system previously acceptable will still be acceptable. This may provide a negligible increase cost.

FS 72-15 : 715.3-ROBERTS4050

FS 73-15

707.5, 711.4 (New), 711.5 (New), 712.1.5, 715, 715.1 (New), 715.1, 715.2, 715.3, 715.6, 715.2 (New), 715.2.1 (New), 715.4, 715.2.3 (New), 715.5, 715.4.1, 715.3 (New), 715.3.1 (New), 715.3.2 (New), 715.4.2, 715.1.1

Proponent: Tony Crimi, representing International Firestop Council (tcrimi@sympatico.ca)

2015 International Building Code

CHAPTER 7 FIRE AND SMOKE PROTECTION FEATURES
Revise as follows:

707.5 Continuity. *Fire barriers* shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above and shall be securely attached thereto. Such *fire barriers* shall be continuous through concealed space, such as the space above a suspended ceiling. Joints and voids at intersections shall comply with Sections 707.8~~ and 707.9~~.

Exceptions:

1. Shaft enclosures shall be permitted to terminate at a top enclosure complying with Section 713.12.
2. Interior exit stairway and ramp enclosures required by Section 1023 and exit access stairway and ramp enclosures required by Section 1019 shall be permitted to terminate at a top enclosure complying with Section 713.12.

Add new text as follows:

711.4 Penetrations Penetrations of *horizontal assemblies*, whether concealed or unconcealed, shall comply with Section 714.

711.5 Joints Joints made in or between horizontal assemblies shall comply with Section 715.1.Joints or voids at the intersection of horizontal assemblies and fire resistance rated walls, curtain walls, and exterior vertical walls shall comply with Section 715.2.

Revise as follows:

712.1.5 Joints. Joints shall be permitted where complying with Section ~~712.1.5.1 or 712.1.5.2~~715, as applicable.

SECTION 715 ~~FIRE-RESISTANT JOINT SYSTEMS~~PROTECTION OF JOINTS

Add new text as follows:

715.1 Joints in or between fire-resistance-rated assemblies Joints in or between fire-resistance-rated assemblies shall comply with Sections 715.1.1 through 715.1.4.

Revise as follows:

~~715.1~~715.1.1 General. Joints installed in or between fire-resistance-rated walls, floor or floor/ceiling assemblies and roofs or roof/ceiling assemblies shall be protected by an approved *fire-resistant joint system* designed to resist the passage of fire for a time period not less than the required *fire-resistance rating* of the wall, floor or roof in or between which the system is installed. *Fire-resistant joint systems* shall be tested in accordance with Section ~~715.3~~715.1.3.

Exception: *Fire-resistant joint systems* shall not be required for joints in all of the following locations:

1. Floors within a single *dwelling unit*.
2. Floors where the joint is protected by a shaft enclosure in accordance with Section 713.
3. Floors within atriums where the space adjacent to the atrium is included in the volume of the atrium for smoke control purposes.
4. Floors within malls.
5. Floors and ramps within open and enclosed parking garages or structures constructed in accordance with Sections 406.5 and 406.6, respectively.
6. Mezzanine floors.
7. Walls that are permitted to have unprotected openings.
8. Roofs where openings are permitted.
9. Control joints not exceeding a maximum width of 0.625 inch (15.9 mm) and tested in accordance with ASTM E 119 or UL 263.

~~715.2~~715.1.2 Installation. A *fire-resistant joint system* shall be securely installed in accordance with the listing criteria in or on the joint for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to resist the passage of fire and hot gases.

~~715.3~~<u>715.1.3</u> **Fire test criteria.** *Fire-resistant joint systems* shall be <u>installed as</u> tested in accordance with the requirements of either ASTM E 1966 or UL 2079. Nonsymmetrical wall joint systems shall be tested with both faces exposed to the furnace, and the assigned *fire-resistance rating* shall be the shortest duration obtained from the two tests. Where evidence is furnished to show that the wall was tested with the least fire-resistant side exposed to the furnace, subject to acceptance of the *building official*, the wall need not be subjected to tests from the opposite side.

> **Exception:** For *exterior walls* with a horizontal *fire separation distance* greater than 5 feet (1524 mm), the joint system shall be required to be tested for interior fire exposure only.

~~715.6~~<u>715.1.4</u> **Fire-resistant joint systems in smoke barriers.** *Fire-resistant joint systems* in *smoke barriers*, and joints at the intersection of a horizontal *smoke barrier* and an exterior curtain wall, shall be tested in accordance with the requirements of UL 2079 for air leakage. The *L rating* of the joint system shall not exceed 5 cfm per linear foot (0.00775 m^3/s m) of joint at 0.30 inch (7.47 Pa) of water for both the ambient temperature and elevated temperature tests.

Add new text as follows:

<u>**715.2** **Joints between floor assemblies and curtain walls.** Joints between curtain walls and floor or floor/ceiling assemblies that are required to be fire resistance rated shall comply with Sections 715.2.1 through 715.2.4. Joints between curtain walls and nonfire-resistance-rated floor or floor/ceiling assemblies shall comply with Section 715.2.5.</u>

<u>**715.2.1** **Installation** Joints shall be securely installed for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to resist the passage of fire and hot gases.</u>

Revise as follows:

~~715.4~~<u>715.2.2</u> **Exterior curtain wall/<u>Fire resistance-rated</u> floor<u> or floor/ceiling</u> intersection.** Where fire resistance-rated floor or floor/ceiling assemblies are required, voids created at the intersection of the exterior curtain wall assemblies and such floor assemblies shall be sealed with an *approved* system to prevent the interior spread of fire. Such systems shall be securely installed and tested in accordance with ASTM E 2307 to provide an *F rating* for a time period not less than the *fire-resistance rating* of the floor assembly. Height and fire-resistance requirements for curtain wall spandrels shall comply with Section 705.8.5.

> **Exception:** Voids created at the intersection of the exterior curtain wall assemblies and such floor assemblies where the vision glass extends to the finished floor level shall be permitted to be sealed with an approved material to prevent the interior spread of fire. Such material shall be securely installed and capable of preventing the passage of flame and hot gases sufficient to ignite cotton waste where subjected to ASTM E 119 time-temperature fire conditions under a minimum positive pressure differential of 0.01 inch (0.254 mm) of water column (2.5 Pa) for the time period not less than the *fire-resistance rating* of the floor assembly.

Add new text as follows:

<u>**715.2.3** **Fire-resistant joint systems in smoke barriers.** Joints at the intersection of a horizontal *smoke barrier* and an exterior curtain wall shall be tested in accordance with the requirements of UL 2079 for air leakage. The *L rating* of the joint system shall not exceed 5 cfm per linear foot (0.00775 m3/s m) of joint at 0.30 inch (7.47 Pa) of water for both the ambient temperature and elevated temperature tests.</u>

Revise as follows:

~~715.5~~<u>715.2.4</u> **Spandrel wall.** *No change to text.*

~~715.4.1~~<u>715.2.5</u> **Exterior curtain wall/nonfire-resistance-rated floor assembly intersections.** Voids created at the intersection of exterior curtain wall assemblies and nonfire-resistance-rated floor or floor/ceiling assemblies shall be sealed with an *approved* material or system to retard the interior spread of fire and hot gases between *stories*.

Add new text as follows:

<u>**715.3** **Joints between fire resistance rated walls and non-fire resistance rated floors or roofs.** Joints between fire barriers and floors or roofs shall comply with Sections 715.3.1 and 715.3.2.</u>

<u>**715.3.1** **Installation** Joints shall be securely installed so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.</u>

<u>**715.3.2** **Joints between fire barriers and nonfire-resistance-rated roof assemblies.** The voids created at the intersection of a *fire barrier* and a nonfire-resistance-rated roof assembly shall be filled with an approved material or system to retard the interior spread of fire and hot gases.</u>

Revise as follows:

~~715.4.2~~<u>715.4</u> **Exterior curtain wall/vertical fire barrier intersections.** *No change to text.*

~~715.1.1~~<u>715.2.6</u> **Curtain wall assembly.** *No change to text.*

Reason: Section 715 organization is revised as follows, to group the rules for any given application together, and to draw clear distinctions between each one of them.
715.1 JOINTS IN OR BETWEEN FIRE RESISTANCE RATED ASSEMBLIES

715.2 JOINTS BETWEEN FLOOR ASSEMBLIES AND CURTAIN WALLS

715.3 JOINTS BETWEEN FIRE RESISTANCE RATED WALLS AND NON-FIRE RESISTANCE RATED FLOORS OR ROOFS

715.4 JOINTS BETWEEN FIRE RESISTANCE RATED WALLS AND NON-FIRE RESISTANCE RATED CURTAIN WALLS

All of the code requirements are exactly as in the 2015 IBC, except moved to the appropriate new sub-section of 715. The charging statements in the earlier parts of Chapter 7 that have pointed to sections or articles within 715 are modified to correct the articles to which they need to reference in the proposed, reorganized section 715. Similarly, new charging paragraphs are created to provide consistency in the format of each section.

Cost Impact: Will not increase the cost of construction
This proposal is a reorganization of existing requirements.

FS 73-15 : CHAPTER 7-CRIMI4413

FS 74-15

402.8.6.1, 405.4.2, 405.4.3, 407.3.1, 408.3.8, 410.3.5, 510.2, 705.8.2, 706.8, 722.2.4.4, 909.20.3.1, 909.20.3.2, 1023.3.1, 3008.6.3, 3008.6.3.1, 3007.6.3, 3104.10

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Building Code

Revise as follows:

402.8.6.1 Exit passageways. Where *exit passageways* provide a secondary *means of egress* from a tenant space, doorways to the *exit passageway* shall be protected by 1-hour *fire door assemblies* that comply with Section 716 and are self- or automatic-closing by smoke detection in accordance with Section 716.5.9.3.

405.4.2 Smoke barrier penetration. The compartments shall be separated from each other by a *smoke barrier* in accordance with Section 709. Penetrations between the two compartments shall be limited to plumbing and electrical piping and conduit that are firestopped in accordance with Section 714. Doorways shall be protected by *fire door assemblies* *that comply with Section 716 and shall be* ~~that are~~ automatic-closing by smoke detection in accordance with Section 716.5.9.3 and are installed in accordance with NFPA 105 and Section 716.5.3. Where provided, each compartment shall have an air supply and an exhaust system independent of the other compartments.

405.4.3 Elevators. Where elevators are provided, each compartment shall have direct access to an elevator. Where an elevator serves more than one compartment, an elevator lobby shall be provided and shall be separated from each compartment by a s*moke barrier* in accordance with Section 709. ~~Doors~~Doorways in the smoke barrier shall be ~~gasketed~~protected by fire door assemblies that comply with Section 716, ~~have a drop sill~~shall comply with the smoke and draft control assembly requirements of Section 716.5.3 with the UL 1784 test conducted without an artificial bottom seal, and shall be automatic-closing by smoke detection in accordance with Section 716.5.9.3.

407.3.1 Corridor doors. *Corridor* doors, other than those in a wall required to be rated by Section 509.4 or for the enclosure of a vertical opening or an *exit*, shall not have a required *fire protection rating* and shall not be required to be equipped with *self-closing* or automatic-closing devices, but shall provide an effective barrier to limit the transfer of smoke and shall be equipped with positive latching. Roller latches are not permitted. Other doors shall conform to Section ~~716.5~~716.

408.3.8 Interior exit stairway and ramp construction. One *interior exit stairway* or *ramp* in each building shall be permitted to have glazing installed in doors and interior walls at each landing level providing access to the *interior exit stairway or ramp*, provided that the following conditions are met:

1. The *interior exit stairway or ramp* shall not serve more than four floor levels.
2. *Exit* doors shall be not less than $^3/_4$ -hour *fire door assemblies* complying with Section ~~716.5~~716
3. The total area of glazing at each floor level shall not exceed 5,000 square inches (3.2 m^2) and individual panels of glazing shall not exceed 1,296 square inches (0.84 m^2).
4. The glazing shall be protected on both sides by an *automatic sprinkler system*. The sprinkler system shall be designed to wet completely the entire surface of any glazing affected by fire when actuated.
5. The glazing shall be in a gasketed frame and installed in such a manner that the framing system will deflect without breaking (loading) the glass before the sprinkler system operates.
6. Obstructions, such as curtain rods, drapery traverse rods, curtains, drapes or similar materials shall not be installed between the automatic sprinklers and the glazing.

410.3.5 Proscenium curtain. Where a proscenium wall is required to have a *fire-resistance rating*, the *stage* opening shall be provided with a fire curtain complying with NFPA 80, horizontal sliding doors complying with Section ~~716.5.2~~716 having a fire protection rating of at least 1 hour, or an *approved* water curtain complying with Section 903.3.1.1 or, in facilities not utilizing the provisions of smoke-protected assembly seating in accordance with Section 1029.6.2, a smoke control system complying with Section 909 or natural *ventilation* designed to maintain the smoke level not less than 6 feet (1829 mm) above the floor of the *means of egress*.

510.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where all of the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a *fire-resistance rating* of not less than 3 hours.
2. The building below the *horizontal assembly* is of Type IA construction.

3. *Shaft*, *stairway*, *ramp* and escalator enclosures through the *horizontal assembly* shall have not less than a 2-hour *fire-resistance rating* with opening protectives in accordance with Section ~~716.5~~716.

   Exception: Where the enclosure walls below the *horizontal assembly* have not less than a 3-hour *fire-resistance rating* with opening protectives in accordance with Section ~~716.5~~716, the enclosure walls extending above the *horizontal assembly* shall be permitted to have a 1-hour *fire-resistance rating*, provided:

   1. The building above the *horizontal assembly* is not required to be of Type I construction;
   2. The enclosure connects fewer than four *stories*; and
   3. The enclosure opening protectives above the *horizontal assembly* have a *fire protection rating* of not less than 1 hour.

4. The building or buildings above the *horizontal assembly* shall be permitted to have multiple Group A occupancy uses, each with an *occupant load* of less 300, or Group B, M, R or S occupancies.
5. The building below the *horizontal assembly* shall be protected throughout by an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, and shall be permitted to be any occupancy allowed by this code except Group H.
6. The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section 504.3 for the building having the smaller allowable height as measured from the *grade plane*.

705.8.2 Protected openings. Where openings are required to be protected, ~~*fire doors* and fire shutters~~opening protectives shall comply with Section ~~716.5 and *fire window assemblies* shall comply with Section 716.6~~716.

Exception: Opening protectives are not required where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 and the exterior openings are protected by a water curtain using automatic sprinklers *approved* for that use.

706.8 Openings. Each opening through a *fire wall* shall be protected in accordance with Section ~~716.5~~716 and shall not exceed 156 square feet (15 m^2). The aggregate width of openings at any floor level shall not exceed 25 percent of the length of the wall.

Exceptions:

1. Openings are not permitted in party walls constructed in accordance with Section 706.1.1.
2. Openings shall not be limited to 156 square feet (15 m^2) where both buildings are equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.

722.2.4.4 Columns built into walls. The minimum dimensions of Table 722.2.4 do not apply to a reinforced concrete column that is built into a concrete or masonry wall provided all of the following are met:

1. The *fire-resistance rating* for the wall is equal to or greater than the required rating of the column;
2. The main longitudinal reinforcing in the column has cover not less than that required by Section 722.2.4.2; and
3. Openings in the wall are protected in accordance with ~~Table 716.5~~Section 716.

Where openings in the wall are not protected as required by Section ~~716.5~~716, the minimum dimension of columns required to have a *fire-resistance rating* of 3 hours or less shall be 8 inches (203 mm), and 10 inches (254 mm) for columns required to have a *fire-resistance rating* of 4 hours, regardless of the type of aggregate used in the concrete.

909.20.3.1 Balcony doors. Where access to the *stairway* or *ramp* is by way of an open exterior balcony, the door assembly into the enclosure shall be a *fire door assembly* in accordance with Section ~~716.5~~716.

909.20.3.2 Vestibule doors. Where access to the *stairway* or *ramp* is by way of a vestibule, the door assembly into the vestibule shall be a *fire doorassembly* complying with Section ~~716.5~~716. The door assembly from the vestibule to the *stairway* shall have not less than a 20-minute *fire protection rating* complying with Section ~~716.5~~716.

Add new text as follows:

1023.3.1 Extension. Where *interior exit stairways* and *ramps* are extended to an *exit discharge* or a *public way* by an *exit passageway*, the *interior exit stairway* and *ramp* shall be separated from the *exit passageway* by a *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both. The *fire-resistance rating* shall be not less than that required for the *interior exit stairway* and *ramp*. A *fire door* assembly complying with Section 716 shall be installed in the *fire barrier* to provide a *means of egress* from the *interior exit stairway* and *ramp* to the *exit passageway*. Openings in the *fire barrier* other than the *fire door* assembly are prohibited. Penetrations of the *fire barrier* are prohibited.

Exceptions:

1. Penetrations of the *fire barrier* in accordance with Section 1023.5 shall be permitted.

2. Separation between an *interior exit stairway* or *ramp* and the *exit passageway* extension shall not be required where there are no openings into the *exit passageway* extension.

Revise as follows:

3008.6.3 Lobby doorways. Other than the doors to the hoistway, elevator machine rooms, machinery spaces, control rooms and control spaces within the lobby enclosure smoke barrier, each doorway to an occupant evacuation elevator lobby shall be provided with a $^3/_4$-hour *fire door assembly* complying with Section ~~716.5~~716. The *fire door assembly* shall comply with the smoke and draft control assembly requirements of Section 716.5.3.1, and tested in accordance with ~~the~~ UL 1784 ~~test conducted~~ without ~~the~~ an artificial bottom seal.

3008.6.3.1 Vision panel. A vision panel shall be installed in each *fire door assembly* protecting the lobby doorway. The vision panel shall consist of fire-protection-rated glazing and shall comply with the requirements of Section 716 and shall be located to furnish clear vision of the occupant evacuation elevator lobby.

3007.6.3 Lobby doorways. Other than doors to the hoistway, elevator control room or elevator control space, each doorway to a fire service access elevator lobby shall be provided with a $^3/_4$-hour *fire door assembly* complying with Section ~~716.5~~716. The *fire door assembly* shall comply with the smoke and draft control door assembly requirements of Section 716.5.3.1, and tested in accordance with ~~the~~ UL 1784 ~~test conducted~~ without ~~the~~an artificial bottom seal.

3104.10 Tunneled walkway. Separation between the tunneled walkway and the building to which it is connected shall be not less than 2-hour fire-resistant construction and openings therein shall be protected in accordance with ~~Table 716.5.~~Section 716.

Reason: This proposal is an effort to review all I-Code references that "point" IBC Section 716 and its subsections.
In many locations, the references to a subsection of IBC 716 many need only an editorial update to the new location of the references requirements based on the reorganized text.

In other locations, it seems appropriate to clarify and / slightly revise the text and the reference.

These proposed revisions may, in some cases, be considered technical revisions. But, the goal of the proposed revisions is to be consistent with what is understood to be the intent of the code.

Cost Impact: Will not increase the cost of construction
There should be no cost increase, if the proposed revisions are consistent with the intent of the code.

FS 74-15 : 705.8.2-WOESTMAN5793

FS 75-15

716.1, 716.5

Proponent: Adolf Zubia, representing Fire Code Action Committee (fcac@iccsafe.org)

2015 International Building Code

Revise as follows:

716.1 General. Opening protectives required by other sections of this code shall comply with the provisions of this section and shall be installed in accordance with NFPA 80.

716.5 Fire door and shutter assemblies. Approved *fire door* and fire shutter assemblies shall be constructed of any material or assembly of component materials that conforms to the test requirements of Section 716.5.1, 716.5.2 or 716.5.3 and the *fire protection rating* indicated in Table 716.5. *Fire door* frames with transom lights, sidelights or both shall be permitted in accordance with Section 716.5.6.~~*Fire door* assemblies and shutters shall be installed in accordance with the provisions of this section and NFPA 80.~~

Exceptions:

1. Labeled protective assemblies that conform to the requirements of this section or UL 10A, UL 14B and UL 14C for tin-clad *fire door* assemblies.
2. Floor *fire door* assemblies in accordance with Section 712.1.13.1.

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. The Fire-CAC has held 10 open meetings and numerous Regional Work Group and Task Group meetings and conference calls for the current code development cycle which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc
This proposal relocates the requirement for installation in accordance with NFPA 80 to Section 716.1 because this is applicable to all opening protectives covered in Section 716, including fire door assemblies, fire shutter assemblies, fire window assemblies and glass unit masonry.

The FCAC opening protective work group included interested industry and testing lab representatives working together to make this section more user friendly. The work group unanimously agreed on a number of proposed changes to IBC Section 716, including this one.

Cost Impact: Will not increase the cost of construction
This code change is primarily editorial but clarifies that all opening protectives shall be installed to NFPA 80.

FS 75-15 : 716.1-ZUBIA4214

FS 76-15

Table 716.3, 2409.1

Proponent: Adolf Zubia, ICC Staff, representing Fire Code Action Committee (fcac@iccsafe.org)

2015 International Building Code

Revise as follows:

TABLE 716.3
MARKING FIRE-RATED GLAZING ASSEMBLIES

FIRE TEST STANDARD	MARKING	DEFINITION OF MARKING
ASTM E 119 or UL 263	W	Meets wall assembly criteria.
ASTM E 119 or UL 263	FC	Meets floor/ceiling criteria[a]
NFA 257 or UL 9	OH	Meets fire window assembly criteria including the hose stream test.
NFPA 252 or UL 10B or UL 10C	D H T	Meets fire door assembly criteria. Meets fire door assembly hose stream test. Meets 450ºF temperature rise criteria for 30 minutes
	XXX	The time in minutes of the fire resistance or fire protection rating of the glazing assembly.

For SI: ºC = [(ºF) - 32]/1.8.
a. See Section 2409.1

2409.1 Glass walkways. Glass installed as a part of a floor/ceiling assembly as a walking surface and constructed with laminated glass shall comply with ASTM E 2751 or with the load requirements specified in Chapter 16. Such assemblies shall comply with the *fire-resistance rating and marking* requirements of this code where applicable.

Reason: In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled Unenclosed stairways and ADA/IBC coordination. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.
This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 10 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc

To assist designers, builders and code officials in determining the correct product has been supplied/installed when fire protection or fire-resistance-rated glazing is called for in a construction project, the code requires markings linked to the rating/appropriate use of the product. As new products and uses are introduced to the market, the marking requirements require updating. This proposal recognizes the use of ASTM E 119 or UL 263 tested and listed products for rated floor/ceiling assemblies by designating the marking as FC. The proposal adds the criteria and the marking letters to Table 716.3 and it modifies Section 2409.1 to include the requirement for the marking. This proposal maintains consistency in the code when dealing with fire-rated glazing products.

Cost Impact: Will not increase the cost of construction
The changes to the Table better reflect existing code requirements.

FS 76-15 : T2409.1-ZUBIA4198

FS 77-15

716.3.1

Proponent: Jonathan Roberts, representing UL LLC (jonathan.roberts@ul.com)

2015 International Building Code

Revise as follows:

716.3.1 Fire-rated glazing identification. For fire-rated glazing, the *label* shall bear the identification required in Tables 716.3 and 716.5. "D" indicates that the glazing is permitted to be used in *fire door* assemblies and that the glazing meets the fire protection requirements of NFPA 252, UL 10B or UL 10C. "H" shall indicate that the glazing meets the hose stream requirements of NFPA 252, UL 10B or UL 10C. "T" shall indicate that the glazing meets the temperature requirements of Section 716.5.5.1. The placeholder "XXX" represents the fire-rating period, in minutes.

Reason: UL 10B and 10C have been included as comparable standards to NFPA 252 since the 2009 edition of the International Building Code. All other sections of the Section 716 which reference NFPA 252 also include UL 10B and 10C. This proposal revises Section 716.4 to also reference UL 10B and 10C in conjunction with NFPA 252 for consistency.

Cost Impact: Will not increase the cost of construction
This simply provides code users more flexibility by allowing the use of the comparable UL standard.

FS 77-15 : 716.3.1-ROBERTS4053

FS 78-15

716.4

Proponent: Adolf Zubia, representing Fire Code Action Committee (fcac@iccsafe.org)

2015 International Building Code

Revise as follows:

716.4 Alternative methods for determining fire protection ratings. The application of any of the alternative methods *listed* in this section shall be based on the fire exposure and acceptance criteria specified in NFPA 252, UL 10B, UL 10C, NFPA 257 or UL 9. The required *fire resistance* of an opening protective shall be permitted to be established by any of the following methods or procedures:

1. Designs documented in *approved* sources.
2. Calculations performed in an *approved* manner.
3. Engineering analysis based on a comparison of opening protective designs having *fire protection ratings* as determined by the test procedures set forth in NFPA 252, UL 10B, UL 10C, NFPA 257 or UL 9.
4. Alternative protection methods as allowed by Section 104.11.

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. The Fire-CAC has held 10 open meetings and numerous Regional Work Group and Task Group meetings and conference calls for the current code development cycle which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc
UL 10B and 10C have been included as comparable standards to NFPA 252 since the 2009 edition of the International Building Code. All other sections of the Section 716 which reference NFPA 252 also include UL 10B and 10C. This proposal revises Section 716.4 to also reference UL 10B and 10C in conjunction with NFPA 252 for consistency.

The FCAC opening protective work group included interested industry and testing lab representatives working together to make this section more user friendly. The work group unanimously agreed on a number of proposed changes to IBC Section 716, including this one

Cost Impact: Will not increase the cost of construction
This code change proposal allows options for engineering analysis based on two UL standards.

FS 78-15 : 716.4-ZUBIA4203

FS 79-15

Table 716.5

Proponent: Adolf Zubia, representing Fire Code Action Committee (fcac@iccsafe.org)

2015 International Building Code

Revise as follows:

TABLE 716.5
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d,f]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4	3	See Note b	D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	See Note b	D-H-W-180	Not Permitted	3	Not Permitted	W-180
	2	$1\frac{1}{2}$	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
	$1\frac{1}{2}$	$1\frac{1}{2}$	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.=D-H-W-90	Not Permitted	$1\frac{1}{2}$	Not Permitted	W-90
Enclosures for shafts, interior exit stairways and interior exit ramps.	2	$1\frac{1}{2}$	100 sq. in.	≤100 sq. in. = D-H-90 > 100 sq. in.=D-H-T-W-90	Not Permitted	2	Not Permitted	W-120
Horizontal exits in fire walls[e]	4	3	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-240	Not Permitted	4	Not Permitted	W-240

	3	3[a]	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-180	Not Permitted	3	Not Permitted	W-180
Fire barriers having a required fire-resistance rating of 1 hour: Enclosures forshafts,exit access stairways, exit access ramps, interior exit stairways and interior exit ramps; and exit passageway walls	1	1	100 sq. in.[c]	≤100 sq. in. = D-H-60 >100 sq. in.= D-H-T-W-60	Not Permitted	1	Not Permitted	W-60
					Fire protection			
Other fire barriers	1	3/4	Maximum size tested	D-H	3/4		D-H	
Fire partitions: Corridor walls	1	1/3[b]	Maximum size tested	D-20	3/4[b]		D-H-OH-45	
	0.5	1/3[b]	Maximum size tested	D-20	1/3		D-H-OH-20	
Other fire partitions	1	3/4	Maximum size tested	D-H-45	3/4		D-H-45	
	0.5	1/3	Maximum size tested	D-H-20	1/3		D-H-20	

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance

Exterior walls	3	$1^{1}/_{2}$	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in = D-H-W-90	Not Permitted	3	Not Permitted	W-180
	2	$1^{1}/_{2}$	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
					Fire protection			
	1	$^{3}/_{4}$	Maximum size tested	D-H-45	$^{3}/_{4}$		D-H-45	
Smoke barriers					**Fire protection**			
	1	$^{1}/_{3}$	Maximum size tested	D-20	$^{3}/_{4}$		D-H-OH-45	

For SI: 1 square inch = 645.2 mm.

a. Two doors, each with a fire protection rating of $1^{1}/_{2}$ hours, installed on opposite sides of the same opening in a fire wall, shall be deemed equivalent in fire protection rating to one 3-hour fire door.

b. Fire-resistance-rated glazing tested to ASTM E 119 in accordance with Section 716.2 shall be permitted, in the maximum size tested.

c. Except where the building is equipped throughout with an automatic sprinkler and the fire-rated glazing meets the criteria established in Section 716.5.5.

d. Under the column heading "Fire-rated glazing marking door vision panel," W refers to the fire-resistance rating of the glazing, not the frame.

e. See Section 716.5.8.1.2.1.

f. See also Section 716.3.1 and Table 716.3 for additional permitted markings.

Reason: In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled labeling of fire-rated glazing Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.
This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. The Fire-CAC has held 10 open meetings and numerous Regional Work Group and Task Group meetings and conference calls for the current code development cycle which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc

Section 716.3 and 716.3.1 allow for fire rated glazing products to have product performance markings greater than the minimum requirement of the code. The language was added to the 2012 code. Table 716.5 is a graphic representation of the codes requirements for the rating opening assemblies, the allowable use of fire rated glazing and the minimum marking criteria when fire rated glazing is permitted. The table is not the actual technical requirements, those technical requirements exist within the written sections of Chapter 7. The table serves as an application aid for quick reference on what is required depending on the assembly an opening is in. Sections 716.3 and 716.3.1 are intended to be enhancements to the required markings of glazing products and the footnote proposed to be added is to enhance the application of Table 716.5 and clarify the table as a quick reference guide.

Cost Impact: Will not increase the cost of construction
This change merely clarifies the marking requirements for a specific type of glazing.

FS 79-15 : T716.5-ZUBIA4199

FS 80-15

Table 716.5

Proponent: Robert Davidson, Davidson Code Concepts, LLC, representing SAFTI FIRST (rjd@davidsoncodeconcepts.com)

2015 International Building Code

Revise as follows:

TABLE 716.5
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4	3	See Note b	D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	See Note b	D-H-W-180	Not Permitted	3	Not Permitted	W-180
	2	1 1/2	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
	1 1/2	1 1/2	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.=D-H-W-90	Not Permitted	1 1/2	Not Permitted	W-90
Enclosures for shafts, interior exit stairways and interior exit ramps.	2	1 1/2	100 sq. in.	≤100 sq. in. = D-H-90 > 100 sq. in.=D-H-T-W-90	Not Permitted	2	Not Permitted	W-120
Horizontal exits in fire walls[e]	4	3	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-240	Not Permitted	4	Not Permitted	W-240

	3	3[a]	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-180	Not Permitted	3	Not Permitted	W-180
Fire barriers having a required fire-resistance rating of 1 hour: Enclosures forshafts,exit access stairways, exit access ramps, interior exit stairways and interior exit ramps; and exit passageway walls	1	1	100 sq. in.[e]	≤100 sq. in. = D-H-60 >100 sq. in.= D-H-T-W-60	Not Permitted	1	Not Permitted	W-60
					Fire protection			
Other fire barriers	1	3/4	Maximum size tested	D-H	3/4		D-H	
Fire partitions: Corridor walls	1	1/3[b]	Maximum size tested	D-20	3/4[b]		D-H-OH-45	
	0.5	1/3[b]	Maximum size tested	D-20	1/3		D-H-OH-20	
Other fire partitions	1	3/4	Maximum size tested	D-H-45	3/4		D-H-45	
	0.5	1/3	Maximum size tested	D-H-20	1/3		D-H-20	

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance

Exterior walls	3	$1^{1}/_{2}$	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in = D-H-W-90	Not Permitted	3	Not Permitted	W-180
	2	$1^{1}/_{2}$	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
					Fire protection			
	1	$^{3}/_{4}$	Maximum size tested	D-H-45	$^{3}/_{4}$		D-H-45	
Smoke barriers					**Fire protection**			
	1	$^{1}/_{3}$	Maximum size tested	D-20	$^{3}/_{4}$		D-H-OH-45	

For SI: 1 square inch = 645.2 mm.

a. Two doors, each with a fire protection rating of $1^{1}/_{2}$ hours, installed on opposite sides of the same opening in a fire wall, shall be deemed equivalent in fire protection rating to one 3-hour fire door.

b. Fire-resistance-rated glazing tested to ASTM E 119 in accordance with Section 716.2 shall be permitted, in the maximum size tested.

~~c. Except where the building is equipped throughout with an automatic sprinkler and the fire-rated glazing meets the criteria established in Section 716.5.5.~~

d. Under the column heading "Fire-rated glazing marking door vision panel," W refers to the fire-resistance rating of the glazing, not the frame.

e. See Section 716.5.8.1.2.1.

Reason: This proposal is to delete "note c" from Table 716.5 since the note does not make any changes to the current code requirements indicated in the Table. Note c is attached to the "100 sq. in." limitation in the "Door Vision Panel Size" column at the "Fire barriers having a required fire resistance rating of 1 hour: Enclosures for shafts, exit access stairways, exit access ramps, interior exit stairways and interior exit ramps; and exit passageway walls" line.

It directs the user to Section 716.5.5 of the code. However, current Section 716.5.5 does not provide for any modification of the 100 sq. in. limitation for fire protection rated glazing. (Note B at the top of the column provides for increased fire-resistance rated glazing size).

716.5.5 Doors in interior exit stairways and ramps and exit passageways. Fire door assemblies in interior exit stairways and ramps and exit passageways shall have a maximum transmitted temperature rise of not more than 450°F (250°C) above ambient at the end of 30 minutes of standard fire test exposure.

Exception: The maximum transmitted temperature rise is not required in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

716.5.5.1 Glazing in doors. Fire-protection-rated glazing in excess of 100 square inches (0.065 m2) is not permitted. Fire-resistance-rated glazing in excess of 100 square inches (0.065 m2) shall be permitted in door fire doors. Listed fire-resistance-rated glazing in a fire door shall have a maximum transmitted temperature rise in accordance with Section 716.5.5 when the fire door is tested in accordance with NFPA 252, UL 10B or UL 10C.

The note traces back to a previous edition of the IBC where the maximum transmitted temperature rise exception was repeated under Section 716.5.5.1 in error. That was corrected with the exception being deleted in the 2012 edition of the IBC and as a result Note c needs to be deleted as it currently creates misdirection to a user of the table.

Cost Impact: Will not increase the cost of construction
The cost of construction would be reduced by clarification of the code language through deletion of the misleading note.

FS 80-15 : T716.5-DAVIDSON5282

FS 81-15

Table 716.5, 716.5.5, 716.5.5.1, 716.5.8.1.2

Proponent: Tom Zaremba, representing Alliance of Fire Rated Glazing Manufacturers (tzaremba@ralaw.com)

2015 International Building Code

Revise as follows:

TABLE 716.5
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4	3	See Note b	D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	See Note b	D-H-W-180	Not Permitted	3	Not Permitted	W-180
	2	1 1/2	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.= <u>D-H-T-90</u> <u>or</u> D-H-W-90	Not Permitted	2	Not Permitted	W-120
	1 1/2	1 1/2	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.= <u>D-H-T-90</u> <u>or</u> D-H-W-90	Not Permitted	1 1/2	Not Permitted	W-90
Enclosures for shafts, interior exit stairways and interior exit ramps.	2	1 1/2	100 sq. in.	≤100 sq. in. = D-H-90 > 100 sq. in.= <u>D-H-T-90</u> <u>or</u> D-H-T-W-90	Not Permitted	2	Not Permitted	W-120

Horizontal exits in fire walls[e]	4	3	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-180	Not Permitted	3	Not Permitted	W-180
Fire barriers having a required fire-resistance rating of 1 hour: Enclosures forshafts,exit access stairways, exit access ramps, interior exit stairways and interior exit ramps; and exit passageway walls	1	1	100 sq. in.[c]	≤100 sq. in. = D-H-60 >100 sq. in.= D-H-T-60or D-H-T-W-60	Not Permitted	1	Not Permitted	W-60
					Fire protection			
Other fire barriers	1	3/4	Maximum size tested	D-H	3/4		D-H	
Fire partitions: Corridor walls	1	1/3[b]	Maximum size tested	D-20	3/4[b]		D-H-OH-45	
	0.5	1/3[b]	Maximum size tested	D-20	1/3		D-H-OH-20	
Other fire partitions	1	3/4	Maximum size tested	D-H-45	3/4		D-H-45	
	0.5	1/3	Maximum size tested	D-H-20	1/3		D-H-20	

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Exterior walls	3	$1^{1}/_{2}$	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in = D-H-W-90	Not Permitted	3	Not Permitted	W-180
	2	$1^{1}/_{2}$	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
					Fire protection			
	1	$^{3}/_{4}$	Maximum size tested	D-H-45	$^{3}/_{4}$		D-H-45	
Smoke barriers					Fire protection			
	1	$^{1}/_{3}$	Maximum size tested	D-20	$^{3}/_{4}$		D-H-OH-45	

For SI: 1 square inch = 645.2 mm.

a. Two doors, each with a fire protection rating of $1^{1}/_{2}$ hours, installed on opposite sides of the same opening in a fire wall, shall be deemed equivalent in fire protection rating to one 3-hour fire door.

b. Fire-resistance-rated glazing tested to ASTM E 119 in accordance with Section 716.2 shall be permitted, in the maximum size tested.

c. Except where the building is equipped throughout with an automatic sprinkler and the fire-rated glazing meets the criteria established in Section 716.5.5.

d. Under the column heading "Fire-rated glazing marking door vision panel," W refers to the fire-resistance rating of the glazing, not the frame.

e. See Section 716.5.8.1.2.1.

716.5.5 Doors in interior exit stairways and ramps and exit passageways. *Fire door* assemblies in interior exit stairways and ramps and exit passageways shall have a maximum transmitted temperature rise of not more than 450°F (250°C) above ambient at the end of 30 minutes of standard fire test exposure.

> ~~**Exception:** The maximum transmitted temperature rise is not required in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.~~

716.5.5.1 Glazing in doors. ~~Fire-protection-rated~~

Fire rated glazing ~~in excess of 100 square inches (0.065 m^2) is not permitted. Fire-resistance-rated glazing in excess of 100 square inches (0.065 m^2)~~ shall be permitted in ~~door~~ *fire doors in accordance with Table 716.5*. Listed ~~fire-resistance-rated~~fire rated glazing in a fire door shall have a maximum transmitted temperature rise in accordance with Section 716.5.5 when the fire door is tested in accordance with NFPA 252, UL 10B or UL 10C.

Exception: The maximum transmitted temperature rise is not required in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

716.5.8.1.2 Fire-protection-rated glazing in door assemblies in fire walls and fire barriers rated greater than 1 hour. Fire-protection-rated glazing shall be prohibited in *fire walls* and *fire barriers* except in temperature rise doors in fire walls and fire barriers rated 2 hours or less that comply with Section 716.5.5.1, or as provided in Sections 716.5.8.1.2.1 and 716.5.8.1.2.2.

Reason: The code currently imposes unwarranted barriers to the use of fire-protection rated glazings in sizes greater than 100 sq.in. that, while not fire-resistance rated, are capable of blocking the passage of heat to enable a fire door tested to NFPA 252 (or UL 10B or UL 10C) to meet the 450º F temperature rise limitation found in Section 716.5.5 ("temperature rise doors").
The modifications proposed here are intended to permit the use of fire-protection rated glazing in sizes larger than 100 sq.in. if, and only if, the fire doors in which it is installed meets the 450º F temperature rise limitation found in Section 716.5.5.

The term "fire-rated glazing" is defined in Ch. 2 of the IBC to include both fire-protection rated and fire-resistance rated glazing. The proposed modification to Section 716.5.5.1, takes advantage of that definition to, simply, allow any "fire-rated glazing," whether fire-protection rated or fire-resistance rated, in temperature rise doors so long as it complies with the temperature rise restrictions of Section 716.5.5.

Consistent with this proposed change to Section 716.5.5.1, Table 716.5 is modified to permit complying fire-protection rated glazings found in temperature rise doors to be marked "D-H-T-xxx" (along with fire-resistance rated glazings found in temperature rise doors that are already being marked "D-H-W-xxx"). Likewise, Section 716.5.8.1.2 is also modified to accomodate the use of fire-protection rated glazings in temperature rise doors found in fire walls and fire barriers rated 2 hours or less.

Finally, the sprinklered building "exception" to Section 716.5.5 is moved to the end of the section, simply, to clarify that it applies to all of Section 716.5.5, including Section 716.5.5.1.

Cost Impact: Will not increase the cost of construction
Currently, only fire-resistance rated glazings are permitted in sizes greater than 100 sq.in. in temperature rise doors. Fire-resistance rated glazing is heavier and more expensive than fire-protection rated glazing. Allowing properly tested, listed and labeled fire-protection rated glazings in temperature rise doors will reduce the weight and the cost of such doors. Allowing fire-protection rated glazings in these applications will reduce, rather than increase, the cost of construction.

FS 81-15 : T716.5.5-ZAREMBA4757

FS 82-15

Table 716.5, 716.5.6

Proponent: Tom Zaremba, Roetzel & Andress, representing Alliance of Fire Rated Glazing Manufacturers (tzaremba@ralaw.com)

2015 International Building Code

Revise as follows:

TABLE 716.5
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4	3	See Note b	D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	See Note b	D-H-W-180	Not Permitted	3	Not Permitted	W-180
	2	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
	$1^1/_2$	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.=D-H-W-90	Not Permitted	$1^1/_2$	Not Permitted	W-90
Enclosures for shafts, interior exit stairways and interior exit ramps.	2	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 > 100 sq. in.=D-H-T-W-90	Not Permitted	2	Not Permitted	W-120
Horizontal exits in fire walls[e]	4	3	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-240	Not Permitted	4	Not Permitted	W-240

	3	3[a]	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-180	Not Permitted	3	Not Permitted	W-180
Fire barriers having a required fire-resistance rating of 1 hour: Enclosures forshafts,exit access stairways, exit access ramps, interior exit stairways and interior exit ramps; and exit passageway walls	1	1	100 sq. in.[c]	≤100 sq. in. = D-H-60 >100 sq. in.= D-H-T-W-60	Not Permitted	1	Not Permitted	W-60
					Fire protection			
Other fire barriers	1	3/4	Maximum size tested	D-H	3/4		D-H	
Fire partitions: Corridor walls	1	1/3[b]	Maximum size tested	D-20	3/4[b]		D-H-OH-45	
	0.5	1/3[b]	Maximum size tested	D-20	1/3		D-H-OH-20	
Other fire partitions	1	3/4	Maximum size tested	D-H-45	3/4		D-H-45	
	0.5	1/3	Maximum size tested	D-H-20	1/3		D-H-20	

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance

Exterior walls	3	$1^{1}/_{2}$	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in = D-H-W-90	Not Permitted	3	Not Permitted	W-180
	2	$1^{1}/_{2}$	~~100 sq. in.[b]~~ Maximum size tested	~~≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90~~ D-H-90 or D-H-W-90	~~Not Permitted~~ 1 1/2	2	~~Not Permitted~~ D-H-OH-90	W-120
					Fire protection			
	1	$^{3}/_{4}$	Maximum size tested	D-H-45	$^{3}/_{4}$		D-H-45	
Smoke barriers					**Fire protection**			
	1	$^{1}/_{3}$	Maximum size tested	D-20	$^{3}/_{4}$		D-H-OH-45	

For SI: 1 square inch = 645.2 mm.

a. Two doors, each with a fire protection rating of $1^{1}/_{2}$ hours, installed on opposite sides of the same opening in a fire wall, shall be deemed equivalent in fire protection rating to one 3-hour fire door.

b. Fire-resistance-rated glazing tested to ASTM E 119 in accordance with Section 716.2 shall be permitted, in the maximum size tested.

c. Except where the building is equipped throughout with an automatic sprinkler and the fire-rated glazing meets the criteria established in Section 716.5.5.

d. Under the column heading "Fire-rated glazing marking door vision panel," W refers to the fire-resistance rating of the glazing, not the frame.

e. See Section 716.5.8.1.2.1.

716.5.6 Fire door frames with transom lights and sidelights. ~~Door~~ Fire-protection rated glazing shall be permitted in door frames with transom lights, sidelights or both, ~~shall be permitted~~ where a $^{3}/_{4}$-hour *fire protection rating* or less is required and in 2-hour fire-resistance rated exterior walls in accordance with Table 716.5. *Fire door* frames with transom lights, sidelights, or both, installed with fire-resistance-rated glazing tested as an assembly in accordance with ASTM E 119 or UL 263 shall be permitted where a fire protection rating exceeding $^{3}/_{4}$ hour is required in accordance with_ Table 716.5.

Reason: This proposal is intended to correct an inconsistency in the way fire windows are treated in comparison to transoms and sidelights found in the same frame with a fire door. In that regard, Table 716.6 currently allows fire windows in 2-hour exterior walls to use either 90-minute fire-protection rated glass - or - fire-resistance rated glass with a fire rating equal to that of the exterior wall. However, if a fire window is in the same frame as a fire door, (and is, therefore, called a transom or sidelight), Section 716.5.6 prohibits the use of fire-protection rated glass and requires, instead, fire-resistance rated glass.

The only real difference between a "fire window" and a "transom" or a "sidelight" is whether it is, or is not, in the same frame as a fire door. This is evident in Section 716.5.3.2. It specifies that "[i]n a 20- minute fire door assembly, the glazing material in the door itself shall have a minimum fire-protection-rated glazing of 20 minutes and shall be exempt from the hose stream test." However, it goes on to provide that glazing in the transom and sidelights of the assembly are to be tested as a fire window, "including the hose stream test, in accordance with Section 716.6."

It should be noted, that, according to Table 716.5, doors with sidelights and transoms in the same frame are required to be tested to both the fire door test standard, NFPA 252, and the fire window test stardard, NFPA 257. And, that is exactly what is being proposed here.

The adoption of this proposal will, simply, allow the same type of glazing that is currently allowed in fire windows to be used in transoms and sidelights in 2-hour exterior walls.

Cost Impact: Will not increase the cost of construction
Currently, only fire-resistant glazing is permitted in transoms and sidelights in 2-hour rated exterior walls. This proposal would permit the use of 90-minute fire-protection rated glazing in those applications, the same type of glass currently allowed in fire windows in such exterior walls. Fire-resistance rated glazing is significantly heavier and more expensive than fire-protection rated glazing. Allowing both fire-resistance rated or fire-protection rated glazing in these applications, expands the choices of architect/specifiers and the number of products available for these types of applications. If adopted, this proposal will reduce, not increase, the cost of construction.

FS 82-15 : T716.5.6-ZAREMBA5234

FS 83-15

Table 716.5, 716.5.8.1.2, 716.5.8.1.2.1, 716.5.8.1.2.2

Proponent: Tom Zaremba, Roetzel & Andress, representing Alliance of Fire Rated Glazing Manufacturers (tzaremba@ralaw.com)

2015 International Building Code

Revise as follows:

TABLE 716.5
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4	3	100 sq. in. ~~See Note b~~	≤100 sq. in. = D-H-180 >100 sq. in.= D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	100sq. in. ~~See Note b~~	≤100 sq. in. = D-H-180 >100 sq. in.= D-H-W-180	Not Permitted	3	Not Permitted	W-180
	2	1 1/2	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
	1 1/2	1 1/2	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.=D-H-W-90	Not Permitted	1 1/2	Not Permitted	W-90
Enclosures for shafts, interior exit stairways and interior exit ramps.	2	1 1/2	100 sq. in.	≤100 sq. in. = D-H-90 > 100 sq. in.=D-H-T-W-90	Not Permitted	2	Not Permitted	W-120

Horizontal exits in fire walls[e]	4	3	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-180	Not Permitted	3	Not Permitted	W-180
Fire barriers having a required fire-resistance rating of 1 hour: Enclosures forshafts,exit access stairways, exit access ramps, interior exit stairways and interior exit ramps; and exit passageway walls	1	1	100 sq. in.[c]	≤100 sq. in. = D-H-60 >100 sq. in.= D-H-T-W-60	Not Permitted	1	Not Permitted	W-60
					Fire protection			
Other fire barriers	1	3/4	Maximum size tested	D-H	3/4		D-H	
Fire partitions: Corridor walls	1	1/3[b]	Maximum size tested	D-20	3/4[b]		D-H-OH-45	
	0.5	1/3[b]	Maximum size tested	D-20	1/3		D-H-OH-20	
Other fire partitions	1	3/4	Maximum size tested	D-H-45	3/4		D-H-45	
	0.5	1/3	Maximum size tested	D-H-20	1/3		D-H-20	

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Exterior walls	3	$1^1/_2$	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in = D-H-W-90	Not Permitted	3	Not Permitted	W-180
	2	$1^1/_2$	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
					Fire protection			
	1	$^3/_4$	Maximum size tested	D-H-45	$^3/_4$		D-H-45	
Smoke barriers					Fire protection			
	1	$^1/_3$	Maximum size tested	D-20	$^3/_4$		D-H-OH-45	

For SI: 1 square inch = 645.2 mm.

a. Two doors, each with a fire protection rating of $1^1/_2$ hours, installed on opposite sides of the same opening in a fire wall, shall be deemed equivalent in fire protection rating to one 3-hour fire door.

b. Fire-resistance-rated glazing tested to ASTM E 119 in accordance with Section 716.2 shall be permitted, in the maximum size tested.

c. Except where the building is equipped throughout with an automatic sprinkler and the fire-rated glazing meets the criteria established in Section 716.5.5.

d. Under the column heading "Fire-rated glazing marking door vision panel," W refers to the fire-resistance rating of the glazing, not the frame.

e. See Section 716.5.8.1.2.1.

716.5.8.1.2 Fire-protection-rated glazing in door assemblies in fire walls and fire barriers rated greater than 1 hour. Fire-protection-rated glazing shall be ~~prohibited~~ permitted in *fire walls* and *fire barriers* ~~except~~ as provided in Sections 716.5.8.1.2.1 and 716.5.8.1.2.2.

716.5.8.1.2.1 ~~Horizontal exits.~~Fire walls Fire-protection-rated glazing shall be permitted ~~as vision panels~~ in ~~*self-closing* swinging~~*fire* ~~*door*~~doors ~~assemblies serving as horizontal exits~~ in *fire walls* where limited to 100 square inches (0.065 m^2) ~~with no dimension exceeding 10 inches (0.3 mm)~~.

716.5.8.1.2.2 Fire barriers. Fire-protection-rated glazing shall be permitted in *fire doors* ~~having a $1^1/_2$-hour *fire protection rating*~~ intended for installation in *fire barriers*, where limited to 100 square inches (0.065 m^2).

Reason: The code currently prohibits the use of fire-protection rated glazing as vision panels in 3-hour fire doors permitted in 3 and 4-hour fire walls and fire barriers. There are numerous fire-protection rated glazing products listed as 100 sq. in. vision panels for use in 3-hour fire doors.
The code currently allows fire-resistance rated glazing in these doors in unlimited size. Nothing in this proposal would change that. Instead, adopting this proposal would also permit the use of fire-protection rated glazing, but limited in size to 100 sq. in. While fire-resistance rated glazing offers

protection against thermal transfer, it will do so be becoming opaque. Fire-protection rated glazing, on the other hand, will remain transparent, enabling fire fighters and first responders to see what is on the other side of the fire door, while at the same time limiting thermal transfer by reason of the 100 sq. in. size limitation associated with its use.

Adopting this proposal will provide architect/specifiers with significantly greater flexibility with no loss of safety. Currently, if the architect/specifier determines, for whatever reason, that the use of fire-resistance rated glazing in these applications is inappropriate, the only other choice would be to use a fire door with no view panel. If this proposal is adopted, a 100 sq. in. view panel would be an available option using listed and labeled fire-protection rated glass.

Consitent with changes to Section 716.5.8.1.2, Table 716.5 would also be changed to limit "door and vision panel size" to 100 sq. in. where fire-protection rated glazing is used in fire walls and fire barriers where 3-hour fie door and fire shutter assemblies are allowed. This would allow glazings in these applications to be marked either "D-H-180" when fire-protection rated glazing is used in 3 or 4 hour fire-resistance rated walls - or - "D-H-W-240" when fire-resistance rated glazing is used in 4-hour fire-resistance walls and "D-H-W-180" when used in 3-hour fire-resistance rated walls.

Cost Impact: Will not increase the cost of construction
Permitting the use of fire-protection glazing will reduce, not increase, the cost of construction. Fire-protection rated glazing is lighter and less expensive than fire-resistance rated glazing.

FS 83-15 : T716.5.8.1.2-ZAREMBA5366

FS 84-15

Table 716.5

Proponent: Amber Armstrong, City of Edmond (Oklahoma), representing self (amber.armstrong@edmondok.com)

2015 International Building Code

Revise as follows:

TABLE 716.5
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Exterior walls	3	1 1/2	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in = D-H-W-90	Not Permitted	3	Not Permitted	W-180
	2	1 1/2	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
					Fire protection			
	1	3/4	Maximum size tested	D-H-45	3/4		D-H-45	
Smoke barriers					Fire protection			
	1	1/3	Maximum size tested	D-20	3/4		D-H-OH-45	

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance

Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4	3	See Note b	D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	See Note b	D-H-W-180	Not Permitted	3	Not Permitted	W-180
	2	1 1/2	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
	1 1/2	1 1/2	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.=D-H-W-90	Not Permitted	1 1/2	Not Permitted	W-90
Fire walls having a required fire-resistance rating of 1 hour	1	1	100 sq. in.	≤100 sq. in. = D-H-60 >100 sq. in.= D-H-W-60	Not Permitted	1	Not Permitted	W-60
Enclosures for shafts, interior exit stairways and interior exit ramps.	2	1 1/2	100 sq. in.	≤100 sq. in. = D-H-90 > 100 sq. in.=D-H-T-W-90	Not Permitted	2	Not Permitted	W-120
Horizontal exits in fire walls[e]	4	3	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-180	Not Permitted	3	Not Permitted	W-180

Fire barriers having a required fire-resistance rating of 1 hour: Enclosures forshafts,exit access stairways, exit access ramps, interior exit stairways and interior exit ramps; and exit passageway walls	1	1	100 sq. in.[c]	≤100 sq. in. = D-H-60 >100 sq. in.= D-H-T-W-60	Not Permitted	1	Not Permitted	W-60
					Fire protection			
Other fire barriers	1	3/4	Maximum size tested	D-H	3/4		D-H	
Fire partitions: Corridor walls	1	1/3[b]	Maximum size tested	D-20	3/4[b]		D-H-OH-45	
	0.5	1/3[b]	Maximum size tested	D-20	1/3		D-H-OH-20	
Other fire partitions	1	3/4	Maximum size tested	D-H-45	3/4		D-H-45	
	0.5	1/3	Maximum size tested	D-H-20	1/3		D-H-20	

For SI: 1 square inch = 645.2 mm.

a. Two doors, each with a fire protection rating of $1^1/_2$ hours, installed on opposite sides of the same opening in a fire wall, shall be deemed equivalent in fire protection rating to one 3-hour fire door.

b. Fire-resistance-rated glazing tested to ASTM E 119 in accordance with Section 716.2 shall be permitted, in the maximum size tested.

c. Except where the building is equipped throughout with an automatic sprinkler and the fire-rated glazing meets the criteria established in Section 716.5.5.

d. Under the column heading "Fire-rated glazing marking door vision panel," W refers to the fire-resistance rating of the glazing, not the frame.

e. See Section 716.5.8.1.2.1.

Reason: This code change is intended to provide requirements for opening protection assemblies in 1-hour fire walls.
According to IBC Section 706.2, "fire walls designed and constructed in accordance with NFPA 221 shall be deemed to comply with this section." In NFPA 221 2015 edition, requirements for a specific type of fire wall called a Double Fire Wall are detailed. A Double Fire Wall consists of two walls, parallel to each other which have no connections between them and are independently supported by structural elements on either side. According to Section 4.5 and Table 4.5, when each wall of a double fire wall assembly is supported by structural elements which have a fire-resistance rating less than that required for the wall, the fire-resistance rating of each wall may be reduced by one hour.

For example, a building is required to be divided by a 2-hour fire wall. The designer chooses to construct two walls, back-to-back as opposed to a single fire wall. Each wall is supported by a structural frame which does not have a fire-resistance rating. Per NFPA 221, Table 4.5, each wall of the double fire wall assembly is permitted to have a fire-resistance rating of 1-hour. NFPA 221 Section 6.10.3 requires that openings in each wall which comprises the double fire wall be protected separately. Neither NFPA 221~~, Table 4.8.2~~nor IBC Table 716.5 list the opening requirements for a 1-hour fire wall.

There are many conditions when construction of two independent walls is a more desirable option than a single fire wall. Openings between the "separate" buildings are common. With no direction on a fire-resistance rating for that opening protection, the designer does not know what to provide, and the code official must determine the appropriate rating. This decision is subjective based on each code official and will not be consistent from jurisdiction to jurisdiction.

Cost Impact: Will not increase the cost of construction
This change will not increase the cost of construction because the fire-resistance rating of 60-minutes is less than the minimum stated for any fire wall.

FS 84-15 : T716.5-ARMSTRONG5679

FS 85-15

716.5.1

Proponent: Adolf Zubia, representing Fire Code Action Committee (fcac@iccsafe.org)

2015 International Building Code

Revise as follows:

716.5.1 Side-hinged or pivoted swinging doors. *Fire door* assemblies with side-hinged and pivoted swinging doors shall be tested in accordance with NFPA 252 or UL 10C.~~ After 5 minutes into~~ For tests conducted in accordance with NFPA 252, the fire test shall be conducted using the ~~NFPA 252 test, the neutral~~positive pressure ~~level~~method specified in the ~~furnace shall be established at 40 inches (1016 mm) or less above the sill~~standard.

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. The Fire-CAC has held 10 open meetings and numerous Regional Work Group and Task Group meetings and conference calls for the current code development cycle which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc
NFPA 252 describes two fire test procedures, a positive pressure test and a "test conducted at other than positive pressure" (a neutral pressure test). The current description in Section 716.5.1 does not accurately reflect the required positive pressure conditions described in the current edition of NFPA 252. As such, this proposal is intended to correct that situation by simply requiring the test to be conducted in accordance with the positive pressure method specified in the standard. UL 10C only includes a positive pressure test, so there is no need to mention pressure conditions for it.

The FCAC opening protective work group included interested industry and testing lab representatives working together to make this section more user friendly. The work group unanimously agreed on a number of proposed changes to IBC Section 716, including this one.

Cost Impact: Will not increase the cost of construction
This code change proposal only clarifies references to testing criteria.

FS 85-15 : 716.5.1-ZUBIA4204

FS 86-15

716.5.1.1 (New), 716.5.3.1

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Building Code

Add new text as follows:

716.5.1.1 **Smoke and draft control.** Fire door assemblies shall meet the requirements for a smoke and draft control door assembly tested in accordance with UL 1784. The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot (0.01524 m3/s • m2) of door opening at 0.10 inch (24.9 Pa) of water for both the ambient temperature and elevated temperature tests. Louvers shall be prohibited. Installation of smoke doors shall be in accordance with NFPA 105.

Revise as follows:

716.5.3.1 Smoke and draft control. ~~*Fire door*~~
Door assemblies in corridors and smoke barriers shall ~~meet~~comply with th~~e requirements for a~~ smoke and draft control door assembly ~~tested~~requirements in ~~accordance with UL 1784. The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot (0.01524 $m^3/s \cdot m^2$) of door opening at 0.10 inch (24.9 Pa) of water for both the ambient temperature and elevated temperature tests. Louvers shall be prohibited. Installation of smoke doors shall be in accordance with NFPA 105.~~Section 716.5.1.1.

Reason: The IBC currently does not require fire-rated doors to also control smoke as required for smoke and draft control door assemblies. This could be the intent of the code. Or, this could be a technical oversight of the code. This proposal attempts to address this question. It seems logical that fire rated doors should also perform as smoke and draft control doors as smoke is the most common cause of fatalities from a fire.
BHMA recommends the IBC should require all side-hinged doors required to be fire-rated doors to also perform to the requirements of a smoke and draft control door. This proposal moves the text of Section 716.5.3.1 to apply to side-hinged or pivoted swinging doors.

The new text proposed for Section 716.5.3.1 maintains the current requirements of 716.5.3 for door assemblies in corridors and smoke barriers. This sentence is needed as the charging language of 716.5 requires compliance to Sections 716.5.1, 716.5.2 **or** 716.5.3 (emphasis added).

Cost Impact: Will increase the cost of construction
May increase the cost of construction. It seems logical that fire rated doors should also perform as smoke and draft control doors as smoke is the most common cause of fatalities from a fire.

FS 86-15 : 716.5.1.1 (New)-WOESTMAN5515

FS 87-15

716.5.2

Proponent: Adolf Zubia, representing Fire Code Action Committee (fcac@iccsafe.org)

2015 International Building Code

Revise as follows:

716.5.2 Other types of assemblies. *Fire door* assemblies with other types of doors, including swinging elevator doors, horizontal sliding fire door assemblies, and fire shutter assemblies, bottom and side-hinged chute intake doors, and top-hinged chute discharge doors, shall be tested in accordance with NFPA 252 or UL 10B. ~~The pressure~~ For tests conducted in accordance with NFPA 252, the neutral pressure plane in the furnace shall be maintained as nearly equal to the atmospheric pressure as possibl~~e. Once established,~~ at the ~~pressure shall be maintained during~~top of the ~~entire test period.~~door, as specified in the standard.

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. The Fire-CAC has held 10 open meetings and numerous Regional Work Group and Task Group meetings and conference calls for the current code development cycle which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc
NFPA 252 describes two fire test procedures, a positive pressure test and a "test conducted at other than positive pressure" (i.e. a neutral pressure test). Currently Section 716.5.1 defines the positive pressure conditions for NFPA 252 tests for the side-hinged and pivoted swinging doors. But Section 716.5.2 does not define this for the other types of assemblies. This proposal provides that clarification. UL 10B only includes a neutral pressure test, so there is no need to mention pressure conditions for it.

The FCAC opening protective work group included interested industry and testing lab representatives working together to make this section more user friendly. The work group unanimously agreed on a number of proposed changes to IBC Section 716, including this one.

Cost Impact: Will not increase the cost of construction
This code change proposal only clarifies references to testing criteria.

FS 87-15 : 716.5.2-ZUBIA4205

FS 88-15

716.5.2

Proponent: Joseph Hetzel, representing Door & Access Systems Manufacturers Association (Jhetzel@thomasamc.com)

2015 International Building Code

Revise as follows:

716.5.2 Other types of assemblies. *Fire door* assemblies with other types of doors, including swinging elevator doors, horizontal sliding fire ~~door assemblies~~doors, ~~and~~rolling steel fire ~~shutter assemblies~~doors, fire shutters, bottom and side-hinged chute intake doors, and top-hinged chute discharge doors, shall be tested in accordance with NFPA 252 or UL 10B. The pressure in the furnace shall be maintained as nearly equal to the atmospheric pressure as possible. Once established, the pressure shall be maintained during the entire test period.

Reason: Rolling steel fire doors should be included in the list since they have been successfully required to be tested and listed to either NFPA 252 or UL 10B for many years. The other changes are typographical for consistency within the list of door types.

Cost Impact: Will not increase the cost of construction
None.The language change has no effect on the product and thus no effect on construction cost, thus no study is needed.

FS 88-15 : 716.5.2-HETZEL3422

FS 89-15

716.5.3.1.1 (New)

Proponent: John Woestman, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Building Code

Add new text as follows:

716.5.3.1.1 **Terminated stops.** On doors required by this code to be smoke and draft control doors, stops on door frames shall be permitted to terminate not more than 6" above the floor.

> **Exception:** Section 716.5.3.1.1 shall not apply to smoke and draft control doors required by Sections 3006.3, 3007.6.3, and 3008.6.3.

Reason: Many doors installed in hollow metal frames in health care facilities have terminated stops. These terminated stops are also known as "hospital stops" or "sanitary stops." A terminated stop is a factory modification to a door frame, where the stop is terminated above the floor. The bottom of the stop is closed at a 45-degree or 90-degree angle. The purpose of a terminated stop is to make it easier to clean that area of the floor without the extra corners to catch debris or pathogens, and to avoid getting cart or bed wheels caught on the stop.
The code is silent regarding terminated stops. This proposal provides guidance where terminated stops would be allowed, and not allowed, by the code. This proposal is consistent with the testing requirements of UL 1784.

Cost Impact: Will not increase the cost of construction
No mandatory costs. Door frames with terminated stops may have a slight increase in cost compared to door frames with full length stops. However, installation of door frames with terminated stops is optional.

FS 89-15 : 716.5.3.1.1 (New)-WOESTMAN5522

FS 90-15

716.5.3.1

Proponent: Adolf Zubia, representing Fire Code Action Committee (fcac@iccsafe.org)

2015 International Building Code

Revise as follows:

716.5.3.1 Smoke and draft control. *Fire door* assemblies ~~shall meet the requirements for a~~ that also serve as smoke and draft control ~~door assembly~~ assemblies shall be tested in accordance with UL 1784. The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot (0.01524 $m^3/s \cdot m^2$) of door opening at 0.10 inch (24.9 Pa) of water for both the ambient temperature and elevated temperature tests. Louvers shall be prohibited. Installation of smoke doors shall be in accordance with NFPA 105.

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. The Fire-CAC has held 10 open meetings and numerous Regional Work Group and Task Group meetings and conference calls for the current code development cycle which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at:http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc
Editorial change only. The FCAC opening protective work group included interested industry and testing lab representatives working together to make this section more user friendly. The work group unanimously agreed on a number of proposed changes to IBC Section 716, including this one.

Cost Impact: Will not increase the cost of construction
This code change proposal will not increase the cost of construction because they are Editorial changes only.

FS 90-15 : 716.5.3.1-ZUBIA4206

FS 91-15

716.5.8

Proponent: Adolf Zubia, representing Fire Code Action Committee (fcac@iccsafe.org)

2015 International Building Code

Revise as follows:

716.5.8 Glazing material. Fire-rated glazing ~~and fire-resistance-rated glazing~~ conforming to the opening protection requirements in Section 716.5 shall be permitted in *fire door* assemblies.

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. The Fire-CAC has held 10 open meetings and numerous Regional Work Group and Task Group meetings and conference calls for the current code development cycle which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at:http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc
The definition of the phrase *fire-rated glazing* is "Glazing with either a *fire protection rating* or a *fire-resistance rating*." As such, the reference to *fire-resistance-rated* glazing in Section 716.5.8 is redundant.

The FCAC opening protective work group included interested industry and testing lab representatives working together to make this section more user friendly. The work group unanimously agreed on a number of proposed changes to IBC Section 716, including this one.

Cost Impact: Will not increase the cost of construction
This code change proposal will not increase the cost of constructio because they are editorial changes only.

FS 91-15 : 716.5.8-ZUBIA4207

FS 92-15

716.5.8.1.2.1

Proponent: Adolf Zubia, representing Fire Code Action Committee (fcac@iccsafe.org)

2015 International Building Code

Revise as follows:

716.5.8.1.2.1 Horizontal exits. Fire-protection-rated glazing shall be permitted as vision panels in *self-closing* swinging *fire door* assemblies serving as horizontal exits in *fire walls* where limited to 100 square inches (0.065 m^2) ~~with no dimension exceeding 10 inches (0.3 mm)~~.

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. The Fire-CAC has held 10 open meetings and numerous Regional Work Group and Task Group meetings and conference calls for the current code development cycle which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc
This code change deletes the 10 inch maximum dimension applied to 100 square inch vision panels limits for swinging doors in horizontal exits. The 10 inch dimension limit is not applied to any other 100 square inch maximum glazing size references in Section 716, including Sections 716.5.5.1, 716.5.8.1.2.2 and Table 716.5. The 10 inch dimension limit may also result in a conflict with ADA Standards for Accessible Design, which specifies glazing height requirements for doors and sidelights adjacent to doors.

Deleting the 10 inch maximum dimension limit for horizontal exits will allow for a fire door vision panel that meets ADA 43 inch height limits and the goal of accessible design.

The FCAC opening protective work group included interested industry and testing lab representatives working together to make this section more user friendly. The work group unanimously agreed on a number of proposed changes to IBC Section 716, including this one.

Cost Impact: Will not increase the cost of construction
If anything this proposal allows greater construction options.

FS 92-15 : 716.5.8.1.2.1-ZUBIA4216

FS 93-15

716.5.9.1

Proponent: Joseph Hetzel, Thomas Associates, Inc. representing DASMA, representing Door & Access Systems Manufacturers Association (Jhetzel@thomasamc.com)

2015 International Building Code

Revise as follows:

716.5.9.1 Latch required. Unless otherwise specifically permitted, single <u>*side-hinged swinging*</u> *fire doors* and both leaves of pairs of side-hinged swinging *fire doors* shall be provided with an active latch bolt that will secure the door when it is closed.

Reason: Clarification is needed to show that side-hinged swinging fire doors, and no other types of fire doors, are being addressed in these provisions.

Cost Impact: Will not increase the cost of construction
None.The language change has no effect on the product and thus no effect on construction cost, thus no study is needed.

FS 93-15 : 716.5.9.1-HETZEL3306

FS 94-15

202 (New), 716.5.9.2, 716.5.9.3 (New)

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

DELAYED ACTION CLOSER. Self-closing device that incorporates a delay prior to the intiation of closing. Delayed action closers are mechanical devices with an adjustable delay.

716.5.9.2 Automatic-closing fire door assemblies. Automatic-closing *fire door* assemblies shall be *self-closing* in accordance with NFPA 80.

Add new text as follows:

716.5.9.3 Delayed action closers Doors required to be self-closing and not requried to be automatic closing shall be permitted to be equipped with delayed action closers with not more than 60 seconds delay before the door is closed.

Reason: The IBC is silent regarding allowing delayed action closers, and applicable requirements.
Delayed action closer functionality is commonly required and / or desired for closers installed on doors. Example: delayed action closers are frequently used in schools to allow a teacher to lead a group of students from one area of the building to another. A door with a delayed action closer allows the teacher with a group of students to pass through the door before it closes, helping to keep the group intact.

Unlike automatic-closing doors which are commonly held in an open position, self-closing doors which are not automatic-closing doors are normally in a closed position unless being used. Thus, in a fire situation, the doors within the scope of this proposal would be closed except when being used and during the relatively brief delay caused by the delayed action closer.

The delay of delayed action closers is usually adjustable. A maximum 60 seconds delay seems reasonable for a common application in schools.

For reference; IBC definition: SELF-CLOSING. As applied to a fire door or other opening protective, means equipped with a device that will ensure closing after having been opened.

Cost Impact: Will not increase the cost of construction
None. Delayed action closers are not currently required or prohibited by the code. This proposal provides appropriate guidance where delayed action closers are installed.

FS 94-15 : 716.5.9.2-WOESTMAN5525

FS 95-15

716.5.9.3

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org); Adolf Zubia, Chair, reprsenting Fire Code Action Committee (fcac@iccsafe.org)

2015 International Building Code

Revise as follows:

716.5.9.3 Smoke-activated doors. Automatic-closing doors installed in the following locations shall be permitted to have hold-open devices. Doors shall automatically close~~automatic closing~~ by the actuation of smoke detectors installed in accordance with Section 907.3 or by loss of power to the smoke detector or hold-open device. Doors that are automatic-closing by smoke detection shall not have more than a 10-second delay before the door starts to close after the smoke detector is actuated.~~:~~ Automatic-closing doors that protect openings installed in the following locations shall comply with this section:

~~1. Doors installed across a corridor.~~
~~2. Doors installed in the enclosures of exit access stairways and ramps in accordance with Sections 1019 and 1023, respectively.~~
~~3. Doors that protect openings in exits or corridors required to be of fire-resistance-rated construction.~~
1.~~4. Doors that protect openings~~ in walls ~~that are capable of resisting the passage of smoke~~ that seperate incidental uses in accordance with Section 509.4.
2.~~7. Doors installed~~ In *fire ~~wall~~ walls* in accordance with Section 706.8.
3. In *fire barriers* in accordance with Section 707.6
4.~~6. Doors installed~~ In *fire partitions* in accordance with Section 708.6.
5.~~Doors installed~~ In *smoke barriers* in accordance with Section 709.5.
6.~~12. Doors installed~~ In smoke partitions in accordance with Section 710.5.2.3.
7.~~8. Doors installed~~ In shaft enclosures in accordance with Section 713.7.
8.~~9. Doors installed~~ In waste and linen chutes, discharge openings and access and discharge rooms in accordance with Section 713.13. Loading doors installed in waste and linen chutes shall meet the requirements of Sections 716.5.9 and 716.5.9.1.1.
~~10 Doors installed in the walls for compartmentation of underground buildings in accordance with Section 405.4.2.~~
~~11. Doors installed in the elevator lobby walls of underground buildings in accordance with Section 405.4.3.~~

Reason: The intent of this proposal is clarification. Current items 1, 2, 3, 10 and 11 are addressed in the items specific to smoke barriers, shaft enclosures, fire barriers and smoke barriers respectively. They should be deleted as redundant. Current items 4 through 9 and 12 are reworded to be consistent and to be technically correct. Fire barriers were added to the list to address doors that protect openings in exit enclosures, vertical shafts, incidental uses, etc. Items are proposed to be renumbered to be in the same order as they are found in the code.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 10 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc

Cost Impact: Will not increase the cost of construction
This proposal is a clarification of requirements; therefore, there is no increase in cost.

FS 95-15 : 716.5.9.3-WILLIAMS4237

FS 96-15

716.5.9.4

Proponent: Joseph Hetzel, representing Door & Access Systems Manufacturers Association (Jhetzel@thomasamc.com)

2015 International Building Code

Revise as follows:

716.5.9.4 Doors in pedestrian ways. ~~Vertical sliding~~
Sliding or ~~vertical~~ rolling steel *fire doors* in openings through which pedestrians travel shall be heat activated or activated by smoke detectors with alarm verification.

Reason: Sliding fire doors can operate horizontally, thus the "vertical" descriptor is not needed because it is too limiting. Rolling steel fire doors always operate vertically by definition, so the "vertical" descriptor is redundant and unnecessary.

Cost Impact: Will not increase the cost of construction
None.The language change has no effect on the product and thus no effect on construction cost, thus no study is needed.

FS 96-15 : 716.5.9.4-HETZEL3420

FS 97-15

Table 716.6, 716.6.7.1

Proponent: Robert Davidson, Davidson Code Concepts, LLC, representing SAFTI FIRST (rjd@davidsoncodeconcepts.com)

2015 International Building Code

TABLE 716.6
FIRE WINDOW ASSEMBLY FIRE PROTECTION RATINGS

TYPE OF WALL ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE WINDOW ASSEMBLY RATING (hours)	FIRE-RATED GLAZING MARKING
Interior walls			
Fire walls	All	NP[a]	W-XXX[b]
Fire barriers	>1 1	NP[a] NP[a]	W-XXX[b] W-XXX[b]
Incidental use areas (Section 707.3.7), Mixed occupancy separations (Section 707.3.9), <u>Atrium separations (Section 707.3.6)</u>	1	$^3/_4$	OH-45 or W-60
Fire partitions	1 0.5	$^3/_4$ $^1/_3$	OH-45 or W-60 OH-20 or W-30
Smoke barriers	1	$^3/_4$	OH-45 or W-60
Exterior walls	>1 1 0.5	$1^1/_2$ $^3/_4$ $^1/_3$	OH-90 or W-XXX[b] OH-45 or W-60 OH-20 or W-30
Party wall	All	NP	Not Applicable

NP = Not Permitted.

a. Not permitted except fire-resistance-rated glazing assemblies tested to ASTM E 119 or UL 263, as specified in Section 716.2.

b. XXX = The fire rating duration period in minutes, which shall be equal to the fire-resistance rating required for the wall assembly.

Revise as follows:

716.6.7.1 Where $^3/_4$-hour fire protection window assemblies permitted. Fire-protection-rated glazing requiring 45-minute opening protection in accordance with Table 716.6 shall be limited to *fire partitions* designed in accordance with Section 708 and *fire barriers* utilized in the applications set forth in Sections <u>707.3.6,</u> 707.3.7 and 707.3.9 where the *fire-resistance rating* does not exceed 1 hour. Fire-resistance-rated glazing assemblies tested in accordance with ASTM E 119 or UL 263 shall not be subject to the limitations of this section.

Reason: The purpose of this proposal is to clarify application of the code. Sections 404.6 Enclosure of atriums, 707.3.6 Atriums, and 707.6 Openings Exception 4 all provide for the use of a 1 hour fire-resistance rated fire barrier for enclosing an atrium and provide for the use of fire windows.

However, if the designer decides to provide for a fire window in the fire barrier, Section 716.6.7.1 does not include the atrium section reference, (Section 707.3.6), and Table 716.6 does not have provisions for the Minimum Window Assmbly Rating or Fire-Rated Glazing Marking for the Atrium separation assembly and has led some designers and code officials to question whether fire windows could be utilized because of the general limitation against fire windows in fire barriers.
By including the added language in the table clarification and guidance will be provided to the code user.

Cost Impact: Will not increase the cost of construction
The clarifying labguage will provide for a reduced cost of construction.

FS 97-15 : T716.6-DAVIDSON5287

FS 98-15

716.6.2

Proponent: Adolf Zubia, representing Fire Code Action Committee (fcac@iccsafe.org)

2015 International Building Code

Revise as follows:

716.6.2 Nonsymmetrical glazing systems. Nonsymmetrical fire-protection-rated glazing systems in *fire partitions*, *fire barriers* or in *exterior walls* with a *fire separation distance* of ~~5~~ 10 feet (~~1524~~3048 mm) or less pursuant to Section 705 shall be tested with both faces exposed to the furnace, and the assigned *fire protection rating* shall be the shortest duration obtained from the two tests conducted in compliance with NFPA 257 or UL 9.

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. The Fire-CAC has held 10 open meetings and numerous Regional Work Group and Task Group meetings and conference calls for the current code development cycle which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc
Section 705.5 of the 2015 International Building Code (IBC) states the required *fire-resistance rating* of *exterior walls* with a *fire separation distance* of greater than 10 feet shall be rated for exposure to fire from the inside only. This distance was increased from 5 feet to 10 feet with the 2009 edition of the IBC. This proposed change to the Section 716.6.2 brings consistency between the requirements for exterior walls and glazing systems installed within exterior walls.

The FCAC opening protective work group included interested industry and testing lab representatives working together to make this section more user friendly. The work group unanimously agreed on a number of proposed changes to IBC Section 716, including this one.

Cost Impact: Will not increase the cost of construction
This code change proposal provides better correlation to existing code requirements.

FS 98-15 : 716.6.2-ZUBIA4210

FS 99-15

716.6.5

Proponent: Adolf Zubia, representing Fire Code Action Committee (fcac@iccsafe.org)

2015 International Building Code

Revise as follows:

716.6.5 Installation. Fire-protection-rated glazing shall be in the fixed position or be automatic-closing and shall be installed in ~~approved~~*labeled* frames.

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. The Fire-CAC has held 10 open meetings and numerous Regional Work Group and Task Group meetings and conference calls for the current code development cycle which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc
Fire door and fire window frames are commonly listed and labeled, and code authorities typically look for labels during installation. This proposal reflects common installation practice and is consistent with NFPA 80, Section 17.1.3 which requires these frames to be labeled.

The FCAC opening protective work group included interested industry and testing lab representatives working together to make this section more user friendly. The work group unanimously agreed on a number of proposed changes to IBC Section 716, including this one.

Cost Impact: Will not increase the cost of construction
This code change proposal merely clarifies a current NFPA 80 requirement.

FS 99-15 : 716.6.5-ZUBIA4212

FS 100-15

716.6.7.3

Proponent: Amber Armstrong, City of Edmond (Oklahoma), representing self (amber.armstrong@edmondok.com)

2015 International Building Code

Revise as follows:

716.6.7.3 Where $^1/_3$-hour fire-protection window assemblies permitted. Fire-protection-rated glazing shall be permitted in window assemblies tested to NFPA 257 or UL 9 in ~~*smoke barriers* and~~ *fire partitions* requiring $^1/_3$-hour opening protection in accordance with Table 716.6.

Reason: This code change is intended to remove the term "smoke barrier" from this section on the grounds that:

A) The charging section for this sub section does not include smoke barriers. Section 716.6.7 addresses the use of fire window assemblies in fire partitions and fire barriers only.

B) This section states the fire-protection rating for window assemblies in smoke barriers is 1/3-hour in accordance with Table 716.6, however Table 716.6 states the minimum fire window assembly rating in a smoke barrier is 3/4-hour.

Cost Impact: Will not increase the cost of construction
There is no impact to the cost of construction because this change corrects a mistake and the language should not appear where it is stated.

FS 100-15 : 716.6.7.3-ARMSTRONG5060

FS 101-15

716 (New)

Proponent: Adolf Zubia, representing Fire Code Action Committee (fcac@iccsafe.org)

2015 International Building Code

Delete Section 716 in its entirety and replace as follows:

716.1 General Opening protectives required by other sections of this code shall comply with the provisions of this section.

716.1.1 Alternative methods for determining fire protection ratings The application of any of the alternative methods listed in this section shall be based on the fire exposure and acceptance criteria specified in NFPA 252, NFPA 257 or UL 9. The required *fire resistance* of an opening protective shall be permitted to be established by any of the following methods or procedures:

1. Designs documented in *approved* sources.
2. Calculations performed in an a*pproved* manner.
3. Engineering analysis based on a comparison of opening protective designs having *fire protection ratings* as determined by the test procedures set forth in NFPA 252, NFPA 257 or UL 9.
4. Alternative protection methods as allowed by Section 104.11.

716.1.2 Glazing Glazing used in *fire door assemblies* and *fire window assemblies* shall comply with this section in addition to the requirements of Sections 716.2 and 716.3, respectively.

716.1.2.1 Safety glazing *Fire-protection-rated* glazing and *fire-resistance-rated* glazing installed in *fire doorassemblies* and *fire window assemblies* shall comply with the safety glazing requirements of Chapter 24 where applicable.

716.1.2.2 Marking fire-rated glazing assemblies. *Fire-rated glazing* assemblies shall be marked in accordance with Tables 716.1.A, 716.1.B and 716.1.C.

716.1.2.2.1 Fire-rated glazing identification For *fire-rated glazing*, the label shall bear the identification required in Tables 716.1.A and 716.1.B. "D" indicates that the glazing is permitted to be used in fire door assemblies and that the glazing meets the fire protection requirements of NFPA 252. "H" shall indicate that the glazing meets the hose stream requirements of NFPA 252. "T" shall indicate that the glazing meets the temperature requirements of Section 716.2.2.3.1. The placeholder "XXX" represents the fire-rating period, in minutes.

716.1.2.2.2 Fire-protection-rated glazing identification For *fire-protection-rated* glazing, the label shall bear the following identification required in Tables 716.1.A and 716.1.C: "OH – XXX." "OH" indicates that the glazing meets both the fire protection and the hose-stream requirements of NFPA 257 or UL 9 and is permitted to be used in fire window openings. The placeholder "XXX" represents the fire-rating period, in minutes.

716.1.2.2.3 Fire-resistance-rated glazing identification For *fire-resistance-r*ated glazing, the label shall bear the identification required in Section 703.6 and Table 716.1.A.

716.1.2.2.4 Fire-rated glazing that exceeds the code requirements *Fire-rated glazing* assemblies marked as complying with hose stream requirements (H) shall be permitted in applications that do not require compliance with hose stream requirements. *Fire-rated glazing* assemblies marked as complying with temperature rise requirements (T) shall be permitted in applications that do not require compliance with temperature rise requirements. *Fire-rated glazing* assemblies marked with ratings (XXX) that exceed the ratings required by this code shall be permitted.

716.1.2.3 Fire-resistance-rated glazing *Fire-resistance-rated* glazing tested as part of a *fire-resistance-rated* wall or floor/ceiling assembly in accordance with ASTM E 119 or UL 263 and labeled in accordance with Section 703.6 shall not otherwise be required to comply with this section where used as part of a wall or floor/ceiling assembly.

716.1.2.3.1 Glazing in fire door and fire window assemblies *Fire-resistance-rated* glazing shall be permitted in *fire door assemblies* and *fire window assemblies* where tested and installed in accordance with their listings and where in compliance with the requirements of Sections 716.2 and 716.3, respectively.

TABLE 716.1.A
MARKING FIRE-RATED GLAZING ASSEMBLIES

FIRE TEST STANDARD	MARKING	DEFINITION OF MARKING
ASTM E 119 or UL 263	W	Meets wall assembly criteria.

NFPA 257 or UL 9	OH	Meets fire window assembly criteria including the hose stream test.
NFPA 252 or UL 10B or UL 10C	D H T	Meets fire door assembly criteria. Meets fire door assembly hose stream test. Meets 450ºF temperature rise criteria for 30 minutes
-	XXX	The time in minutes of the fire resistance or fire protection rating of the glazing assembly.

For SI: ºC = [(ºF) - 32]/1.8.

TABLE 716.1.B
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4	3	See Note b	D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	See Note b	D-H-W-180	Not Permitted	3	Not Permitted	W-180
	2	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
	$1^1/_2$	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.=D-H-W-90	Not Permitted	$1^1/_2$	Not Permitted	W-90
Enclosures for shafts, interior exit stairways and interior exit ramps.	2	$1^1/_2$	100 sq. in.	≤100 sq. in. = D-H-90 > 100 sq. in.=D-H-T-W-90	Not Permitted	2	Not Permitted	W-120
Horizontal exits in fire walls[e]	4	3	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-240	Not Permitted	4	Not Permitted	W-240

walls	3	3[a]	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-180	Not Permitted	3	Not Permitted	W-180
Fire barriers having a required fire-resistance rating of 1 hour: Enclosures forshafts,exit access stairways, exit access ramps, interior exit stairways and interior exit ramps; and exit passageway walls	1	1	100 sq. in.[c]	≤100 sq. in. = D-H-60 >100 sq. in.= D-H-T-W-60	Not Permitted	1	Not Permitted	W-60
-					Fire protection		-	
Other fire barriers	1	$^{3}/_{4}$	Maximum size tested	D-H	$^{3}/_{4}$		D-H	
Fire partitions: Corridor walls	1	$^{1}/_{3}$[b]	Maximum size tested	D-20	$^{3}/_{4}$[b]		D-H-OH-45	
	0.5	$^{1}/_{3}$[b]	Maximum size tested	D-20	$^{1}/_{3}$		D-H-OH-20	
Other fire partitions	1	$^{3}/_{4}$	Maximum size tested	D-H-45	$^{3}/_{4}$		D-H-45	
	0.5	$^{1}/_{3}$	Maximum size tested	D-H-20	$^{1}/_{3}$		D-H-20	

TYPE OF ASSEMBLY	**REQUIRED WALL ASSEMBLY RATING (hours)**	**MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)**	**DOOR VISION PANEL SIZE[b]**	**FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]**	**MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)**		**FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL**	
					Fire protection	**Fire resistance**	**Fire protection**	**Fire resistance**

Exterior walls	3	$1\frac{1}{2}$	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in = D-H-W-90	Not Permitted	3	Not Permitted	W-180
	2	$1\frac{1}{2}$	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
	-				**Fire protection**		-	
	1	$\frac{3}{4}$	Maximum size tested	D-H-45	$\frac{3}{4}$		D-H-45	
Smoke barriers	-				**Fire protection**		-	
	1	$\frac{1}{3}$	Maximum size tested	D-20	$\frac{3}{4}$		D-H-OH-45	

For SI: 1 square inch = 645.2 mm.

a. Two doors, each with a fire protection rating of $1\frac{1}{2}$ hours, installed on opposite sides of the same opening in a fire wall, shall be deemed equivalent in fire protection rating to one 3-hour fire door.

b. Fire-resistance-rated glazing tested to ASTM E 119 in accordance with Section 716.2 shall be permitted, in the maximum size tested.

c. Except where the building is equipped throughout with an automatic sprinkler and the fire-rated glazing meets the criteria established in Section 716.5.5.

d. Under the column heading "Fire-rated glazing marking door vision panel," W refers to the fire-resistance rating of the glazing, not the frame.

e. See Section 716.5.8.1.2.1.

TABLE 716.1.C
FIRE WINDOW ASSEMBLY FIRE PROTECTION RATINGS

TYPE OF WALL ASSEMBLY	**REQUIRED WALL ASSEMBLY RATING (hours)**	**MINIMUM FIRE WINDOW ASSEMBLY RATING (hours)**	**FIRE-RATED GLAZING MARKING**
Interior walls	-	-	-
Fire walls	All	NP[a]	W-XXX[b]
Fire barriers	>1 1	NP[a] NP[a]	W-XXX[b] W-XXX[b]
Incidental use areas (Section 707.3.7), Mixed occupancy separations (Section 707.3.9)	1	$\frac{3}{4}$	OH-45 or W-60

Fire partitions	1 0.5	3/4 1/3	OH-45 or W-60 OH-20 or W-30
Smoke barriers	1	3/4	OH-45 or W-60
Exterior walls	>1 1 0.5	1 1/2 3/4 1/3	OH-90 or W-XXX[b] OH-45 or W-60 OH-20 or W-30
Party wall	All	NP	Not Applicable

NP = Not Permitted.

a. Not permitted except fire-resistance-rated glazing assemblies tested to ASTM E 119 or UL 263, as specified in Section 716.2.

b. XXX = The fire rating duration period in minutes, which shall be equal to the fire-resistance rating required for the wall assembly.

716.2 Fire door assemblies *Fire door assemblies* required by other sections of this code shall comply with the provisions of this Section. *Fire door* frames with transom lights, sidelights or both shall be permitted in accordance with Section 716.2.5.4.

716.2.1 Testing requirements *Approved fire door* and fire shutter assemblies shall be constructed of any material or assembly of component materials that conforms to the test requirements of Sections 716.2.1.1, 716.2.1.2, 716.2.1.3 or 716.2.1.4 and the *fire protection r*ating indicated in Table 716.1.B.

Exceptions:

1. *Labeled* protective assemblies that conform to the requirements of this section or UL 10A, UL 14B, and UL 14C for tin-clad *fire door assemblies.*
2. Floor *fire door* assemblies in accordance with Section 712.1.13.1.

716.2.1.1 Side-hinged or pivoted swinging doors *Fire door assemblies* with side-hinged and pivoted swinging doors shall be tested in accordance with NFPA 252 or UL 10C. After 5 minutes into the NFPA 252 test, the neutral pressure level in the furnace shall be established at 40 inches (1016 mm) or less above the sill.
716.2.1.2 Other fire door assemblies. Fire door assemblies with other types of doors, including swinging elevator doors, horizontal sliding fire door assemblies, and fire shutter assemblies, bottom and side-hinged chute intake doors, and top-hinged chute discharge doors, shall be tested in accordance with NFPA 252 or UL 10B. The pressure in the furnace shall be maintained as nearly equal to the atmospheric pressure as possible. Once established, the pressure shall be maintained during the entire test period.

716.2.1.2 Other fire door assemblies *Fire door assemblies* with other types of doors, including swinging elevator doors, horizontal sliding fire door assemblies, and fire shutter assemblies, bottom and side-hinged chute intake doors, and top-hinged chute discharge doors, shall be tested in accordance with NFPA 252 or UL 10B. The pressure in the furnace shall be maintained as nearly equal to the atmospheric pressure as possible. Once established, the pressure shall be maintained during the entire test period.

716.2.1.3 Glazing in transoms lights and sidelights in corridors and smoke barriers Glazing material in transom lights and sidelights of *fire door assemblies* shall be tested in accordance with NFPA 257 or UL 9, including the hose stream test, in accordance with Section 716.3.1.1.

716.2.1.4 Smoke and draft control Smoke and draft control door assemblies shall be tested in accordance with UL 1784.

716.2.2 Performance requirements *Fire door assemblies* shall be installed in the assemblies specified in Table 716.1.B and shall comply with the *fire-protection rating* specified.

716.2.2.1 Door assemblies in corridors and smoke barriers *Fire door assemblies* required to have a minimum *fire protection rating* of 20 minutes where located in *corridor* walls or *smoke barrier* walls having a *fire-resistance rating* in accordance with Table 716.1.B shall be tested in accordance with NFPA 252 or UL 10C without the hose stream test.

Exceptions:

1. Viewports that require a hole not larger than 1 inch (25 mm) in diameter through the door, have not less than a 0.25-inch-thick (6.4 mm) glass disc and the holder is of metal that will not melt out where subject to temperatures of 1,700°F (927°C).
2. *Corridor* door assemblies in occupancies of Group I-2 shall be in accordance with Section 407.3.1.

3. Unprotected openings shall be permitted for *corridors* in multitheater complexes where each motion picture auditorium has not fewer than one-half of its required *exit* or *exit access doorways* opening directly to the exterior or into an *exit* passageway.
4. Horizontal sliding doors in *smoke barriers* that comply with Sections 408.6 and 408.8.4 in occupancies in Group I-3.

716.2.2.1.1 Smoke and draft control The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot (0.01524 m3/s m2) of door opening at 0.10 inch (24.9 Pa) of water for both the ambient temperature and elevated temperature tests. Louvers shall be prohibited.

716.2.2.2 Door assemblies in other fire partitions *Fire door assemblies* required to have a minimum *fire protection rating* of 20 minutes where located in other *fire partitions* having a fire-resistance rating of 0.5 hour in accordance with Table 716.1.B shall be tested in accordance with NFPA 252, UL 10B or UL 10C with the hose stream test.

716.2.2.3 Doors in interior exit stairways and ramps and exit passageways *Fire door assemblies* in interior *exit* stairways and ramps and *exit* passageways shall have a maximum transmitted temperature rise of not more than 450°F (250°C) above ambient at the end of 30 minutes of standard fire test exposure.
Exception: The maximum transmitted temperature rise is not required in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.

716.2.2.3.1 Glazing in doors *Fire-protection-rated* glazing in excess of 100 square inches (0.065 m2) is not permitted. *Fire-resistance-rated* glazing in excess of 100 square inches (0.065 m2) shall be permitted in *fire doors*. *Listed fire-resistance-rated* glazing in a *fire door* shall have a maximum transmitted temperature rise in accordance with Section 716.2.2.3 when the *fire door* is tested in accordance with NFPA 252, UL 10B or UL 10C.

716.2.3 Fire doors *Fire doors* installed within a *fire door assembly* shall meet the fire rating indicated in Table 716.1.B.

716.2.4 Fire door frames *Fire door* frames installed as part of a *fire door assembly* shall meet the fire rating indicated in Table 716.1.B.

716.2.5 Glazing in fire door assemblies *Fire-rated glazing* and *fire resistance-rated* glazing conforming to the opening protection requirements in Section 716.2.2 shall be permitted in *fire door assemblies*.

716.2.5.1 Size limitations *Fire-resistance-rated* glazing shall comply with the size limitations in Section 716.2.5.1.1. *Fire-protection-rated* glazing shall comply with the size limitations of NFPA 80, and as provided in Section 716.2.5.1.2.

716.2.5.1.1 Fire-resistance-rated glazing in door assemblies in fire walls and fire barriers rated greater than 1 hour. *Fire-resistance-rated* glazing tested to ASTM E 119 or UL 263 and NFPA 252, UL 10B or UL 10C shall be permitted in *fire door assemblies* located in *fire walls* and in *fire barriers* in accordance with Table 716.1.B to the maximum size tested and in accordance with their listings.

716.2.5.1.2 Fire-protection-rated glazing in door assemblies in fire walls and fire barriers rated greater than 1 hour. *Fire-protection-rated* glazing shall be prohibited in *fire walls* and *fire barriers* except as provided in Sections 716.2.5.1.2.1 and 716.2.5.1.2.2.

716.2.5.1.2.1 Horizontal exits *Fire-protection-rated* glazing shall be permitted as vision panels in self-closing swinging *fire door assemblies* serving as *horizontal exits* in *fire walls* where limited to 100 square inches (0.065 m2) with no dimension exceeding 10 inches (0.3 mm).

716.2.5.1.2.2 Fire barriers *Fire-protection-rated* glazing shall be permitted in *fire doors* having a 1-1/2-hour *fire protection rating* intended for installation in *fire barriers*, where limited to 100 square inches (0.065 m2).

716.2.5.2 Elevator, stairway and ramp protectives *Approved fire-protection-rated* glazing used in *fire door assemblies* in elevator, stairway and ramp enclosures shall be so located as to furnish clear vision of the passageway or approach to the elevator, stairway or ramp.

716.2.5.3 Glazing in door assemblies in corridors and smoke barriers In a 20-minute *fire door assembly*, the glazing material in the door itself shall have a minimum *fire-protection-rated* glazing of 20 minutes and shall be exempt from the hose stream test.

716.2.5.4] Glazing in fire door frames with transom lights and sidelights Door frames with transom lights, sidelights or both, shall be permitted where a 3/4-hour *fire protection rating* or less is required in accordance with Table 716.1.B. Fire door frames with transom lights, sidelights, or both, installed with *fire-resistance-rated* glazing tested as an assembly in accordance with ASTM E 119 or UL 263 shall be permitted where a *fire protection rating* exceeding 3/4 hour is required in accordance with Table 716.1.B.

716.2.6 Fire door hardware and closures *Fire door* hardware and closures shall be installed on *fire door assemblies* in accordance with requirements of this section.

716.2.6.1 Door closing *Fire doors* shall be latching and self- or automatic-closing in accordance with this section.

Exceptions:

1. *Fire doors* located in common walls separating sleeping units in Group R-1 shall be permitted without automatic- or self-closing devices.
2. The elevator car doors and the associated hoistway enclosure doors at the floor level designated for recall in accordance with Section 3003.2 shall be permitted to remain open during Phase I emergency recall operation.

716.2.6.2 Latch required Unless otherwise specifically permitted, single *fire doors* and both leaves of pairs of side-hinged swinging *fire doors* shall be provided with an active latch bolt that will secure the door when it is closed.

716.2.6.3 Chute intake door latching Chute intake doors shall be positive latching, remaining latched and closed in the event of latch spring failure during a fire emergency.

716.2.6.4 Auomatic-closing fire door assemblies Automatic-closing *fire door assemblies* shall be self-closing in accordance with NFPA 80.

716.2.6.5 Smoke-activated doors Automatic-closing doors installed in the following locations shall be automatic-closing by the actuation of smoke detectors installedin accordance with Section 907.3 or by loss of power to the smoke detector or hold-open device. Doors that are automatic-closing by smoke detection shall not have more than a 10-second delay before the door starts to close after the smoke detector is actuated:

1. Doors installed across a *corridor.*
2. Doors installed in the enclosures of *exit access stairways* and *ramps* in accordance with Sections 1019 and 1023, respectively.
3. Doors that protect openings in *exits* or *corridors* required to be of *fire-resistance-rated* construction.
4. Doors that protect openings in walls that are capable of resisting the passage of smoke in accordance with Section 509.4.
5. Doors installed in *smoke barriers* in accordance with Section 709.5.
6. Doors installed in *fire partitions* in accordance with Section 708.6.
7. Doors installed in a *fire wall* in accordance with Section 706.8.
8. Doors installed in shaft enclosures in accordance with Section 713.7.
9. Doors installed in waste and linen chutes, discharge openings and access and discharge rooms in accordance with Section 713.13. Loading doors installed in waste and linen chutes shall meet the requirements of Sections 716.2.6.1 and 716.2.6.3.
10. Doors installed in the walls for compartmentation of underground buildings in accordance with Section 405.4.2.
11. Doors installed in the elevator lobby walls of underground buildings in accordance with Section 405.4.3.
12. Doors installed in *smoke partitions* in accordance with Section 710.5.2.3.

716.2.6.6 Doors in pedestrian ways Vertical sliding or vertical rolling steel fire doors in openings through which pedestrians travel shall be heat activated or activated by smoke detectors with alarm verification.

716.2.7 Swinging fire shutters Where fire shutters of the swinging type are installed in exterior openings, not less than one row in every three vertical rows shall be arranged to be readily opened from the outside, and shall be identified by distinguishing marks or letters not less than 6 inches (152 mm) high.

716.2.8 Rolling fire shutters Were fire shutters of the rolling type are installed, such shutters shall include *approved* automatic-closing devices.

716.2.9 Labeled protective assemblies. *Fire door assemblies* shall be *labeled* by an *approved* agency. The labels shall comply with NFPA 80, and shall be permanently affixed to the door or frame.

716.2.9.1 Fire door labeling requirements *Fire doors* shall be *labeled* showing the name of the manufacturer or other identification readily traceable back to the manufacturer, the name or trademark of the third party inspection agency, the *fire protection rating* and, where required for *fire doors* in interior *exit stairways* and *ramps* and *exit passageways* by Section 716.2.2.3, the maximum transmitted temperature end point. Smoke and draft control doors complying with UL 1784 shall be *labeled* as such and shall comply with Section 716.2.9.3. Labels shall be *approved* and permanently affixed. The label shall be applied at the factory or location where fabrication and assembly are performed.

716.2.9.1.1 Light kits, louvers and components *Listed* light kits and louvers and their required preparations shall be considered as part of the *labeled* door where such installations are done under the listing program of the third-party agency. *Fire doors* and *fire door assemblies* shall be permitted to consist of components, including glazing, vision light kits and hardware that are *listed* or classified and labeled for such use by different third-party agencies.

716.2.9.2 Oversized doors Oversized *fire doors* shall bear an oversized *fire door* label by an *approved* agency or shall be provided with a certificate of inspection furnished by an *approved* testing agency. Where a certificate of inspection is furnished by an *approved* testing agency, the certificate shall state that the door conforms to the requirements of design, materials and construction, but has not been subjected to the fire test.

716.2.9.3 Smoke and draft control door labeling requirements Smoke and draft control doors complying with UL 1784 shall be labeled in accordance with Section 716.2.9.1 and shall show the letter "S" on the fire-rating *label* of the door. This marking shall indicate that the door and frame assembly are in compliance where listed or labeled gasketing is installed.

716.2.9.4 Fire door frame labeling requirements *Fire door* frames shall be *labeled* showing the names of the manufacturer and the third-party inspection agency.

716.2.9.5 Fire door glazing labeling requirements *Fire-rated glazing* shall bear a *label* or other identification showing the name of the manufacturer, the test standard and information required in Table 716.1.A that shall be issued by an *approved* agency and shall be permanently identified on the glazing.

716.2.9.6 Fire door operator labeling requirements *Fire door* operators for horizontal sliding doors shall be *labeled* and *liste*d for use with the assembly.

716.2.10 Installation of fire door assemblies and fire shutter assemblies *Fire door assemblies* and shutters shall be installed in accordance with the provisions of this section and NFPA 80.

716.2.10.1 Doors assemblies in corridors and smoke barriers Installation of smoke doors shall be in accordance with NFPA 105.

716.3 Fire window assemblies *Fire window assemblies* required by other sections of this code shall comply with the provisions of this Section.

716.3.1 Testing requirements *Fire window assemblies* shall be constructed of any material or assembly of component materials that conforms to the test requirements of Section 716.3.1.1 and 716.3.1.2 and the *fire protection rating* indicated in Table 716.1.C.

716.3.1.1 Testing under positive pressure NFPA 257 or UL 9 shall evaluate *fire-protection-rated* glazing under positive pressure. Within the first 10 minutes of a test, the pressure in the furnace shall be adjusted so not less than two-thirds of the test specimen is above the neutral pressure plane, and the neutral pressure plane shall be maintained at that height for the balance of the test.

716.3.1.2 Nonsymmetrical glazing systems Nonsymmetrical *fire-protection-rated* glazing systems in *fire partitions*, *fire barriers* or in exterior walls with a *fire separation distance* of 5 feet (1524 mm) or less pursuant to Section 705 shall be tested with both faces exposed to the furnace, and the assigned *fire protection rating* shall be the shortest duration obtained from the two tests conducted in compliance with NFPA 257 or UL 9.

716.3.2 Performance requirements *Fire window assemblies* shall be installed in the assemblies specified in Table 716.1.C and shall comply with the *fire-protection rating* specified.

716.3.2.1 Interior fire window assemblies *Fire-protection-rated* glazing used in *fire window assemblies* located in *fire partitions* and *fire barriers* shall be limited to use in assemblies with a maximum *fire-resistance rating* of 1 hour in accordance with this section.

716.3.2.1.1 Where 3/4-hour fire protection window assemblies permitted *Fire-protection-rated* glazing requiring 45-minute opening protection in accordance with Table 716.1.C shall be limited to *fire partition* designed in accordance with Section 708 and *fire barriers* utilized in the applications set forth in Sections 707.3.6 and 707.3.8 where the *fire-resistance rating* does not exceed 1 hour. *Fire-resistance-rated glazing* assemblies tested in accordance with ASTM E 119 or UL 263 shall not be subject to the limitations of this section.

716.3.2.1.2 Area limitations The total area of the glazing in *fire-protection-rated* window assemblies shall not exceed 25 percent of the area of a common wall with any room.

716.3.2.1.3 Where 1/3-hour fire-protection window assemblies permitted. *Fire-protection-rated* glazing shall be permitted in window assemblies tested to NFPA 257 or UL 9 in *smoke barriers* and *fire partitions* requiring 1/3-hour opening protection in accordance with Table 716.1.C.

716.3.3 Fire window frames Fire window frames installed with a *fire window assembly* shall meet the *fire-protection rating* indicated in Table 716.1.C.

716.3.3.1 Window mullions Metal mullions that exceed a nominal height of 12 feet (3658 mm) shall be protected with materials to afford the same *fire-resistance rating* as required for the wall construction in which the protective is located.

716.3.4 Glazing in fire window assemblies Glazing in *fire window assemblies* shall be *fire protection rated* in accordance with this section and Table 716.1.C. *Fire-protection-rated* glazing in *fire window assemblies* shall be tested in accordance with and shall meet the acceptance criteria of NFPA 257 or UL 9. *Fire-protection-rated* glazing shall comply with NFPA 80. Openings in nonfire-resistance-rated exterior wall assemblies that require protection in accordance with Section 705.3, 705.8, 705.8.5 or 705.8.6 shall have a *fire protection rating* of not less than 3/4 hour. *Fire-protection-rated* glazing in 0.5-hour fire-resistance-rated partitions is permitted to have an 0.33-hour *fire protection rating*.

716.3.4.1 Glass and glazing Glazing in *fire window assemblies* shall be *fire-protection-rated* glazing installed in accordance with and complying with the size limitations set forth in NFPA 80.

716.3.5 Labeled protective assemblies Glazing in *fire window assemblies* shall be *labeled* by an *approved* agency. The labels shall comply with NFPA 80, and shall comply with Section 716.3.5.2.

716.3.5.1 Fire window frames Fire window frames shall be *approved* for the intended application.

716.3.5.2 Fire window glazing labeling requirements *Fire-protection-rated* glazing shall bear a label or other identification showing the name of the manufacturer, the test standard and information required in Section 716.1.2.2.2 and Table 716.1.C that shall be issued by an *approved* agency and permanently identified on the glazing.

716.3.6 Installation *Fire window assemblies* shall be installed in accordance with the provisions of this Section.

716.3.6.1 Closure *Fire-protection-rated* glazing shall be in the fixed position or be automatic-closing and shall be installed in *approved* frames.

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. The Fire-CAC has held 2 open meetings and numerous Regional Work Group and Task Group meetings and conference calls for the current code development cycle which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at:
http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc

The FCAC opening protective work group included interested industry and testing lab representatives working together to make this section more user friendly. The work group unanimously agreed on a wide range of proposed changes to IBC Section 716.
This proposal is essentially a reorganization of Section 716 with no substantive changes, except for the some new titles and new charging statements to make the section flow smoother. The reorganization was needed because the current requirements are not in a logical order, and skip around between testing requirements, rating requirements, installation and labeling. The new Section 716 is organized into General (716.1), Fire door assemblies (716.2), and Fire window assemblies (716.3) sections.
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For clarity, the above proposal shows how the new section is intended to appear. The following guide shows how the current 2015 IBC requirements were moved and modified to accomplish the above proposal.
Text Revision Key
1. Underlined – New or modified text added to enhance document flow
2. **Bold &** underline – Section or Table references which have been updated
3. Strikethrough – Text which has been relocated, or deleted as not appropriate in the reorganized Section
4. (Parenthesis) – 2015 IBC Section 716 source of text, or where deleted text has been relocated to in the reorganized Section
Revised Text
716.1 General. (From 716.1) Opening protectives required by other sections of this code shall comply with the provisions of this section.
716.1.1 Alternative methods for determining fire protection ratings. (From 716.4) The application of any of the alternative methods listed in this section shall be based on the fire exposure and acceptance criteria specified in NFPA 252, NFPA 257 or UL 9. The required fire resistance of an opening protective shall be permitted to be established by any of the following methods or procedures:
1. Designs documented in approved sources.
2. Calculations performed in an approved manner.
3. Engineering analysis based on a comparison of opening protective designs having fire protection ratings as determined by the test procedures set forth in NFPA 252, NFPA 257 or UL 9.
4. Alternative protection methods as allowed by Section 104.11.
716.1.2 Glazing. (New) Glazing used in fire door assemblies and fire window assemblies shall comply with this section in addition to the requirements of Sections 716.2 and 716.3, respectively.
716.1.2.1 Safety glazing. (From 716.5.8.4 and 716.6.3) Fire-protection-rated glazing and fire-resistance-rated glazing installed in fire door assemblies and fire window assemblies shall comply with the safety glazing requirements of Chapter 24 where applicable.
716.1.2.2 Marking fire-rated glazing assemblies. (From 716.3) Fire-rated glazing assemblies shall be marked in accordance with Tables ~~716.3~~**716.1.A**, ~~716.5~~ **716.1.B** and ~~716.6~~**716.1.C.**
716.1.2.2.1 Fire-rated glazing identification. (From 716.3.1) For fire-rated glazing, the label shall bear the identification required in Tables ~~716.3~~**716.1.A** and ~~716.5~~**716.1.B**. "D" indicates that the glazing is permitted to be used in fire door assemblies and that the glazing meets the fire protection requirements of NFPA 252. "H" shall indicate that the glazing meets the hose stream requirements of NFPA 252. "T" shall indicate that the glazing meets the temperature requirements of Section ~~716.5.5.1~~**716.2.2.3.1**. The placeholder "XXX" represents the fire-rating period, in minutes.
716.1.2.2.2 Fire-protection-rated glazing identification. (From 716.3.2) For fire-protection-rated glazing, the label shall bear the following identification required in Tables ~~716.3~~**716.1.A** and ~~716.6~~**716.1.C**: "OH – XXX." "OH" indicates that the glazing meets both the fire protection and the hose-stream requirements of NFPA 257 or UL 9 and is permitted to be used in fire window openings. The placeholder "XXX" represents the fire-rating period, in minutes.
716.1.2.2.3 Fire-resistance-rated glazing identification. (New) For fire-resistance-rated glazing, the label shall bear the identification required in Section 703.6 and Table 716.1.A.
716.1.2.2.4 Fire-rated glazing that exceeds the code requirements. (From 716.3.3) Fire-rated glazing assemblies marked as complying with hose stream requirements (H) shall be permitted in applications that do not require compliance with hose stream requirements. Fire-rated glazing assemblies marked as complying with temperature rise requirements (T) shall be permitted in applications that do not require compliance with temperature rise requirements. Fire-rated glazing assemblies marked with ratings (XXX) that exceed the ratings required by this code shall be permitted.
716.1.2.3 Fire-resistance-rated glazing. (From 716.2) Fire-resistance-rated glazing tested as part of a fire-resistance-rated wall or floor/ceiling assembly in accordance with ASTM E 119 or UL 263 and labeled in accordance with Section 703.6 shall not otherwise be required to comply with this section where used as part of a wall or floor/ceiling assembly. ~~Fire-resistance-rated glazing shall be permitted in fire door and fire window assemblies~~

~~where tested and installed in accordance with their listings and where in compliance with the requirements of this section.~~ (Relocated to new Section 716.1.2.3.1)
716.1.2.3.1 Glazing in fire door and fire window assemblies. (From 716.2) Fire-resistance-rated glazing shall be permitted in fire door and fire window assemblies where tested and installed in accordance with their listings and where in compliance with the requirements of Sections 716.2 and 716.3, respectively.
716.2 Fire door assemblies. (New) Fire door assemblies required by other sections of this code shall comply with the provisions of this Section. (From 716.5.6) Fire door frames with transom lights, sidelights or both shall be permitted in accordance with Section ~~716.5.6~~**716.2.5.4.**
716.2.1 Testing requirements. (From 716.5) Approved fire door and fire shutter assemblies shall be constructed of any material or assembly of component materials that conforms to the test requirements of Sections ~~716.5.1~~**716.2.1.1,**~~716.5.2~~**716.2.1.2,**~~716.5.3~~**716.2.1.3** or ~~716.4~~716.2.1.4 and the fire protection rating indicated in Table ~~716.5~~716.1.B. ~~Fire door frames with transom lights, sidelights or both shall be permitted in accordance with Section 716.5.6. (Relocated to new Section 716.2) Fire door assemblies and shutters shall be installed in accordance with the provisions of this section and NFPA 80. (~~Relocated to new Section 716.2.10)
Exceptions:
1. Labeled protective assemblies that conform to the requirements of this section or UL 10A, UL 14B, and UL 14C for tin-clad fire door assemblies.
2. Floor fire door assemblies in accordance with Section 712.1.13.1.
716.2.1.1 Side-hinged or pivoted swinging doors. (From 716.5.1) Fire door assemblies with side-hinged and pivoted swinging doors shall be tested in accordance with NFPA 252 or UL 10C. After 5 minutes into the NFPA 252 test, the neutral pressure level in the furnace shall be established at 40 inches (1016 mm) or less above the sill.
716.2.1.2 Other fire door assemblies. (From 716.5.2) Fire door assemblies with other types of doors, including swinging elevator doors, horizontal sliding fire door assemblies, and fire shutter assemblies, bottom and side-hinged chute intake doors, and top-hinged chute discharge doors, shall be tested in accordance with NFPA 252 or UL 10B. The pressure in the furnace shall be maintained as nearly equal to the atmospheric pressure as possible. Once established, the pressure shall be maintained during the entire test period.
716.2.1.3 Glazing in transoms lights and sidelights in corridors and smoke barriers. (From 716.5.3.2) ~~Glazing material in any other part of the door assembly, including~~ (Deleted as not relevant to reorganized document) transom lights and sidelights of fire door assemblies, shall be tested in accordance with NFPA 257 or UL 9, including the hose stream test, in accordance with Section ~~716.6~~**716.3.1.1.**
716.2.1.4 Smoke and draft control. (From 716.5.3.1) ~~Fire door assemblies shall meet the requirements for a s~~ Smoke and draft control door ~~assembly~~assemblies shall be tested in accordance with UL 1784. ~~The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot (0.01524 m3/s m2) of door opening at 0.10 inch (24.9 Pa) of water for both the ambient temperature and elevated temperature tests. Louvers shall be prohibited~~. (Relocated to new Section 716.2.2.1.1) ~~Installation of smoke doors shall be in accordance with NFPA 105~~. (Relocated to new Section 716.2.10.1)
716.2.2 Performance requirements. (New) Fire door assemblies shall be installed in the assemblies specified in Table 716.1.B and shall comply with the fire-protection rating specified.
716.2.2.1 Door assemblies in corridors and smoke barriers. (From 716.5.3) Fire door assemblies required to have a minimum fire protection rating of 20 minutes where located in corridor walls or smoke barrier walls having a fire-resistance rating in accordance with Table ~~716.5~~ **716.1.B**shall be tested in accordance with NFPA 252 or UL 10C without the hose stream test.
Exceptions:
1. Viewports that require a hole not larger than 1 inch (25 mm) in diameter through the door, have not less than a 0.25-inch-thick (6.4 mm) glass disc and the holder is of metal that will not melt out where subject to temperatures of 1,700°F (927°C).
2. Corridor door assemblies in occupancies of Group I-2 shall be in accordance with Section 407.3.1.
3. Unprotected openings shall be permitted for corridors in multitheater complexes where each motion picture auditorium has not fewer than one-half of its required exit or exit access doorways opening directly to the exterior or into an exit passageway.
4. Horizontal sliding doors in smoke barriers that comply with Sections 408.6 and 408.8.4 in occupancies in Group I-3.
716.2.2.1.1 Smoke and draft control. (From 716.5.3.1) The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot (0.01524 m3/s m2) of door opening at 0.10 inch (24.9 Pa) of water for both the ambient temperature and elevated temperature tests. Louvers shall be prohibited.
716.2.2.2 Door assemblies in other fire partitions. (From 716.5.4) Fire door assemblies required to have a minimum fire protection rating of 20 minutes where located in other fire partitions having a fire-resistance rating of 0.5 hour in accordance with Table ~~716.5~~**716.1.**B shall be tested in accordance with NFPA 252, UL 10B or UL 10C with the hose stream test.
716.2.2.3 Doors in interior exit stairways and ramps and exit passageways. (From 716.5.5) Fire door assemblies in interior exit stairways and ramps and exit passageways shall have a maximum transmitted temperature rise of not more than 450°F (250°C) above ambient at the end of 30 minutes of standard fire test exposure.
Exception: The maximum transmitted temperature rise is not required in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
716.2.2.3.1 Glazing in doors. (From 716.5.5.1) Fire-protection-rated glazing in excess of 100 square inches (0.065 m2) is not permitted. Fire-resistance-rated glazing in excess of 100 square inches (0.065 m2) shall be permitted in ~~door~~ fire doors. Listed fire-resistance-rated glazing in a fire door shall have a maximum transmitted temperature rise in accordance with Section ~~716.5.5~~ **716.2.2.3**when the fire door is tested in accordance with NFPA 252, UL 10B or UL 10C.
716.2.3 Fire doors. (New) Fire doors installed within a fire door assembly shall meet the fire rating indicated in Table 716.1.B.
716.2.4 Fire door frames. (New) Fire door frames installed as part of a fire door assembly shall meet the fire rating indicated in Table 716.1.B.
716.2.5 Glazing in fire doors assemblies. (From 716.5.8) Fire-rated glazing and fire resistance-rated glazing conforming to the opening protection requirements in Section ~~716.5~~**716.2.2** shall be permitted in fire door assemblies.
716.2.5.1 Size limitations. (From 716.5.8.1) Fire-resistance-rated glazing shall comply with the size limitations in Section ~~716.5.8.1.1~~**716.2.5.1.1**. Fire-protection-rated glazing shall comply with the size limitations of NFPA 80, and as provided in Section ~~716.5.8.1.2~~**716.2.5.1.2**.
716.2.5.1.1 Fire-resistance-rated glazing in door assemblies in fire walls and fire barriers rated greater than 1 hour. (From 716.5.8.1.1) Fire-resistance-rated glazing tested to ASTM E 119 or UL 263 and NFPA 252, UL 10B or UL 10C shall be permitted in fire door assemblies located in fire walls and in fire barriers in accordance with Table ~~716.5~~**716.1.B** to the maximum size tested and in accordance with their listings.
716.2.5.1.2 Fire-protection-rated glazing in door assemblies in fire walls and fire barriers rated greater than 1 hour. (From 716.5.8.1.2) Fire-protection-rated glazing shall be prohibited in fire walls and fire barriers except as provided in Sections ~~716.5.8.1.2.1~~ **716.2.5.1.2.1** and ~~716.5.8.1.2.2~~**716.2.5.1.2.2.**
716.2.5.1.2.1 Horizontal exits. (From 716.5.8.1.2.1) Fire-protection-rated glazing shall be permitted as vision panels in self-closing swinging fire door assemblies serving as horizontal exits in fire walls where limited to 100 square inches (0.065 m2) with no dimension exceeding 10 inches (0.3 mm).
716.2.5.1.2.2 Fire barriers. (From 716.5.8.1.2.2) Fire-protection-rated glazing shall be permitted in fire doors having a 1-1/2-hour fire protection rating intended for installation in fire barriers, where limited to 100 square inches (0.065 m2).

716.2.5.2 Elevator, stairway and ramp protectives. (From 716.5.8.2) Approved fire-protection-rated glazing used in fire door assemblies in elevator, stairway and ramp enclosures shall be so located as to furnish clear vision of the passageway or approach to the elevator, stairway or ramp.
716.2.5.3 Glazing in door assemblies in corridors and smoke barriers. (From 716.5.3.2) In a 20-minute fire door assembly, the glazing material in the door itself shall have a minimum fire-protection-rated glazing of 20 minutes and shall be exempt from the hose stream test. ~~Glazing material in any other part of the door assembly, including transom lights and sidelights, shall be tested in accordance with NFPA 257 or UL 9, including the hose stream test, in accordance with Section 716.6.~~ (Relocated to new Section 716.2.1.3)
716.2.5.4 Glazing in fire door frames with transom lights and sidelights. (From 716.5.6) Door frames with transom lights, sidelights or both, shall be permitted where a 3/4-hour fire protection rating or less is required in accordance with Table ~~716.5~~**716.1.B.** Fire door frames with transom lights, sidelights, or both, installed with fire-resistance-rated glazing tested as an assembly in accordance with ASTM E 119 or UL 263 shall be permitted where a fire protection rating exceeding 3/4 hour is required in accordance with Table ~~716.5~~**716.1.B.**
716.2.6 Fire door hardware and closures. (New) Fire door hardware and closures shall be installed on fire door assemblies in accordance with requirements of this section.
716.2.6.1 Door closing. (From 716.5.9) Fire doors shall be latching and self- or automatic-closing in accordance with this section.
Exceptions:
1. Fire doors located in common walls separating sleeping units in Group R-1 shall be permitted without automatic- or self-closing devices.
2. The elevator car doors and the associated hoistway enclosure doors at the floor level designated for recall in accordance with Section 3003.2 shall be permitted to remain open during Phase I emergency recall operation.
716.2.6.2 Latch required. (From 716.5.9.1) Unless otherwise specifically permitted, single fire doors and both leaves of pairs of side-hinged swinging fire doors shall be provided with an active latch bolt that will secure the door when it is closed.
716.2.6.3 Chute intake door latching. (From 716.5.9.1.1) Chute intake doors shall be positive latching, remaining latched and closed in the event of latch spring failure during a fire emergency.
716.2.6.4 Automatic-closing fire door assemblies. (From 716.5.9.2) Automatic-closing fire door assemblies shall be self-closing in accordance with NFPA 80.
716.2.6.5 Smoke-activated doors. (From 716.5.9.3) Automatic-closing doors installed in the following locations shall be automatic-closing by the actuation of smoke detectors installed in accordance with Section 907.3 or by loss of power to the smoke detector or hold-open device. Doors that are automatic-closing by smoke detection shall not have more than a 10-second delay before the door starts to close after the smoke detector is actuated:
1. Doors installed across a corridor.
2. Doors installed in the enclosures of exit access stairways and ramps in accordance with Sections 1019 and 1023, respectively.
3. Doors that protect openings in exits or corridors required to be of fire-resistance-rated construction.
4. Doors that protect openings in walls that are capable of resisting the passage of smoke in accordance with Section 509.4.
5. Doors installed in smoke barriers in accordance with Section 709.5.
6. Doors installed in fire partitions in accordance with Section 708.6.
7. Doors installed in a fire wall in accordance with Section 706.8.
8. Doors installed in shaft enclosures in accordance with Section 713.7.
9. Doors installed in waste and linen chutes, discharge openings and access and discharge rooms in accordance with Section 713.13. Loading doors installed in waste and linen chutes shall meet the requirements of Sections ~~716.5.9~~**716.2.6.1** and ~~716.5.9.1.1~~**716.2.6.3.**
10. Doors installed in the walls for compartmentation of underground buildings in accordance with Section 405.4.2.
11. Doors installed in the elevator lobby walls of underground buildings in accordance with Section 405.4.3.
12. Doors installed in smoke partitions in accordance with Section 710.5.2.3.
716.2.6.6 Doors in pedestrian ways. (From 716.5.9.4) Vertical sliding or vertical rolling steel fire doors in openings through which pedestrians travel shall be heat activated or activated by smoke detectors with alarm verification.
716.2.7 Swinging fire shutters. (From 716.5.10) Where fire shutters of the swinging type are installed in exterior openings, not less than one row in every three vertical rows shall be arranged to be readily opened from the outside, and shall be identified by distinguishing marks or letters not less than 6 inches (152 mm) high.
716.2.8 Rolling fire shutters. (From 716.5.11) Where fire shutters of the rolling type are installed, such shutters shall include approved automatic-closing devices.
716.2.9 Labeled protective assemblies. (From 716.5.7) Fire door assemblies shall be labeled by an approved agency. The labels shall comply with NFPA 80, and shall be permanently affixed to the door or frame.
716.2.9.1 Fire door labeling requirements. (From 716.5.7.1) Fire doors shall be labeled showing the name of the manufacturer or other identification readily traceable back to the manufacturer, the name or trademark of the third party inspection agency, the fire protection rating and, where required for fire doors in interior exit stairways and ramps and exit passageways by Section ~~716.5.5~~**716.2.2.3,** the maximum transmitted temperature end point. Smoke and draft control doors complying with UL 1784 shall be labeled as such and shall comply with Section ~~716.5.7.3~~**716.2.9.3.** Labels shall be approved and permanently affixed. The label shall be applied at the factory or location where fabrication and assembly are performed.
716.2.9.1.1 Light kits, louvers and components. (From 716.5.7.1.1) Listed light kits and louvers and their required preparations shall be considered as part of the labeled door where such installations are done under the listing program of the third-party agency. Fire doors and door assemblies shall be permitted to consist of components, including glazing, vision light kits and hardware that are listed or classified and labeled for such use by different third-party agencies.
716.2.9.2 Oversized doors. (From 716.5.7.2) Oversized fire doors shall bear an oversized fire door label by an approved agency or shall be provided with a certificate of inspection furnished by an approved testing agency. Where a certificate of inspection is furnished by an approved testing agency, the certificate shall state that the door conforms to the requirements of design, materials and construction, but has not been subjected to the fire test.
716.2.9.3 Smoke and draft control door labeling requirements. (From 716.5.7.3) Smoke and draft control doors complying with UL 1784 shall be labeled in accordance with Section ~~716.5.7.1~~**716.2.9.1** and shall show the letter "S" on the fire-rating label of the door. This marking shall indicate that the door and frame assembly are in compliance where listed or labeled gasketing is installed.
716.2.9.4 Fire door frame labeling requirements. (From 716.5.7.4) Fire door frames shall be labeled showing the names of the manufacturer and the third-party inspection agency.
716.2.9.5 Fire door glazing labeling requirements. (From 716.5.8.3) Fire-rated glazing shall bear a label or other identification showing the name of the manufacturer, the test standard and information required in Table ~~716.3~~**716.1.A** that shall be issued by an approved agency and shall be permanently identified on the glazing.
716.2.9.6 Fire door operator labeling requirements. (From 716.7.5) Fire door operators for horizontal sliding doors shall be labeled and listed for use with the assembly.
716.2.10 Installation of fire door assemblies and fire shutter assemblies. (From 716.5) Fire door assemblies and shutters shall be installed in accordance with the provisions of this section and NFPA 80.

716.2.10.1 Doors assemblies in corridors and smoke barriers. (From 716.5.3.1) Installation of smoke doors shall be in accordance with NFPA 105.
716.3 Fire window assemblies. (New) Fire window assemblies required by other sections of this code shall comply with the provisions of this Section.
716.3.1 Testing requirements. (New, but wording similar to 716.5) Fire window assemblies shall be constructed of any material or assembly of component materials that conforms to the test requirements of Section 716.3.1.1 and 716.3.1.2 and the fire protection rating indicated in Table 716.1.C.
716.3.1.1 Testing under positive pressure. (From 716.6.1) NFPA 257 or UL 9 shall evaluate fire-protection-rated glazing under positive pressure. Within the first 10 minutes of a test, the pressure in the furnace shall be adjusted so not less than two-thirds of the test specimen is above the neutral pressure plane, and the neutral pressure plane shall be maintained at that height for the balance of the test.
716.3.1.2 Nonsymmetrical glazing systems. (From 716.6.2) Nonsymmetrical fire-protection-rated glazing systems in fire partitions, fire barriers or in exterior walls with a fire separation distance of 5 feet (1524 mm) or less pursuant to Section 705 shall be tested with both faces exposed to the furnace, and the assigned fire protection rating shall be the shortest duration obtained from the two tests conducted in compliance with NFPA 257 or UL 9.
716.3.2 Performance requirements. (New) Fire window assemblies shall be installed in the assemblies specified in Table 716.1.C and shall comply with the fire-protection rating specified.
716.3.2.1 Interior fire window assemblies. (From 716.6.7) Fire-protection-rated glazing used in fire window assemblies located in fire partitions and fire barriers shall be limited to use in assemblies with a maximum fire-resistance rating of 1 hour in accordance with this section.
716.3.2.1.1 Where 3/4-hour fire protection window assemblies permitted. (From 716.6.7.1) Fire-protection-rated glazing requiring 45-minute opening protection in accordance with Table ~~716.6~~716.1.C shall be limited to fire partition designed in accordance with Section 708 and fire barriers utilized in the applications set forth in Sections 707.3.6 and 707.3.8 where the fire-resistance rating does not exceed 1 hour. Fire-resistance-rated glazing assemblies tested in accordance with ASTM E 119 or UL 263 shall not be subject to the limitations of this section.
716.3.2.1.2 Area limitations. (From 716.6.7.2) The total area of the glazing in fire-protection-rated window assemblies shall not exceed 25 percent of the area of a common wall with any room.
716.3.2.1.3 Where 1/3-hour fire-protection window assemblies permitted. (From 716.6.7.3) Fire-protection-rated glazing shall be permitted in window assemblies tested to NFPA 257 or UL 9 in smoke barriers and fire partitions requiring 1/3-hour opening protection in accordance with Table ~~716.6~~**716.1.C.**
716.3.3 Fire window frames. (New) Fire window frames installed with a fire window assembly shall meet the fire-protection rating indicated in Table 716.1.C.
716.3.3.1 Window mullions. (From 716.6.6) Metal mullions that exceed a nominal height of 12 feet (3658 mm) shall be protected with materials to afford the same fire-resistance rating as required for the wall construction in which the protective is located.
716.3.4 Glazing in fire window assemblies. (From 716.6) Glazing in fire window assemblies shall be fire protection rated in accordance with this section and Table ~~716.6~~**716.1.**C. ~~Glazing in fire door assemblies shall comply with Section 716.5.8.~~ (Deleted as not relevant to reorganized document) Fire-protection-rated glazing in fire window assemblies shall be tested in accordance with and shall meet the acceptance criteria of NFPA 257 or UL 9. Fire-protection-rated glazing shall comply with NFPA 80. Openings in nonfire-resistance-rated exterior wall assemblies that require protection in accordance with Section 705.3, 705.8, 705.8.5 or 705.8.6 shall have a fire protection rating of not less than 3/4 hour. Fire-protection-rated glazing in 0.5-hour fire-resistance-rated partitions is permitted to have an 0.33-hour fire protection rating.
716.3.4.1 Glass and glazing. (From 716.6.4) Glazing in fire window assemblies shall be fire-protection-rated glazing installed in accordance with and complying with the size limitations set forth in NFPA 80.
716.3.5 Labeled protective assemblies. (New, but wording similar to 716.5.7) Glazing in fire window assemblies shall be labeled by an approved agency. The labels shall comply with NFPA 80, and shall comply with Section 716.3.5.2.
716.3.5.1 Fire window frames. (New) Fire window frames shall be approved for the intended application.
716.3.5.2 Fire window glazing labeling requirements. (From 716.6.8) Fire-protection-rated glazing shall bear a label or other identification showing the name of the manufacturer, the test standard and information required in Section ~~716.3.2~~**716.1.2.2.2**and Table ~~716.6~~ **716.1.C** that shall be issued by an approved agency and permanently identified on the glazing.
716.3.6 Installation. (New) Fire window assemblies shall be installed in accordance with the provisions of this Section.
716.3.6.1 Closure. (From 716.6.5) Fire-protection-rated glazing shall be in the fixed position or be automatic-closing and shall be installed in approved frames.

Renumber Existing Tables as Follows
1. Table 716.3 becomes Table 716.1.A
2. Table 716.5 becomes Table 716.1.B
3. Table 716.6 becomes Table 716.1.C

Cost Impact: Will not increase the cost of construction
This code change is a reorganization of existing requirements. No new requirements for providing opening protectives have been added.

FS 101-15 : 716 (New)-ZUBIA4433

FS 102-15

Part I:
202 (New), 717 (New), 717.1 (New), 717.2 (New), 717.3 (New), 721.1.17 (New), Chapter 35
Part II:
404.6, 717 (New), 717.1 (New), 717.2 (New), 717.3 (New), 202 (New), Chapter 35
Part III:
202, 717 (New), 717.1 (New), 717.2 (New), 717.3 (New), 1019.3, Chapter 35

THIS IS A 3 PART CODE CHANGE. ALL PARTS WILL BE HEARD BY THE IBC-FIRE SAFETY COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THIS COMMITTEE.

Proponent: Stephen Thomas, Colorado Code Consulting, LLC, representing Smoke Guard (sthomas@coloradocode.net)

Part I

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

Fire Curtain FIRE CURTAIN. A flexible membrane assembly constructed of materials designed to restrict the spread of fire when tested in accordance with UL 10D.

Add new text as follows:

SECTION717 Fire and Smoke Curtains

717.1 General Fire and smoke curtains permitted by other sections of this code shall comply with the provisions of this section.

717.2 Fire Test Criteria Fire and smoke curtains shall be tested in accordance with the requirements of UL 10D.

717.3 Activation Fire and smoke curtains shall comply with the following criteria:

1. Fire and smoke curtains shall be actuated by approved spot-type detectors listed for releasing service.
2. Fire detection systems providing control input or output signals to fire and smoke curtains or elements thereof shall comply with the requirements of Section 907. Such systems shall be equipped with a control unit complying with UL 864 and listed as smoke control equipment.

721.1.17 Fire curtains. Vertical floor openings shall be permitted where protected by a fire curtain in accordance with Section 717. Fire curtains shall achieve a minimum one-hour fire-protection rating, and not less than the assembly being penetrated, but need not exceed 2 hours.

Add new standard(s) as follows:
UL 10D-2014 Standard for Fire Tests of Fire Protective Curtain Assemblies

Part II

2015 International Building Code

Revise as follows:

404.6 Enclosure of atriums. *Atrium* spaces shall be separated from adjacent spaces by a 1-hour *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both.

Exceptions:

1. A *fire barrier* is not required where a glass wall forming a smoke partition is provided. The glass wall shall comply with all of the following:
   1.1. Automatic sprinklers are provided along both sides of the separation wall and doors, or on the room side only if there is not a walkway on the *atrium* side. The sprinklers shall be located between 4 inches and 12 inches (102 mm and 305 mm) away from the glass and at intervals along the glass not greater than 6 feet (1829 mm). The sprinkler system shall be designed so that the entire surface of the glass is wet upon activation of the sprinkler system without obstruction;
   1.2. The glass wall shall be installed in a gasketed frame in a manner that the framing system deflects without breaking (loading) the glass before the sprinkler system operates; and
   1.3. Where glass doors are provided in the glass wall, they shall be either *self-closing* or automatic-closing.
2. A *fire barrier* is not required where a glass-block wall assembly complying with Section 2110 and having a $^3/_4$-hour *fire protection rating* is provided.
3. A *fire barrier* is not required between the *atrium* and the adjoining spaces of any three floors of the *atrium* provided such spaces are accounted for in the design of the smoke control system.
4. <u>A fire barrier is not required between the atrium and the adjoining spaces when a fire curtain having a one-hour fire-protection rating in accordance with Section 717 is installed at the perimeter of the atrium opening. The curtain shall not be placed in such a location as to obstruct the means of egress.</u>

Add new text as follows:

<u>SECTION717</u> <u>Fire and Smoke Curtains</u>

<u>717.1</u> <u>General</u> <u>Fire and smoke curtains permitted by other sections of this code shall comply with the provisions of this section.</u>

<u>717.2</u> <u>Fire Test Criteria</u> <u>Fire and smoke curtains shall be tested in accordance with the requirements of UL 10D.</u>

<u>717.3</u> <u>Activation</u> <u>Fire and smoke curtains shall comply with the following criteria:</u>

1. <u>Fire and smoke curtains shall be actuated by approved spot-type detectors listed for releasing service.</u>
2. <u>Fire detection systems providing control input or output signals to fire and smoke curtains or elements thereof shall comply with the requirements of Section 907. Such systems shall be equipped with a control unit complying with UL 864 and listed as smoke control equipment.</u>

Add new definition as follows:

SECTION 202 DEFINITIONS

<u>FIRE CURTAIN</u> <u>A flexible membrane assembly constructed of materials designed to restrict the spread of fire when tested in accordance with UL 10D.</u>

Add new standard(s) as follows:
<u>UL 10D-2014 Standard for Fire Tests of Fire Protective Curtain Assemblies</u>

Part III

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

<u>FIRE CURTAIN.</u> <u>A flexible membrane assembly constructed of materials designed to restrict the spread of fire when tested in accordance with UL 10D.</u>

Add new text as follows:

<u>SECTION717</u> <u>Fire and Smoke Curtains</u>

<u>717.1</u> <u>General</u> <u>Fire and smoke curtains permitted by other sections of this code shall comply with the provisions of this section.</u>

717.2 **Fire Test Criteria** Fire and smoke curtains shall be tested in accordance with the requirements of UL 10D.

717.3 **Activation** Fire and smoke curtains shall comply with the following criteria:

1. Fire and smoke curtains shall be actuated by approved spot-type detectors listed for releasing service.
2. Fire detection systems providing control input or output signals to fire and smoke curtains or elements thereof shall comply with the requirements of Section 907. Such systems shall be equipped with a control unit complying with UL 864 and listed as smoke control equipment.

Revise as follows:

1019.3 Occupancies other than Groups I-2 and I-3. In other than Group I-2 and I-3 occupancies, floor openings containing *exit access stairways* or *ramps* that do not comply with one of the conditions listed in this section shall be enclosed with a shaft enclosure constructed in accordance with Section 713.

1. *Exit access stairways* and *ramps* that serve or atmospherically communicate between only two stories. Such interconnected stories shall not be open to other stories.
2. In Group R-1, R-2 or R-3 occupancies, *exit accessstairways* and *ramps* connecting four stories or less serving and contained within an individual *dwelling unit* or *sleeping unit* or *live/work unit.*
3. *Exit access stairways* serving and contained within a Group R-3 congregate residence or a Group R-4 facility are not required to be enclosed.
4. *Exit access stairways* and *ramps* in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the *stairway* or *ramp* and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Group B and M occupancies, this provision is limited to openings that do not connect more than four stories.
5. *Exit access stairways* and *ramps* within an *atrium* complying with the provisions of Section 404.
6. *Exit access stairways* and *ramps* in *open parking garages* that serve only the parking garage.
7. *Exit access stairways* and *ramps* serving open-air seating complying with the *exit access* travel distance requirements of Section 1029.7.
8. *Exit access stairways* and *ramps* serving the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, *places of religious worship*, auditoriums and sports facilities.
9. Stairways that serve, or atmospherically communicate between a maximum of four stories, and are not part of the required means of egress shall be permitted to be enclosed by a fire curtain installed in accordance with Section 717.

Add new standard(s) as follows:
UL 10D-2014 Standard for Fire Tests of Fire Protective Curtain Assemblies

Reason:

Part I: This proposal introduces fire curtains into the code to be used in protecting vertical openings. The current code has several different ways to protect these openings. These curtains have been tested in accordance with UL 10D which is similar to UL 263 without the hose stream test. Horizontal assemblies are not required to pass the hose stream test. Therefore, the standards are similar in how they evaluate the system. This proposal would permit a horizontally deployed curtain that would enclose the vertical floor opening and provide the same protection as the horizontal assembly.

Part II: Section 404.6 requires that an atrium be separated from other spaces of the building by a one-hour fire barrier. The exceptions to that requirement permit the installation of a non-fire rated assembly in exception 1. ThIS proposal will permit the installation of a fire curtain around the perimeter of the atrium as an additional option. It is our position that a fire curtain provides an equivalent level of protection to glass forming a smoke partition protected by automatic sprinklers outlined in exception 1. In fact, this installation has been approved by many jurisidictions as an equivalent design. The intent of the exception is to provide a smoke separation at the atrium. The proposal is also creating a new section and definition to address the testing and installation requirements for the curtain. UL 10D has been specified as the test standard for the fire curtains. It is similar to other fire-resistance tests with the exception of a hose stream test.

Part III: This proposal presents a new type of separation requirement for exit access stairways. It introduces the concept of fire curtains into the code and permits their use to enclose exit access stairs that serve a maximum of four stories. Fire curtains are tested to UL 10D which does not include the hose stream test. The intent is to allow an alternative to a full enclosure. The current code permits stairs to be open between adjacent stories without enclosure. This proposal is also consistent with the protection that Exception 4 of Section 1099.3 provides, with the draft curtain and closely spaced sprinklers. In fact, the fire curtain will provide a better level of protection than the 18 inch draft curtains.

Cost Impact:

Part I: Will not increase the cost of construction
By installing a horizontal curtain across a floor opening, the need for a smoke control system can be eliminated. Therefore, this proposal will reduce the cost of construction.

Part II: Will not increase the cost of construction
This change will reduce the cost of construction. It will decrease the volume of the atrium and reduce the cost of the smoke control system in a building.

Part III: Will not increase the cost of construction
This change provides an alternate to enclosing stairs. Therefore, the cost of construction will not be affected.

Analysis:

Part I: A review of the standard proposed for inclusion in the code, UL 10D, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

Part II: A review of the standard proposed for inclusion in the code, UL 10D, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

Part III: A review of the standard proposed for inclusion in the code, UL 10D, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS 102-15 : 717 (New)-THOMAS4504

FS 103-15

717.1.2 (IMC 607.1.2)

Proponent: Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com)

2015 International Building Code

Revise as follows:

717.1.2 Ducts that penetrate fire-resistance-rated assemblies without dampers. Ducts that penetrate fire-resistance-rated ~~assemblies~~ walls and are not required by this section to have *dampers* shall comply with the requirements of Sections 714.2 through 714.3.3. Ducts that penetrate *horizontal assemblies* not required to be contained within a shaft and not required by this section to have *dampers* shall comply with the requirements of Sections 714.4 through 714.5.2.

Reason: The purpose of this proposal is to clarify that Section 714.3 is on rated walls and 714.3 is on horizontal assemblies. To say "fire-resistance-rated assemblies" may confuse some code users.

Cost Impact: Will not increase the cost of construction
This proposal will not increase cost of construction.Since this proposal is only clarification to the code language, it will not increase the cost of construction. Here, "assemblies" actually is eluding to "walls" all along. There are no newly added technical requirements that would trigger additional cost.

FS 103-15 : 717.1.2-MAIEL4574

FS 104-15

714.1.1, 717.1.2

Proponent: Tony Crimi, representing International Firestop Council (tcrimi@sympatico.ca)

2015 International Building Code

714.1.1 Ducts and air transfer openings. Penetrations of fire-resistance-rated walls by ducts that are not protected with *dampers* shall comply with Sections 714.2 through 714.3.3. Penetrations of *horizontal assemblies* not protected with a shaft as permitted by Section 717.6, and not required to be protected with fire *dampers* by other sections of this code, shall comply with Sections 714.4 through 714.5.2. Ducts and air transfer openings that are protected with *dampers* shall comply with Section 717.

Revise as follows:

717.1.2 Ducts that penetrate fire-resistance-rated assemblies without dampers. Ducts that penetrate fire-resistance-rated assemblies and are not required by this section to have *fire dampers* shall comply with the requirements of Sections 714.2 through 714.3.3. Ducts that penetrate *horizontal assemblies* not required to be contained within a shaft and not required by this section to have *fire dampers* shall comply with the requirements of Sections 714.4 through 714.5.2.

Reason: This proposal is editorial in nature, but may have minor technical implications for some jurisdictions. The proposal clarifies that requirement to comply with 714.2 through 714.3.3, and 714.4 through 714.5.2 applies to all ducts that penetrate fire resistance-rated assemblies, not contained within a shaft, and not required by this section to have fire dampers. This change would then employ the defined terminology "*fire damper*" instead of the term "damper", which can include "Ceiling radiation dampers," "Combination fire/smoke dampers," "Corridor dampers," "Fire dampers" and "Smoke dampers.".

The exception to the provisions for firestopping should not be applied when only smoke dampers, ceiling radiation dampers, corridor dampers are required to be installed.

Cost Impact: Will not increase the cost of construction
The proposal switches between one of the two options already required. Either fire dampers or firestopping is currently required.

FS 104-15 : 717.1.2-CRIMI4311

FS 105-15

717.2.1 (IMC 607.2.1), Chapter 35

Proponent: Tony Crimi, representing International Firestop Council (tcrimi@sympatico.ca)

2015 International Building Code

Revise as follows:

717.2.1 Smoke control system. Where the installation of a *fire damper* will interfere with the operation of a required smoke control system in accordance with Section 909, <u>ducts used to supply uncontaminated air shall be protected with a shaft enclosures in accordance with Section 713, or tested in accordance with ASTM E2816-11, with a minimum F and T rating of not less than 2 hours, continuously from the air handling appliance or equipment to the air outlet and inlet terminal, or</u> *approved* alternative protection shall be utilized. Where mechanical systems including ducts and *dampers* utilized for normal building ventilation serve as part of the smoke control system, the expected performance of these systems in smoke control mode shall be addressed in the rational analysis required by Section 909.4.

Add new standard(s) as follows:

<u>ASTM E2816-11, Standard Test Methods for Fire Resistive Metallic HVAC Duct Systems.</u>

Reason: This proposal would require HVAC ducts installed for the purposes of stairwell pressurization to be enclosed within a shaft or protected by a tested and listed assembly conforming to the new ASTM E2816-11, Standard Test Methods for Fire Resistive Metallic HVAC Duct Systems evaluated for the specific purpose. The new ASTM Standard evaluates the HVAC duct systems for surface burning characteristics, non-combustibility, fire resistance, durability, and fire engulfment with horizontal and vertical through-penetration firestops. The Standard can evaluate the fire performance of HVAC ducts for both supply (pressurization) and return air, in the vertical and horizontal orientation, with or without openings. These test methods evaluate the ability of a HVAC duct system to resist the spread of fire from one compartment to another compartment separated by fire resistance rated construction when the HVAC duct system is exposed to fire from the outside of the horizontal or vertical HVAC duct system, or from the outside with hot gases entering the inside of the HVAC duct system from unprotected openings, when subjected to the standard time-temperature curve of ASTM E119. This test is now also referenced as part of ICC-ES AC179, Acceptance Criteria for Metallic HVAC Duct Enclosure Assemblies.

The purpose of these acceptance criteria is to establish requirements for fire protection enclosure systems applied to metallic HVAC ducts, which provides an alternate to required fire-resistance-rated shafts or an alternate to required fire dampers in specific locations. This criteria provides an alternate to shaft enclosures for vertical ducts, and an alternate to fire dampers in horizontal ducts (penetrating fire barriers, fire partitions, and or smoke barriers) and vertical ducts connecting multiple stories. The purpose of a closed pressurization system is to provide fresh air directly to stairwells or egress areas. This design air pressures need to be sufficient to maintain closed doors while preventing smoke from entering the egress path. Smoke control systems have been required in nearly two thirds of the United States for over a decade. High-rise buildings constructed to the requirements of International Building Code, but without any specific measures to control smoke migration, are all the more vulnerable to property damage and occupants' loss of life.

Pressurization results in airflows of high velocity in the gaps around closed doors and construction cracks, thereby preventing smoke from flowing back into the pressurized space through these openings. Pressurized stairwells are provided with the goal of maintaining a tenable environment within the escape routes in the event of a building fire. While the option to use stairwell pressurization exists, the IBC does not require stairwell pressurization in high-rise buildings, and only requires smoke control in underground buildings, atriums, and covered mall buildings. Section 403.5.4 of the 2012 IBC requires smokeproof exit enclosures for high-rise buildings in every required stairway serving floors more than 75 feet (22.86 m) above the ground. Section 909.20.5 merely permits sprinklered buildings to use stairwell pressurization as an alternate to the smokeproof enclosures. When employed, ducts used for Stair pressurization to provide uncontaminated air within required interior exit stairwells or areas of egress need to be protected from the effect of fire, or constructed as fire resistant systems.

This principle of protecting HVAC ducts used as part of a smoke control system from the effects of fire exposure is already contained in section 909.4 as part of a rational analysis supporting the design of smoke control systems to be employed. Section 909.4.4 requires that the design shall consider the effects of the heating, ventilating and air-conditioning (HVAC) systems on both smoke and fire transport. The analysis must include all permutations of systems status, and the design shall consider the effects of the fire on the HVAC systems.

Particularly in the case of tall buildings, the predominant factors that cause smoke movement are stack effects, the affect of external wind forces, and forced air movement within the building. Smoke removal and venting practices are complicated by stack effects, which will tend to favour natural air movement vertically through the building as a results of differences in temperature and densities between the inside and outside air. [1]

Options such as the use of natural ventilation are only available where openings in exterior stairwells can be accommodated. Even then, a number of problems have been identified with this approach. Firstly, the required volume of fresh air is high. Secondly, natural supply and exhaust through vents may be subject to adverse exterior wind conditions, and even when functioning satisfactorily, would generally require vents located on different exterior walls. Thirdly, the performance of natural vents is influenced by building stack effects, which may be particularly significant on the upper or lowermost stories for tall buildings. This effect can range from either strong inflow or strong outflow from all natural vents on a given storey.[2]

Bibliography: 1. Klote, J.H. and Milke, J.A. Fire Protection Handbook, NFPA 19th Edition, Volume II, Smoke Movement in Buildings, Chapter 6, Section 12-113 –12-126
2. Building Research Establishment, UK, Smoke Ventillation of Common Access Areas of Flats & Maisonettes (BD2410), Final Factual Report, Appendix A (Review), BRE Ltd, 2005

Cost Impact: Will increase the cost of construction
This proposal introduces a neccessary life safety feature that is often overlooked.

Analysis: A review of the standard proposed for inclusion in the code, ASTM E2816, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS 105-15 : 717.2.1-CRIMI4313

FS 106-15

717.2.3 (New) [IMC 607.2.3 (New)]

Proponent: Rebecca Baker, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (bbaker@co.jefferson.co.us)

2015 International Building Code

Add new text as follows:

717.2.3 **Smoke damper location.** Smoke damper blades in the closed position shall be located at or adjacent to but not more than 24 inches away from the smoke barrier or partition penetration. There shall be no inlets or outlets between the damper and the smoke barrier.

Reason: This user friendly language is found in all smoke damper installation instructions that few in the industry are aware of. This language will aid in understanding the flexibility associated with property location requirements for installers, designers and inspectors. These requirements can be found in Greenheck, Ruskin, Pottorff and all the other manufacturers instructions. One of the problems is UL 555-S only requires that one set of instructions be furnished *per shipment* of dampers and are rarely available for those who may need them in the field. This is consistent with NFPA 90.A

Cost Impact: Will not increase the cost of construction
This new section calls out the existing requirement in the code rather than the manufacturers information, which is often not readily available. By having the requirement, which increases flexibility, easier to find the new code section may actually reduce costs.

FS 106-15 : 717.2.3 (New)-BAKER3332

FS 107-15

717.3.1 (IMC 607.3.1)

Proponent: Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

2015 International Building Code

Revise as follows:

717.3.1 Damper testing. Dampers shall be listed and labeled in accordance with the standards in this section.

1. Fire dampers shall comply with the requirements of UL 555. Only fir~~e dampers and ceiling radiation~~ dampers labeled for use in dynamic systems shall be installed in heating, ventilation and air-conditioning systems designed to operate with fans on during a fire.
2. Smoke dampers shall comply with the requirements of UL 555S.
3. Combination fire/smoke dampers shall comply with the requirements of both UL 555 and UL 555S.
4. Ceiling radiation dampers shall comply with the requirements of UL 555C or shall be tested as part of a fire-resistance-rated floor/ceiling or roof/ceiling assembly in accordance with ASTM E119 or UL 263. Only *ceiling radiation dampers* labeled for use in dynamic systems shall be installed in heating, ventilation and air-conditioning systems designed to operate with fans on during a fire.
5. Corridor dampers shall comply with requirements of both UL 555 and UL 555S. Corridor dampers shall demonstrate acceptable closure performance when subjected to 150 feet per minute (0.76 mps) velocity across the face of the damper during the UL 555 fire exposure test.

Reason: The phrase "and ceiling radiation dampers" was added to Section 717.3.1, Provision 1 during the previous code cycle to differentiate ceiling radiation dampers labeled for use in dynamic systems. However, Provision 1 deals with fire dampers so the reference to ceiling radiation dampers is inappropriate. This proposal relocates the reference to ceiling radiation dampers labeled for use in dynamic systems to Provision 4 addressing ceiling radiation dampers.

Cost Impact: Will not increase the cost of construction
This code change simply clarifies the current requirements.

FS 107-15 : 717.3.1-ROBERTS4051

FS 108-15

717.3.2.1 (IMC 607.3.2.1), 717.3.2.3 (IMC 607.3.2.3)

Proponent: Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

2015 International Building Code

Revise as follows:

717.3.2.1 Fire damper ratings. *Firedampers* shall have the minimum ~~*fire protection*~~ *rating* specified in Table 717.3.2.1 for the type of penetration.

717.3.2.3 Combination fire/smoke damper ratings. *Combination fire/smokedampers* shall have the minimum ~~*fire protection*~~ *rating* specified for *firedampers* in Table 717.3.2.1 ~~for the type of penetration~~ and shall have ~~a~~the minimum rating specified for *smoke* ~~*damper*~~*dampers* ~~rating as specified~~ in Section 717.3.2.2.

Reason: This proposal is intended to clarify the requirements in this section. The term "fire-protection rating" is being changed to "rating" because fire dampers carry an hourly rating, not a "fire-protection rating". The term "for the type of penetration" was deleted because it is not needed.

Cost Impact: Will not increase the cost of construction
This simply clarifies the existing requirements.

FS 108-15 : 717.3.2.1-ROBERTS4045

FS 109-15

717.5.2 (IMC 607.5.2), Chapter 35

Proponent: Tony Crimi, representing International Firestop Council (tcrimi@sympatico.ca)

2015 International Building Code

Revise as follows:

717.5.2 Fire barriers. Ducts and air transfer openings of *fire barriers* shall be protected with *approved fire dampers* installed in accordance with their listing. Ducts and air transfer openings shall not penetrate enclosures for *interior exit* stairways and ramps and exit passageways, except as permitted by Sections 1023.5 and 1024.6, respectively.

Exception: *Fire dampers* are not required at penetrations of *fire barriers* where any of the following apply:

1. Penetrations are tested in accordance with ASTM E 119 or UL 263 as part of the fire-resistance-rated assembly.
2. Ducts are used as part of an *approved* smoke control system in accordance with Section 909 and where the use of a *fire damper* would interfere with the operation of a smoke control system.
3. Such walls are penetrated by ducted HVAC systems, have a required *fire-resistance rating* of 1 hour or less, are in areas of other than Group H and are in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than No. 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals.
4. <u>HVAC ducts are installed as tested in accordance with ASTM E2816-11, and achieve a minimum F and T rating of not less than 2 hours, continuously from the air handling appliance or equipment to the air outlet and inlet terminal.</u>

Add new standard(s) as follows:
<u>ASTM E2816-11, Standard Test Methods for Fire Resistive Metallic HVAC Duct Systems.</u>

Reason: This proposal permits an additional exception to the requirement to install fire dampers in duct and air transfer openings through fire barriers provided the HVAC ducts are protected by a tested and listed assembly conforming to the new ASTM E2816-11, Standard Test Methods for Fire Resistive Metallic HVAC Duct Systems evaluated for the specific purpose. The test method evaluates the ability of a HVAC duct system to resist the spread of fire from one compartment to another compartment separated by a fire resistance rated construction when the HVAC duct system is exposed to fire.

The level of fire protection offered by the proposal is typically greater than currently required by Table 717.3.2.1 for fire dampers. For example, a typical 2-hour fire-resistance rated construction only requires a fire damper having a 1-1/2-hour fire-resistance rating, whereas the duct will maintain the same fire-resistance rating of the building construction being penetrated by the duct. In addition to providing protection against flame passage, like a fire damper, these ducts provide a reduction in temperature transmission across the surface of the duct through the rated assembly.

This ASTM Standard is now referenced as part of ICC-ES AC179, Acceptance Criteria for Metallic HVAC Duct Enclosure Assemblies. The purpose of these acceptance criteria is to establish requirements for fire protection enclosure systems applied to metallic HVAC ducts, which provides an alternate to required fire-resistance-rated shafts or an alternate to required fire dampers in specific locations. This proposal is consistent with AC 179 criterion providing an alternate to shaft enclosures for vertical ducts, and an alternate to fire dampers in horizontal ducts (penetrating fire barriers, fire partitions, and or smoke barriers) and vertical ducts.

Cost Impact: Will not increase the cost of construction
This proposal adds another option for designers. The option would most commonly be used when it reduces the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, ASTM E2816, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS 109-15 : 717.5.2-CRIMI4312

FS 110-15

717.5.2 (IMC 607.5.2), 717.5.3 (IMC 607.5.5)

Proponent: Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com)

2015 International Building Code

Revise as follows:

717.5.2 Fire barriers. Ducts and air transfer openings of *fire barriers* shall be protected with ~~approved~~ listed *fire dampers* installed in accordance with their listing. Ducts and air transfer openings shall not penetrate enclosures for *interior exit* stairways and ramps and exit passageways, except as permitted by Sections 1023.5 and 1024.6, respectively.

> **Exception:** In occupancies other than Group H, ~~*Fire*~~*fire dampers* are not required at penetrations of *fire barriers* where any of the following apply:
> 1. Penetrations are tested in accordance with ASTM E 119 or UL 263 as part of the fire-resistance-rated assembly.
> 2. Ducts are used as part of an *approved* smoke control system in accordance with Section 909 and where the use of a *fire damper* would interfere with the operation of a smoke control system.
> 3. Such walls are penetrated by ducted HVAC systems, have a required *fire-resistance rating* of 1 hour or less, are in areas of other than Group H and are in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than No. 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals.

717.5.3 Shaft enclosures. Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with ~~approved~~ listed fire and smoke *dampers* installed in accordance with their listing.

Exceptions:

1. ~~*Fire*~~In occupancies other than Group H, *fire dampers* are not required at penetrations of shafts where any of the following criteria are met:
   - 1.1. Steel exhaust subducts are extended not less than 22 inches (559 mm) vertically in exhaust shafts, provided there is a continuous airflow upward to the outside.
   - 1.2. Penetrations are tested in accordance with ASTM E 119 or UL 263 as part of the fire-resistance-rated assembly.
   - 1.3. Ducts are used as part of an *approved* smoke control system designed and installed in accordance with Section 909 and where the *firedamper* will interfere with the operation of the smoke control system.
   - 1.4. The penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
2. In Group B and R occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, *smokedampers* are not required at penetrations of shafts where all of the following criteria are met:
   - 2.1. Kitchen, clothes dryer, bathroom and toilet room exhaust openings are installed with steel exhaust subducts, having a minimum wall thickness of 0.0187-inch (0.4712 mm) (No. 26 gage).
   - 2.2. The subducts extend not less than 22 inches (559 mm) vertically.
   - 2.3. An exhaust fan is installed at the upper terminus of the shaft that is powered continuously in accordance with the provisions of Section 909.11, so as to maintain a continuous upward airflow to the outside.
3. *Smoke dampers* are not required at penetration of exhaust or supply shafts in parking garages that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
4. *Smoke dampers* are not required at penetrations of shafts where ducts are used as part of an *approved* mechanical smoke control system designed in accordance with Section 909 and where the *smoke damper* will interfere with the operation of the smoke control system.
5. *Fire dampers* and *combination fire/smokedampers* are not required in kitchen and clothes dryer exhaust systems where installed in accordance with the *International Mechanical Code*.

Reason: Section 717.5.4 (fire partitions) already exclude H occupancies from these exceptions. Fire barriers which are more restrictive than fire partitions should have the same requirements. in entire Section 717.5, fire and smoke dampers or combination of F/S dampers are required to be "listed", except for these two locations that are calling for "approved" for no apparent reason.

Cost Impact: Will increase the cost of construction
This proposal could potentially increase the cost of construction. Switching from "approved" to "listed" could increase the cost of construction. The definition for "approved" is: "Acceptable to the code official or AHJ". This leaves it to the discretion of the AHJ on how to approve a damper. On the other hand, the definition of "listed" is more specific to evaluation of products by a recognized laboratory or a testing agency.
The other change, excluding H Occupancies from this exception, will increase the cost of construction since all ducts penetrating shaft enclosures in H Occupancies will, now, have to be equipped with fire dampers.

FS 110-15 : 717.5.2-MAIEL4399

FS 111-15

717.5.2 (IMC 607.5.2), 717.5.3 (IMC 607.5.5)

Proponent: Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

2015 International Building Code

Revise as follows:

717.5.2 Fire barriers. Ducts and air transfer openings of *fire barriers* shall be protected with listed~~approved~~ *fire dampers* installed in accordance with their listing. Ducts and air transfer openings shall not penetrate enclosures for *interior exit* stairways and ramps and exit passageways, except as permitted by Sections 1023.5 and 1024.6, respectively.

Exception: *Fire dampers* are not required at penetrations of *fire barriers* where any of the following apply:

1. Penetrations are tested in accordance with ASTM E 119 or UL 263 as part of the fire-resistance-rated assembly.
2. Ducts are used as part of an *approved* smoke control system in accordance with Section 909 and where the use of a *fire damper* would interfere with the operation of a smoke control system.
3. Such walls are penetrated by ducted HVAC systems, have a required *fire-resistance rating* of 1 hour or less, are in areas of other than Group H and are in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than No. 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals.

717.5.3 Shaft enclosures. Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with ~~approved~~listed fire and smoke *dampers* installed in accordance with their listing.

Exceptions:

1. *Firedampers* are not required at penetrations of shafts where any of the following criteria are met:
   - 1.1. Steel exhaust subducts are extended not less than 22 inches (559 mm) vertically in exhaust shafts, provided there is a continuous airflow upward to the outside.
   - 1.2. Penetrations are tested in accordance with ASTM E 119 or UL 263 as part of the fire-resistance-rated assembly.
   - 1.3. Ducts are used as part of an *approved* smoke control system designed and installed in accordance with Section 909 and where the *firedamper* will interfere with the operation of the smoke control system.
   - 1.4. The penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
2. In Group B and R occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, *smokedampers* are not required at penetrations of shafts where all of the following criteria are met:
   - 2.1. Kitchen, clothes dryer, bathroom and toilet room exhaust openings are installed with steel exhaust subducts, having a minimum wall thickness of 0.0187-inch (0.4712 mm) (No. 26 gage).
   - 2.2. The subducts extend not less than 22 inches (559 mm) vertically.
   - 2.3. An exhaust fan is installed at the upper terminus of the shaft that is powered continuously in accordance with the provisions of Section 909.11, so as to maintain a continuous upward airflow to the outside.
3. *Smoke dampers* are not required at penetration of exhaust or supply shafts in parking garages that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
4. *Smoke dampers* are not required at penetrations of shafts where ducts are used as part of an *approved* mechanical smoke control system designed in accordance with Section 909 and where the *smoke damper* will interfere with the operation of the smoke control system.
5. *Fire dampers* and *combination fire/smokedampers* are not required in kitchen and clothes dryer exhaust systems where installed in accordance with the *International Mechanical Code*.

Reason: Section 717.3.1 of the 2015 International Building Code is very clear that all five types of dampers shall be listed and labeled. However there are two provisions within Section 717 which reference "approved" dampers instead of "listed" dampers. This intent of this proposal is simply to bring consistency in terminology within Section 717. This does not represent a technical change, as Section 717.3.1 already requires dampers to be listed and labeled.

Cost Impact: Will not increase the cost of construction
This does not represent a technical change, as Section 717.3.1 already requires dampers to be listed and labeled.

FS 112-15

717.5.2 (IMC 607.5.2)

Proponent: James Peterkin, representing Self (jpeterki@heery.com)

2015 International Building Code

Revise as follows:

717.5.2 Fire barriers. Ducts and air transfer openings of *fire barriers* shall be protected with *approved fire dampers* installed in accordance with their listing. Ducts and air transfer openings shall not penetrate enclosures for *interior exit* stairways and ramps and exit passageways, except as permitted by Sections 1023.5 and 1024.6, respectively.

Exception: *Fire dampers* are not required at penetrations of *fire barriers* where any of the following apply:

1. Penetrations are tested in accordance with ASTM E 119 or UL 263 as part of the fire-resistance-rated assembly.
2. Ducts are used as part of an *approved* smoke control system in accordance with Section 909 and where the use of a *fire damper* would interfere with the operation of a smoke control system.
3. Such walls are penetrated by fully ducted HVAC systems, have a required *fire-resistance rating* of 1 hour or less, are in areas of other than Group H and are in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a fully ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than No. 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals. Flexible connections shall be permitted in the following locations:

   1. Non-metal flex connections shall be permitted at the duct connection to the Air Handling Unit or Equipment located within the mechanical room.
   2. Non-metal flex connections shall be permitted from an overhead metal duct to a ceiling diffuser within the same room.

Reason: The code currently implies that any flex duct (or equipment flex connections) negates the use of the exception for fire dampers in 1 hour walls in fully ducted, fully sprinklered buildings.

The code permits the omission of the fire damper for a metal duct system that terminates either at a wall (such as a sidewall grille) or continues on to a duct opening past the fire barrier and has openings in the duct ("continuous from the air-handling appliance or equipment to the air outlet and inlet terminals"). This section does not even prohibit openings to be on both sides of the duct as long as the openings are in metal duct. However, for some reason, if flex duct is used to connect a metal duct to a ceiling diffuser (standard practice) this triggers the requirement for a fire damper. See attached sketch.
The flex connection within the concealed space does not constitute a greater hazard then other conditions that would permit the omission of the fire dampers.

Likewise, an flex connection at the AHU within the mechanical space does not constitute a hazard that should trigger the fire damper within the system

As noted above, this exception only applies in fully sprinklered buildings.

Cost Impact: Will not increase the cost of construction
The proposed wording will clear up this interpretation and reduce the cost of fire damper installation and maintenance in locations that do not constitute a significant hazard.

FS 112-15 : 717.5.2-PETERKIN5245

FS 113-15

717.5.3 (IMC 607.5.5)

Proponent: Vickie Lovell, InterCode Incorporated, representing Air Movement and Control Association International (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

717.5.3 Shaft enclosures. Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with *approved* fire and smoke *dampers* installed in accordance with their listing.

Exceptions:

1. *Firedampers* are not required at penetrations of shafts where any of the following criteria are met:
   - 1.1. Steel exhaust subducts are extended not less than 22 inches (559 mm) vertically in exhaust shafts, provided there is a continuous airflow upward to the outside<u>, provided by an exhaust fan installed at the upper terminus of the shaft that is powered continuously in accordance with the provisions 909.11</u>.
   - 1.2. Penetrations are tested in accordance with ASTM E 119 or UL 263 as part of the fire-resistance-rated assembly.
   - 1.3. Ducts are used as part of an *approved* smoke control system designed and installed in accordance with Section 909 and where the *firedamper* will interfere with the operation of the smoke control system.
   - 1.4. The penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
2. In Group B and R occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, *smokedampers* are not required at penetrations of shafts where all of the following criteria are met:
   - 2.1. Kitchen, clothes dryer, bathroom and toilet room exhaust openings are installed with steel exhaust subducts, having a minimum wall thickness of 0.0187-inch (0.4712 mm) (No. 26 gage).
   - 2.2. The subducts extend not less than 22 inches (559 mm) vertically.
   - 2.3. An exhaust fan is installed at the upper terminus of the shaft that is powered continuously in accordance with the provisions of Section 909.11, so as to maintain a continuous upward airflow to the outside.
3. *Smoke dampers* are not required at penetration of exhaust or supply shafts in parking garages that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
4. *Smoke dampers* are not required at penetrations of shafts where ducts are used as part of an *approved* mechanical smoke control system designed in accordance with Section 909 and where the *smoke damper* will interfere with the operation of the smoke control system.
5. *Fire dampers* and *combination fire/smokedampers* are not required in kitchen and clothes dryer exhaust systems where installed in accordance with the *International Mechanical Code*.

Reason: The exceptions permit elimination of both fire dampers and smoke dampers in shafts under certain conditions.
In order to eliminate smoke dampers in a shaft, an exhaust fan must be installed at the upper terminus of the shaft that will operate on standby power so as to maintain a continuous upward airflow to the outside. (See Criteria 2.3 in Exception 2 of this section).

This proposal seeks to require the same conditions for an exhaust fan in order to be able to eliminate the fire damper in the shaft.

The system can be intentionally or unintentionally powered down if there is shorted/melted wiring or other ignited debris within the ventilation shaft. Without a fire damper and no upward airflow to the outside, fire (and smoke) could migrate via the shaft to a floor remote from the area of origin. At present a smoke damper is required in some cases while a fire damper is not required and vice versa. Both should be required under the same conditions, and exempted by the same conditions.

By adding the requirement for powered air movement in the shaft if fire damper is not required, safety is increased.

Cost Impact: Will increase the cost of construction
The cost of construction will increase due to the added cost for the fan and continuous power.

FS 113-15 : 717.5.3-LOVELL4468

FS 114-15

717.5.3 (IMC 607.5.5)

Proponent: Douglas Evans, representing self (dhefpe@gmail.com)

2015 International Building Code

Revise as follows:

717.5.3 Shaft enclosures. Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with *approved* fire and smoke *dampers* installed in accordance with their listing.

Exceptions:

1. *Firedampers* are not required at penetrations of shafts where any of the following criteria are met:
   1.1. Steel exhaust subducts are extended not less than 22 inches (559 mm) vertically in exhaust shafts, provided there is a continuous airflow upward to the outside.
   1.2. Penetrations are tested in accordance with ASTM E 119 or UL 263 as part of the fire-resistance-rated assembly.
   1.3. Ducts are used as part of an *approved* smoke control system designed and installed in accordance with Section 909 and where the *firedamper* will interfere with the operation of the smoke control system.
   1.4. The penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
2. In ~~Group B and R occupancies~~buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, *smokedampers* are not required at penetrations of shafts where all of the following criteria are met:
   2.1. Kitchen, clothes dryer, bathroom and toilet room exhaust openings are installed with steel exhaust subducts, having a maximum diameter of 5" (127 mm) or maximum area of 19.7 in^2 (0.012 m^2) and a minimum wall thickness of 0.0187-inch (0.4712 mm) (No. 26 gage).
   2.2. The subducts extend not less than 22 inches (559 mm) vertically.
   2.3. An exhaust fan is installed at the upper terminus of the shaft that is powered continuously in accordance with the provisions of Section 909.11, so as to maintain a continuous upward airflow to the outside.
3. *Smoke dampers* are not required at penetration of exhaust or supply shafts in parking garages that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
4. *Smoke dampers* are not required at penetrations of shafts where ducts are used as part of an *approved* mechanical smoke control system designed in accordance with Section 909 and where the *smoke damper* will interfere with the operation of the smoke control system.
5. *Fire dampers* and *combination fire/smokedampers* are not required in kitchen and clothes dryer exhaust systems where installed in accordance with the *International Mechanical Code*.

Reason: For all occupancy classifications, Exceptions 1 allows deletion of fire dampers when specific conditions are met. Exception 2 allows deletion of the smoke damper under the conditions specified, but is limited to B and R occupancies. The 22-inch subduct as described, mitigates the fire damper. For fully sprinklered buildings, the fan described in Exception 2 that is continuously operating and on standby power, mitigates the smoke damper. This combination creates an equivalent and safe condition that need not be limited to B and R occupancies.

Cost Impact: Will not increase the cost of construction
This proposal is expected to decrease the cost of construction.The allowance to eliminate smoke dampers not only saves the cost of the damper, also saved is the cost of the respective smoke detector and interconnected controls. The continued maintenance and testing of the damper(s) and smoke detector(s) are also eliminated.

Analysis: Code change proposals FS 114 and FS 115 propose revisions to Section 717.5.3. The committee needs to make its intent clear with respect to these revisions.

FS 114-15 : 717.5.3-EVANS5430

FS 115-15

717.5.3 (IMC 607.5.5)

Proponent: Raymond Grill, Arup, representing Arup (ray.grill@arup.com)

2015 International Building Code

Revise as follows:

717.5.3 Shaft enclosures. Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with *approved* fire and smoke *dampers* installed in accordance with their listing.

Exceptions:

1. *Firedampers* are not required at penetrations of shafts where any of the following criteria are met:
   - 1.1. Steel exhaust subducts are extended not less than 22 inches (559 mm) vertically in exhaust shafts, provided there is a continuous airflow upward to the outside.
   - 1.2. Penetrations are tested in accordance with ASTM E 119 or UL 263 as part of the fire-resistance-rated assembly.
   - 1.3. Ducts are used as part of an *approved* smoke control system designed and installed in accordance with Section 909 and where the *firedamper* will interfere with the operation of the smoke control system.
   - 1.4. The penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
2. ~~In Group B and R occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, *smokedampers*~~Smoke dampers are not required at penetrations of shafts ~~where all of the following criteria~~in buildings that are ~~met:~~
   - 2.1. ~~Kitchen, clothes dryer, bathroom and toilet room exhaust openings are installed~~equipped throughout with ~~steel exhaust subducts, having a minimum wall thickness of 0.0187-inch (0.4712 mm) (No. 26 gage).~~
   - ~~2.2. The subducts extend not less than 22 inches (559 mm) vertically.~~
   - 2.2. ~~An exhaust fan is installed at the upper terminus of the shaft that is powered continuously~~an automatic sprinkler system in accordance with ~~the provisions of~~ Section ~~909.11, so as to maintain a continuous upward airflow to the outside~~903.3.1.1.
3. *Smoke dampers* are not required at penetration of exhaust or supply shafts in parking garages that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
4. *Smoke dampers* are not required at penetrations of shafts where ducts are used as part of an *approved* mechanical smoke control system designed in accordance with Section 909 and where the *smoke damper* will interfere with the operation of the smoke control system.
5. *Fire dampers* and *combination fire/smokedampers* are not required in kitchen and clothes dryer exhaust systems where installed in accordance with the *International Mechanical Code*.

Reason: The requirement for smoke dampers at penetrations in shafts was first included in the IBC during the comment phase of the development of the first edition of the International Building Code. This requirement did not exist in any of the model building codes (BOCA, UBC & SBC). A requirement for smoke dampers at penetrations of shafts has never been incorporated in the NFPA system of codes.

The justification for smoke dampers in the original code change is that smoke can travel through a duct to locations in a building that are remote from the fire. While this statement is correct, smoke travel through ducted ventilation shafts has not been a contributing factor to fire spread or fire deaths in buildings. Smoke detectors at HVAC equipment have been required to accomplish automatic shut off of HVAC equipment to minimize the potential of smoke spread through ventilation ducts. For example, the majority of fire deaths in upper stories of the MGM grand fire of 1980 were due to smoke spread through stair shafts and seismic joints that were not protected. Fancoil units in guestrooms drew air from the corridors which also contributed to fatalities. While the HVAC system was cited as a potential source of smoke spread, smoke detectors were not present to provide automatic shutoff of equipment (NFPA Preliminary Report of the MGM Grand Hotel Fire). The MGM Grand was not sprinkler protected.

There was only one fatality in an upper story of the San Juan DuPont fire in 1986 which was not readily explained. The San Juan Dupont was not sprinker protected. Smoke travel through ventilation shafts was not a contributing factor in the First Interstate fire in Los Angeles or the Meridian fire in Philadelphia. Sprinklers were not active on fire floors in either of those buildings. Even in the World Trade Center bombing of 1993, 6 fatalities were attributed to the explosion, but there were no fatalities due to the effects of smoke (Isner, Michael S. and Klem, Thomas J., "World Trade Center Explosion and Fire," National Fire Protection Association). While these fires were thoroughly investigated, and code changes promulgated to address fire safety issues, smoke dampers in duct penetrations of shafts were never adopted as changes to any of the model codes as a result of these fires.

The original code change in the IBC did not present any technical substantiation for the additional requirement for smoke dampers and there has never been an instance that I am aware of where the provision of smoke dampers in shafts would have made a difference in the fire performance of a fully sprinklered building.

This requirement has been massaged based on negotiation with manufactures and building ownership groups over the past code cycles because it has always been difficult to implement. The requirement for smoke dampers at penetrations of shafts should be removed for fully sprinklered buildings.

There have been jurisdictions and federal agencies that have never adopted the smoke damper requirement for sprinklered buildings. There have not been any incidences reported to show a need for smoke dampers. Agencies include the General Services Administration, Department of Veteran Affairs, and Department of Defense. These agencies own and operate buildings that include all of the occupancy types addressed by the IBC. Smoke dampers are not required in shaft penetrations in their buildings.

Performance of Fully Sprinklered Buildings

It is important to note that the IBC requires sprinkler protection for most buildings of any significant size or occupant load. Therefore, the performance of sprinklered buildings is relevant. There has never been a multiple life loss fire in a fully sprinklered building of any occupancy type where the occupants have not been intimate with the fire or where an explosive or terrorist event has occurred.

Fire incidents in fully sprinklered buildings have never been identified to demonstrate the need for smoke dampers at shaft penetrations..

Maintaining Operability

Smoke dampers are operated by either a pneumatic actuator or electric motor. Smoke dampers require regular testing and maintenance to keep them operating. Even the most diligent building owners have a difficult time maintaining operability of smoke dampers.

Sustainability

There is a significant amount of resources that go into the implementation of smoke dampers at shaft penetrations. There has not been a demonstrated value to property protection or life safety in fully sprinklered buildings to justify their need.

Cost Impact: Will not increase the cost of construction
This code change will significantly reduce the cost of construction. A rough installed cost estimate for the smoke dampers and associated required equipment can range from $2000-$3000 per damper or even more for large dampers. This does not include the ongoing cost of testing the dampers and detectors that are required to operate the dampers. Regular testing is also required at regular frequencies. Testing costs per damper can vary depending on the number of dampers being tested and the accessibility and complexity of the system.

Analysis: Code change proposals FS 114 and FS 115 propose revisions to Section 717.5.3. The committee needs to make its intent clear with respect to these revisions.

FS 115-15 : 717.5.3-GRILL5132

FS 116-15

717.5.3 (IMC 607.5.5)

Proponent: Douglas Evans, representing self (dhefpe@gmail.com)

2015 International Building Code

Revise as follows:

717.5.3 Shaft enclosures. Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with *approved* fire and smoke *dampers* installed in accordance with their listing.

Exceptions:

1. *Firedampers* are not required at penetrations of shafts where any of the following criteria are met:
   - 1.1. Steel exhaust subducts are extended not less than 22 inches (559 mm) vertically in exhaust shafts, provided there is a continuous airflow upward to the outside.
   - 1.2. Penetrations are tested in accordance with ASTM E 119 or UL 263 as part of the fire-resistance-rated assembly.
   - ~~1.3. Ducts are used as part of an *approved* smoke control system designed and installed in accordance with Section 909 and where the *firedamper* will interfere with the operation of the smoke control system.~~
   - 1.3. The penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
2. In Group B and R occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, *smokedampers* are not required at penetrations of shafts where all of the following criteria are met:
   - 2.1. Kitchen, clothes dryer, bathroom and toilet room exhaust openings are installed with steel exhaust subducts, having a minimum wall thickness of 0.0187-inch (0.4712 mm) (No. 26 gage).
   - 2.2. The subducts extend not less than 22 inches (559 mm) vertically.
   - 2.3. An exhaust fan is installed at the upper terminus of the shaft that is powered continuously in accordance with the provisions of Section 909.11, so as to maintain a continuous upward airflow to the outside.
3. *Smoke dampers* are not required at penetration of exhaust or supply shafts in parking garages that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
4. ~~*Smoke dampers* are not required at penetrations of shafts where ducts are used as part of an *approved* mechanical smoke control system designed in accordance with Section 909 and where the *smoke damper* will interfere with the operation of the smoke control system.~~
4. *Fire dampers* and *combination fire/smokedampers* are not required in kitchen and clothes dryer exhaust systems where installed in accordance with the *International Mechanical Code.*

Reason: These allowances can easily be misapplied. Just because dampers (fire or smoke) are part of a 909 smoke control system is not a reason to delete them. The following statements have been gleaned from various editions of the ICC Smoke Control book by Evans and Klote:

"One thing to consider is the effect of automatic sprinklers. If we accept **the concepts outlined in Section 909**, we must **assume that automatic sprinklers have activated and minimized the fire size, as well as the heat output, or that the fire is fuel-limited**. Section 909 is not intended to be used when uncontrolled fires can be expected."

"It may be argued that fire dampers can invariably interfere with proper operation of a smoke control system. Does this mean that all fire dampers in smoke control systems should be deleted? The code even allows increased activation temperatures for fire dampers installed within smoke control systems. If there is sufficient heat at a fire damper to cause the fusible link to melt, there may be the possibility of spreading fire from one side of the barrier to the other. In most cases, **it may be preferable to allow the fire damper to close and maintain the fire resistance of the passive barrier**, knowing full well that the mechanical smoke control system may no longer be able to perform its intended function. The impact of this subject can be minimized by careful layout of the smoke control system to reduce the number of fire dampers required."

"If the linkage temperature of a fire damper is hot enough for the damper to close, there is likely a greater concern of keeping the fire within the zone of origin than whether the smoke control system is functioning properly. In other words, **let the fire damper fulfill its intended function by maintaining the passive barrier**. "

"The Exception allows **smoke dampers**, which are part of an approved smoke control system, to be **omitted when they "are not necessary for the operation and control of the system**." This allowance should only be considered on a case-by-case basis. When the smoke control system is operating properly, smoke dampers can be programmed to remain in the open position and still allow the smoke control system to function within the intent of its design. When airflow sensors do not indicate adequate air movement, these dampers can be programmed to close and maintain the passive smoke barrier. **If smoke can migrate from one smoke zone to another** through a ducted or non-ducted damper **when fans are off, recognition of this allowance is not appropriate**. A fire damper must still be installed if required by this code."

One can virtually always argue that a fire or smoke damper will adversely affect the smoke control system. Although this may be correct, careful routing of ducts can substantially reduce the need for dampers.

It is virtually impossible to design a smoke control system in accordance with Section 909 without taking into account a sprinkler limited fire. In a sprinkler controlled fire, its unlikely fire dampers will get hot enough to close.

The leakage rated portion of the damper (smoke damper) can be programmed to remain open when the smoke control system is functioning properly and close upon an appropriate fault condition. As such, it is unlikely a smoke damper will adversely affect a properly functioning smoke control system.

As such, these allowances are inappropriate and should only be considered when one of the other existing exceptions applies.

Cost Impact: Will increase the cost of construction
Careful layout of the smoke control system to limit penetration of rated assemblies can substantially reduce the number of fire dampers required. As such, this proposal will have little to no increase in the cost of construction for a properly designed smoke control system.

FS 116-15 : 717.5.3-EVANS5405

FS 117-15

717.5.3 (IMC 607.5.5)

Proponent: Maureen Traxler, Seattle Dept of Planning & Development, representing Seattle Dept of Planning & Development (maureen.traxler@seattle.gov)

2015 International Building Code

Revise as follows:

717.5.3 Shaft enclosures. Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with *approved* fire and smoke *dampers* installed in accordance with their listing.

Exceptions:

1. *Firedampers* are not required at penetrations of shafts where any of the following criteria are met:
   - 1.1. Steel exhaust subducts are extended not less than 22 inches (559 mm) vertically in exhaust shafts, provided there is a continuous airflow upward to the outside.
   - 1.2. Penetrations are tested in accordance with ASTM E 119 or UL 263 as part of the fire-resistance-rated assembly.
   - 1.3. Ducts are used as part of an *approved* smoke control system designed and installed in accordance with Section 909 and where the *firedamper* will interfere with the operation of the smoke control system.
   - 1.4. The penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
2. In Group B and R occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, *smokedampers* are not required at penetrations of shafts where all of the following criteria are met:
   - 2.1. Kitchen, clothes dryer, bathroom and toilet room exhaust openings are installed with steel exhaust subducts, having a minimum wall thickness of 0.0187-inch (0.4712 mm) (No. 26 gage).
   - 2.2. The subducts extend not less than 22 inches (559 mm) vertically.
   - 2.3. An exhaust fan is installed at the upper terminus of the shaft that is powered continuously in accordance with the provisions of Section 909.11, so as to maintain a continuous upward airflow to the outside.
3. *Smoke dampers* are not required at penetration of exhaust or supply shafts in parking garages that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.
4. *Smoke dampers* are not required at penetrations of shafts where ducts are used as part of an *approved* mechanical smoke control system designed in accordance with Section 909 and where the *smoke damper* will interfere with the operation of the smoke control system.
5. *Fire dampers* and *combination fire/smokedampers* are not required in kitchen and clothes dryer exhaust systems where ~~installed in accordance with~~ dampers are prohibited by the *International Mechanical Code*.

Reason: The purpose of exception 5 is to eliminate an inconsistency between the IBC & IMC. Without the exception, the IBC would require dampers while the IMC specifically prohibits them for clothes dryers (IMC Sec. 504.2), multistory domestic kitchen exhaust (IMC Sec. 505.3), and in grease ducts (IMC Sec. 505.3). However, the exception as written goes beyond that to allow undampered shaft penetrations in all kitchen exhausts that comply with the IMC.

Cost Impact: Will not increase the cost of construction
This proposal merely clarifies existing language and will not increase the cost of construction.

FS 117-15 : 717.5.3-TRAXLER3308

FS 118-15

717.5.5 (IMC 607.5.4)

Proponent: Vickie Lovell, InterCode Incorporated, representing Air Movement Control Association International (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

717.5.5 Smoke barriers. A *listed smoke damper* designed to resist the passage of smoke shall be provided at each point a duct or air transfer opening penetrates a *smoke barrier*. *Smoke dampers* and *smoke damper* actuation methods shall comply with Section 717.3.3.2.

Exceptions:

1. *Smoke dampers* are not required where the openings in ducts are limited to a single *smoke compartment* and the ducts are constructed of steel.
2. Smoke dampers are not required in smoke barriers required by Section 407.5 for Group I-2, Condition 2— where the HVAC system is fully ducted in accordance with Section 603 of the *International Mechanical Code* and where buildings are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 and equipped with quick-response sprinklers in accordance with Section 903.3.2. <u>For the purposes of this exception, a ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than No. 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals.</u>

Reason: Smoke barrier walls are used to divide areas of a building into separate smoke compartments so that occupants can be evacuated or relocated to adjacent smoke compartments or other areas of the building. They are also used to enclose areas of refuge and or elevator lobbies. Although not required by the IBC, smoke barriers can also be used as part of a smoke control system, accessible means of egress, and compartmentation of underground buildings. IBC Section 709.3 "Fire-resistance rating" states that a 1-hour fire-resistance rating is required for smoke barriers. In addition to a 1 hour fire resistance rating for the smoke barrier, the IBC also requires that all the elements such as doors, penetrations, joints and ducts of a smoke barrier have quantifiable resistance to smoke/air leakage. Smoke barriers are required to be permanently identified and marked with signs or stenciling with wording that requires that openings should be protected after construction and during ongoing maintenance and repairs.
Without any technical justification other than the cost of installation and maintenance of a smoke damper, smoke dampers were removed as duct opening protection in a smoke barrier in fully ducted HVAC systems. No meaningful supporting data was provided to show that eliminating a smoke damper in a smoke barrier duct opening, and replying solely on the sprinkler system and the duct itself is an equivalent alternative to a 1 hour of fire resistance rated assembly, or would satisfy the requirement to limit the migration of smoke and toxic gases if the duct breaks away from the smoke barrier wall. Therefore this proposed text has been added to better define when the exception for smoke dampers should apply based on the construction of the HVAC system. It has excerpted from the exception permitted in fire partitions (also fire rated for 1 hour) for fire dampers in fully ducted systems in sprinklered buildings as follows:

> 717.5.4 Fire partitions, Exception #4. Such walls are penetrated by ducted HVAC systems, have a required fire-resistance rating of 1 hour or less, and are in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than No. 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals.

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction because the code section already requires a fully ducted system in order to eliminate a smoke damper. This proposal brings into this section the description of what a fully ducted system is, which the code already defined in 717.5.4 Fire partitions.

FS 118-15 : 717.5.5-LOVELL4473

FS 119-15

717.6.2 (IMC 607.6.2), 717.6.2.1 (IMC 607.6.2.1)

Proponent: Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com)

2015 International Building Code

Revise as follows:

717.6.2 Membrane penetrations. Ducts and air transfer openings constructed of *approved* materials in accordance with the *International Mechanical Code* that penetrate the ceiling membrane of a fire-resistance-rated floor/ceiling or roof/ceiling assembly shall be protected with one of the following:

1. A shaft enclosure in accordance with Section 713.
2. A *listedceiling radiation damper* installed at the ceiling line where a duct penetrates the ceiling of a fire-resistance-rated floor/ceiling or roof/ceiling assembly.

Exceptions:

1. A fire resistance rated assembly tested in accordance with ASTM E 119 or UL 263 showing that ceiling radiation dampers are not required in order to maintain the fire resistance rating of the assembly.

2. Where exhaust duct penetrations are protected in accordance with Section 714.4.1.2 are located within the cavity of a wall and do not pass through another dwelling unit or tenant space.

3. Where duct and air transfer openings are protected with a duct outlet penetration system tested as part of a fire-resistance-rated assembly in accordance with ASTM E 119 or UL 263.

3. A *listedceiling radiation damper* installed at the ceiling line where a diffuser with no duct attached penetrates the ceiling of a fire-resistance-rated floor/ceiling or roof/ceiling assembly.

Exceptions:

1. A fire resistance rated assembly tested in accordance with ASTM E 119 or UL 263 showing that ceiling radiation dampers are not required in order to maintain the fire resistance rating of the assembly.

2. Where duct and air transfer openings are protected with a duct outlet penetration system tested as part of a fire-resistance-rated assembly in accordance with ASTM E 119 or UL 263.

717.6.2.1 Ceiling radiation dampers testing and installation. *Ceiling radiation dampers* shall be tested in accordance with Section 717.3.1. *Ceiling radiation dampers* shall be installed in accordance with the details *listed* in the fire-resistance-rated assembly and the manufacturer's instructions and the listing.~~*Ceiling radiation dampers* are not required where one of the following applies:~~

~~1. Tests in accordance with ASTM E 119 or UL 263 have shown that *ceiling radiation dampers* are not necessary in order to maintain the *fire-resistance rating* of the assembly.~~

~~1. Where exhaust duct penetrations are protected in accordance with Section 714.4.2, are located within the cavity of a wall and do not pass through another *dwellingunit* or tenant space.~~

~~2. Where duct and air transfer openings are protected with a duct outlet protection system tested as part of a fire-resistance-rated assembly in accordance with ASTM E 119 or UL 263.~~

Reason: This proposal combines Section 717.6.2 and 717.6.2.1 in a way that the requirements could be understood better. The changes are merely editorial and not technical.

Cost Impact: Will not increase the cost of construction
The proposal will not increase the cost of construction since the code change, as mentioned under "reason", is merely editorial for the code user to understand it better.

FS 119-15 : 717.6.2-MAIEL4514

FS 120-15

717.6.2.1 (IMC 607.6.2.1)

Proponent: Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport (mmoore@newportventures.net)

2015 International Building Code

Revise as follows:

717.6.2.1 Ceiling radiation dampers. *Ceiling radiation dampers* shall be tested in accordance with Section 717.3.1. *Ceiling radiation dampers* shall be installed in accordance with the details *listed* in the fire-resistance-rated assembly and the manufacturer's instructions and the listing. *Ceiling radiation dampers* are not required where one of the following applies:

1. Tests in accordance with ASTM E 119 or UL 263 have shown that *ceiling radiation dampers* are not necessary in order to maintain the *fire-resistance rating* of the assembly.
2. Where exhaust <u>duct or outdoor air</u> duct penetrations are protected in accordance with Section 714.4.2, are located within the cavity of a wall and do not pass through another *dwellingunit* or tenant space.
3. Where duct and air transfer openings are protected with a duct outlet protection system tested as part of a fire-resistance-rated assembly in accordance with ASTM E 119 or UL 263.

Reason:
This section provides multiple exemptions for ceiling radiation dampers. Exception 2 exempts exhaust air ducts that meet certain requirements. There is no apparent reason to not also exempt outdoor air ducts meeting the same requirements. This appears to simply be an oversight.

Cost Impact: Will not increase the cost of construction
This proposal will reduce costs by reducing the number of applications requiring a ceiling radiation damper. The cost reduction expected is $50-$130 per instance. Prices estimates are retail based on Google shopping search, key words "ceiling radiation damper", conducted December 19, 2014.

FS 120-15 : 717.6.2.1-MOORE4902

FS 121-15

Part I:

718.3.2

Part II:

718.4.2

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IBC-FIRE SAFETY COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THIS COMMITTEE.

Proponent: Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

Part I

2015 International Building Code

Revise as follows:

718.3.2 Groups R-1, R-2, R-3 and R-4. Draftstopping shall be provided in floor/ceiling spaces in Group R-1 buildings, in Group R-2 buildings with three or more *dwellingunits*, in Group R-3 buildings with two *dwellingunits* and in Group R-4 buildings. Draftstopping shall be located above and in line with the *dwellingunit* and *sleeping unit* separations.

Exceptions:

1. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
2. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2, provided that automatic sprinklers in accordance with Section 903.3.1.1 are installed in the combustible concealed spaces where the draftstopping is being omitted.

Part II

2015 International Building Code

Revise as follows:

718.4.2 Groups R-1 and R-2. Draftstopping shall be provided in *attics*, mansards, overhangs or other concealed roof spaces of Group R-2 buildings with three or more *dwellingunits* and in all Group R-1 buildings. Draftstopping shall be installed above, and in line with, *sleeping unit* and *dwellingunit* separation walls that do not extend to the underside of the roof sheathing above.

Exceptions:

1. Where *corridor* walls provide a *sleeping unit* or *dwellingunit* separation, draftstopping shall only be required above one of the *corridor* walls.
2. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. In occupancies in Group R-2 that do not exceed four *storiesabovegrade plane*, the *attic* space shall be subdivided by *draftstops* into areas not exceeding 3,000 square feet (279 m^2) or above every two *dwellingunits*, whichever is smaller.
4. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2, provided that automatic sprinklers in accordance with Section 903.3.1.1 are installed in the combustible concealed space where the draftstopping is being omitted.

Reason: The requirement to have an NFPA 13R sprinkler system protect combustible concealed spaces contradicts the intent of a 13R system. The NFPA 13R code specifically excludes the installation of sprinklers in combustible concealed spaces. Section 6.6.6 of NFPA 13R, 2010 edition (the edition referenced by the 2012 IBC), reads as follows:

"**6.6.6** Sprinklers shall not be required in attics, penthouse equipment rooms, elevator machine rooms, concealed spaces dedicated exclusively to and containing only dwelling unit ventilation equipment, crawl spaces, floor/ceiling spaces, noncombustible elevator shafts where the elevator cars comply with ANSI A17.1, *Safety Code for Elevators and Escalators*, and other concealed spaces that are not used or intended for living purposes or storage and do not contain fuel-fired equipment."

Because NFPA 13R specifically does not include within its scope the installation of sprinklers in concealed spaces, there are no criteria within NFPA 13R that are suitable for the protection of concealed spaces. NFPA 13, on the other hand, sets forth requirements for protecting concealed combustible spaces. As such, NFPA 13 has suitable design criteria for protection of concealed combustible spaces. Specifically, NFPA 13 provides "Section 8.16.1 Concealed Spaces" (too lengthy to retype). This section sets forth the concealed spaces where sprinklers are required, methods to mitigate sprinklers in concealed spaces, the density criteria for the sprinklers, provisions for localized protection of combustibles, and sprinkler head listing requirements for protection of spaces that of shallower heights.

Because NFPA 13R does not have design criteria for the protection of combustible concealed spaces, it is not appropriate to refer to that standard for protection of concealed combustible spaces. This amendment seeks to require that protection of concealed combustible spaces be provided in an appropriate manner, using the only recognized reference sprinkler code that provides criteria for protection of concealed combustible spaces.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal does not increase the cost of construction, as the requirements for sprinklers currently exist, and are being clarified only.

Part II: Will not increase the cost of construction
This proposal will not increase the cost of construction as the requirements currently exist, and are just being clarified by this proposal.

FS 121-15 : 718.3.2-DIGIOVANNI3829

FS 122-15

718.3.2

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

718.3.2 Groups R-1, R-2, R-~~3 and R-4~~. Draftstopping shall be provided in floor/ceiling spaces in Group R-1 buildings, in Group R-2 buildings with three or more *dwellingunits*, in Group R-3 buildings with two *dwellingunits* ~~and in Group R-4 buildings~~. Draftstopping shall be located above and in line with the *dwellingunit* and *sleeping unit* separations.

Exceptions:

1. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
2. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2, provided that automatic sprinklers are installed in the combustible concealed spaces where the draftstopping is being omitted.

Reason: Group R-4 congregate residences are groups of sleeping units that operate as a single-family home. Requiring draftstopping between bedrooms is a significantly higher requirement than specified for any other occupancy. By letting the provisions for Group R-4 fall back to the Group R-3 requirements, there would be draftstopping between dwellings.

Sections 903.2.8.3 through 903.2.8.3.2 were added in 2015 IBC/IFC for attic protection in Group R-4 Condition 2 facilities to address the issue of the possibility of fires within an attic space.

[F] 903.2.8.3 Group R-4 Condition 2. An automatic sprinkler system installed in accordance with Section 903.3.1.2 shall be permitted in Group R-4 Condition 2 occupancies. Attics shall be protected in accordance with Section 903.2.8.3.1 or 903.2.8.3.2.

[F] 903.2.8.3.1 Attics used for living purposes, storage or fuel-fired equipment. Attics used for living purposes, storage or fuel-fired equipment shall be protected throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2.

[F] 903.2.8.3.2 Attics not used for living purposes, storage or fuel-fired equipment. Attics not used for living purposes, storage or fuel-fired equipment shall be protected in accordance with one of the following:
1. Attics protected throughout by a heat detector system arranged to activate the building fire alarm system in accordance with Section 907.2.10.
2. Attics constructed of noncombustible materials. .
3. Attics constructed of fire-retardant-treated wood framing complying with Section 2303.2.
4. The automatic sprinkler system shall be extended to provide protection throughout the attic space.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
Clarification of the intent of draft stopping could reduce the requirements for the number of draft stops.

FS 122-15 : 718.3.2-BALDASSARRA4270

FS 123-15

720.1

Proponent: Marcelo Hirschler, representing GBH International (gbhint@aol.com)

2015 International Building Code

Revise as follows:

720.1 General. Insulating materials~~, including facings such as vapor retarders and *vapor-permeable membranes*, similar coverings and all layers of single and multilayer reflective foil insulations,~~ shall comply with the requirements of this section. Where a flame spread index or a smoke-developed index is specified in this section, such index shall be determined in accordance with ASTM E 84 or UL 723. Any material that is subject to an increase in flame spread index or smoke-developed index beyond the limits herein established through the effects of age, moisture or other atmospheric conditions shall not be permitted. <u>Insulating materials include but are not limited to facings such as vapor retarders, vapor permeable membranes and similar coverings, and all layers of single and multilayer reflective foil insulations.</u>

Exceptions:

1. Fiberboard insulation shall comply with Chapter 23.
2. Foam plastic insulation shall comply with Chapter 26.
3. Duct and pipe insulation and duct and pipe coverings and linings in plenums shall comply with the *International Mechanical Code*.
4. All layers of single and multilayer reflective plastic core insulation shall comply with Section ~~2613~~<u>2614</u>.

Reason: This is simple clarification and language cleanup. Section 720.1 is intended to apply to all insulating materials but the sentence as is causes confusion because it refers to two types of insulation materials, namely (1) facings such as vapor retarders and vapor-permeable membranes and similar coverings and (2) all layers of single and multilayer reflective foil insulations. Therefore it is better if they are shown in a separate sentence at the end of the section that way the sentence is clearer.
The other change is that the correct section for reflective plastic core insulation materials (which are a subset of reflective insulation materials) is 2614 and not 2613.

Cost Impact: Will not increase the cost of construction
No change in requirements - simple clarification.

FS 123-15 : 720.1-HIRSCHLER4583

FS 124-15

720.1, 720.2.1

Proponent: Lamont Millspaugh, Reflectix, Inc., representing Reflective Insulation Manufacturers Association International (monty.millspaugh@reflectixinc.com)

2015 International Building Code

Revise as follows:

720.1 General. Insulating materials, including facings such as vapor retarders and *vapor-permeable membranes*, similar coverings and ~~all layers of~~ single and multilayer reflective ~~foil~~ insulations, shall comply with the requirements of this section. Where a flame spread index or a smoke-developed index is specified in this section, such index shall be determined in accordance with ASTM E 84 or UL 723. Any material that is subject to an increase in flame spread index or smoke-developed index beyond the limits herein established through the effects of age, moisture or other atmospheric conditions shall not be permitted.

Exceptions:

1. Fiberboard insulation shall comply with Chapter 23.
2. Foam plastic insulation shall comply with Chapter 26.
3. Duct and pipe insulation and duct and pipe coverings and linings in plenums shall comply with the *International Mechanical Code*.
4. All layers of single and multilayer reflective plastic core insulation shall comply with Section 2613.

720.2.1 Facings. Where such materials are installed in concealed spaces in buildings of Type III, IV or V construction, the flame spread and smoke-developed limitations do not apply to facings, coverings, and layers of reflective ~~foil~~ insulation that are installed behind and in substantial contact with the unexposed surface of the ceiling, wall or floor finish.

Exception: All layers of single and multilayer reflective plastic core insulation shall comply with Section 2613.

Reason: The stricken language "all layers" is redundant and could cause confusion. Furthermore, this is not the correct method for testing these types of products. ASTM E 84 procedures call for the entire product to be tested, not each component of the product.
The word "foil" is an outdated describer of reflective insulation products. Some do contain foil, but a majority of the industry has moved to metalized films. All reflective insulations require the same testing regiment independent of composition.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction. The proposal updates the material reference language within the code, in order to be current with standard industry practice.

FS 124-15 : 720.1-MILLSPAUGH4896

FS 125-15

720.1, 720.5.1 (New)

Proponent: Wesley Hall, Reflectix, Inc., representing Reflective Insulation Manufacturers Association International (wes.hall@reflectixinc.com)

2015 International Building Code

Revise as follows:

720.1 General. Insulating materials, including facings such as vapor retarders and *vapor-permeable membranes*, similar coverings and all layers of single and multilayer reflective foil insulations and radiant barriers fully laminated to the underside of a wood roof deck, shall comply with the requirements of this section. Where a flame spread index or a smoke-developed index is specified in this section, such index shall be determined in accordance with ASTM E 84 or UL 723. Any material that is subject to an increase in flame spread index or smoke-developed index beyond the limits herein established through the effects of age, moisture or other atmospheric conditions shall not be permitted.

Exceptions:

1. Fiberboard insulation shall comply with Chapter 23.
2. Foam plastic insulation shall comply with Chapter 26.
3. Duct and pipe insulation and duct and pipe coverings and linings in plenums shall comply with the *International Mechanical Code*.
4. All layers of single and multilayer reflective plastic core insulation shall comply with Section 2613.

Add new text as follows:

720.5.1 Radiant barrier fully laminated to the underside of a wood roof deck The use of radiant barrier fully laminated to the underside of a wood roof deck shall be permitted in any type of construction provided the low emittance side of the product is facing an air space below the roof deck with an *approved* roof covering. The fire classification of the wood roof deck including the radiant barrier shall not be lower than that of the wood roof deck in the absence of the radiant barrier.

Reason: The proposal adds necessary language to ensure that radiant barriers attached to wood roof decks are properly installed below an *approved* roof covering. The current language in the code does not include any reference to a very predominant product type in the market place for **almost 30 years**. This proposed language addresses this need.

- Product History Acceptance and Distribution
  - Of the top 100 U.S. builders, 87 utilize this product type
  - 650,000,000+ sq. ft. of this product is installed annually
- Current ASTM Standards include C 1313 and C 1744
- Codes that include Radiant Barrier:
  - HI-Chapter 181 of Title 3, Table 402.1.1.1, Section 402.1.1.6 and Section 402.1.1.8.1
  - TX-Austin, Chapter 25-12, Article 12. Energy Code, Section 402.6
  - FL-2010 Florida Building Code, Section 405.6.1, Figure 405.6.1 and Table 303.2 (ASTM Standards)
  - CA-Title 24, Part 6, Subsection 8, Section (f), Subsection 2, Table 151-B, Table 151-C, Table 151-D
- Additional supporting references:
  - ICC ES - AC220

Proper installation of radiant barrier systems are covered in "Radiant Barriers: A Question and Answer Primer", available from the Florida Solar Energy Center (http://www.fsec.ucf.edu/en/publications/html/fsec-en-15/), and the ORNL website offers a "Radiant Barrier Fact Sheet" (http://web.ornl.gov/sci/ees/etsd/btric/RadiantBarrier/RBFactSheet2010.pdf) and included in ASTM C 1744.

REFERENCES:

ASTM C 1313/C 1313M Standard Specification for Sheet Radiant Barriers for Building Construction Applications

ASTM C 1744 Practice for Installation and Use of Radiant Barrier Systems (RBS) in Commercial/Industrial Building Construction.

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction. The proposal does not change requirements for existing materials but offers an additional option of alternate materials into the code.

FS 125-15 : 720.1-HALL4563

FS 126-15

720.1, 720.1.1 (New), 2615 (New), 2615.1 (New), 2615.2 (New), 2615.3 (New), 2615.3.1 (New), 2615.3.2 (New)

Proponent: Amanda Hickman, InterCode Incorporated, representing Reflective Insulation Manufacturers Association International (amanda@intercodeinc.com)

2015 International Building Code

Delete and substitute as follows:

720.1 General. ~~Insulating materials, including facings such as vapor retarders and *vapor-permeable membranes*, similar coverings and all layers of single and multilayer reflective foil insulations, shall comply with the requirements of this section. Where a flame spread index or a smoke-developed index is specified in this section, such index shall be determined in accordance with ASTM E 84 or UL 723. Any material that is subject to an increase in flame spread index or smoke-developed index beyond the limits herein established through the effects of age, moisture or other atmospheric conditions shall not be permitted.~~

~~**Exceptions:**~~

1. ~~Fiberboard insulation shall comply with Chapter 23.~~
2. ~~Foam plastic insulation shall comply with Chapter 26.~~
3. ~~Duct and pipe insulation and duct and pipe coverings and linings in plenums shall comply with the *International Mechanical Code*.~~
4. ~~All layers of single and multilayer reflective plastic core insulation shall comply with Section 2613.~~

Insulating materials, including the following, shall comply with the requirments of this section.

1. Facings such as vapor retarders and vapor-permeable membranes and similar coverings.
2. All layers of single and multilayer reflective foil insulations, including reflective plastic core insulation, complying with Section 2614.
3. Radiant barriers with plastic core, complying with Section 2615, when installed below the roof deck with an air space between the roof deck and the radiant barrier.

Exceptions

1. Fiberboard insulation shall comply with Chapter 23.
2. Foam plastic insulation shall comply with Chapter 26.
3. Duct and pipe insulation and duct and pipe coverings and linings in plenums shall comply with the International Mechanical Code.

Add new text as follows:

720.1.1 Flame Spread and Smoke Indexes Where a flame spread index or a smoke-developed index is specified in this section, such index shall be determined in accordance with ASTM E 84 or UL 723. Any material that is subject to an increase in flame spread index or smoke-developed index beyond the limits herein established through the effects of age, moisture or other atmospheric conditions shall not be permitted.

SECTION2615 RADIANT BARRIER WITH PLASTIC CORE

2615.1 General The provisions of this section shall govern the requirements for radiant barrier with plastic core installed below the roof deck with an air space between the roof deck and the radiant barrier.

2615.2 Identification. Packages and containers of radiant barriers with plastic core delivered to the job site shall show the manufacturer's or supplier's name, product identification and manufacturer's installation instructions and information sufficient to determine that the end use will comply with the code requirements.

2615.3 Fire Testing These materials shall comply with either 2615.3.1 or 2615.3.2:

2615.3.1 Surface-burning characteristics Radiant barrier with plastic core installed below the roof deck with an air space between the roof deck and the radiant barrier shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 450 when tested in accordance with ASTM E 84 or UL 723. The test specimen preparation and mounting requirements shall be in accordance with ASTM E 2599.

2615.3.2 Room corner test heat release Radiant barriers with plastic core installed below the roof deck with an air space between the roof deck and the radiant barrier shall comply with the acceptance criteria of Section 803.1.2.1 when tested in accordance with NFPA 286 in the configuration of final installation.

Reason: This proposal addresses three issues that currently exist in this code section.

1. It corrects an editorial mistake in section 720.1 exception 4. The exception should reference 2614 instead of 2613. This exception is being rewritten in affirmative language rather than as an exception. The change recognizes that the reflective insulations explicitly covered by the code (in section 2614) are reflective plastic core insulations.
2. NO technical changes have been made to this section, except for adding radiant barriers to the materials listed.
3. This proposal establishes a new section on radiant barriers with plastic core that are installed with an air space between the radiant barrier and the roof deck. A new section 2615 is proposed for these insulation materials. This is a different and distinct product category separate from the existing section 2614 Reflective Plastic Core Insulation. Radiant barriers with plastic core provide different types of performances, are installed in different locations and are labeled differently than reflective plastic core insulation.

This new language is needed in order to ensure that these radiant barrier materials comply with the appropriate fire tests and are properly marked or labeled and installed correctly. The sections in Chapter 26 address different types of plastic which is why this technology has been included in this section. These product types are a long-standing, energy-saving technology having first been evaluated in the late 1950s (Joy, 1958). As far back as the 1970s, sheets of highly reflective surfaces called Radiant Barrier Systems (RBS) have been installed.

Product design innovations have resulted in a radiant barrier product configuration that requires the same treatment as *reflective plastic core insulation* as it pertains to flame/smoke safety. This proposal will require the same flame/smoke requirements for radiant barriers as those determined by UL 723 or ASTM E 84 or NFPA 286.

Proper installation of radiant barrier systems are covered in "Radiant Barriers: A Question and Answer Primer", available from the Florida Solar Energy Center (http://www.fsec.ucf.edu/en/publications/html/fsec-en-15/), and the ORNL website offers a "Radiant Barrier Fact Sheet" (http://web.ornl.gov/sci/ees/etsd/btric/RadiantBarrier/RBFactSheet2010.pdf) and the products are specified in ASTM C 1744.

REFERENCES:

ASTM C 1313/C 1313M Standard Specification for Sheet Radiant Barriers for Building Construction Applications
ASTM C 1744 Practice for Installation and Use of Radiant Barrier Systems (RBS) in Commercial/Industrial Building Construction
Joy, F.S. (1958). Improving Attic Space Insulating Values. ASHRAE Transaction, 64 251-266

Cost Impact: Will not increase the cost of construction
This code change proposal will not increase the cost of construction. The proposal does not change the requirements for existing materials but offers an additional option of alternative materials to the code.

FS 126-15 : 720.1-HICKMAN4420

FS 127-15

720.1, 720.5.1 (New), 720.5.2 (New), 202 (New)

Proponent: Vickie Lovell, InterCode Incorporated, representing Reflective Insulation Manufacturers Association International (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

720.1 General. Insulating materials, including facings such as vapor retarders and *vapor-permeable membranes*, similar coverings and all layers of single and multilayer reflective foil insulations and interior radiation control coatings, shall comply with the requirements of this section. Where a flame spread index or a smoke-developed index is specified in this section, such index shall be determined in accordance with ASTM E 84 or UL 723. Any material that is subject to an increase in flame spread index or smoke-developed index beyond the limits herein established through the effects of age, moisture or other atmospheric conditions shall not be permitted.

Exceptions:

1. Fiberboard insulation shall comply with Chapter 23.
2. Foam plastic insulation shall comply with Chapter 26.
3. Duct and pipe insulation and duct and pipe coverings and linings in plenums shall comply with the *International Mechanical Code*.
4. All layers of single and multilayer reflective plastic core insulation shall comply with Section 2613.

Add new text as follows:

720.5.1 Interior radiation control coatings (IRCC) applied to the underside of a non-combustible roof deck. Interior radiation control coatings applied to the underside of a non-combustible roof deck shall face an interior air space and have an *approved* roof covering. The IRCC shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 450.

720.5.2 Interior radiation control coatings (IRCC) applied to the underside of a wood roof deck Interior radiation control coatings applied to the underside of a wood roof deck shall face an interior air space and have an *approved* roof covering. The Fire Classification of the wood roof deck including the IRCC shall not be lower than that of the wood roof deck in the absence of the IRCC.

Add new definition as follows:

SECTION 202 DEFINITIONS

INTERIOR RADIATION CONTROL COATING (IRRC). A coating, having an emittance of 0.25 or less, applied as a liquid to building assemblies by roller or spray.

Reason: This proposal addresses the following issues that currently exist in this code section.

1. The proposal adds necessary language to ensure that interior radiation control coatings in roof systems are properly installed below an approved roof covering. The current language in the code does not include any reference to a very predominant product type in the market place. This proposed language addresses this need.
2. This proposal adds a new definition and section for Interior Radiation Control Coatings (IRCC). It also adds the term to the changing language of this section to ensure that the IRCC **WHEN** installed complies with the fire safety requirements in this section.

As characterized by ASTM, an Interior Radiation Control Coating (IRCC) is a non-thickness dependent, low emittance coating. When applied to building materials such as plywood, OSB or metal roofing, according to the manufacturer's installation instruction, it lowers the normal surface emittance of these materials to 0.25 or lower.

An IRCC works by changing the emittance of the surface where it is applied. Building products, such as wood, brick, painted surfaces and plasterboard exhibit high emissivities (0.7 - 0.95). When heated above the temperature of adjacent surfaces, they radiate most of their heat energy to cooler surfaces. An IRCC works by lowering their surface emittance to 0.25 or lower, lessening their ability to radiate heat.

An IRCC is normally applied using airless spray equipment, resulting in very low labor costs and greatly reduced installation times. Also, a water based IRCC can be safely installed in existing structures where the costs of installing foil or film products may be prohibitive or impractical.

REFERENCED STANDARD:

ASTM C 1321 Standard Practice for Installation and Use of Interior Radiation Control Coating Systems (IRCCs) in Building Construction.

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction. The proposal does not change requirements for existing materials, but offers an additional option of alternative materials into the code.

FS 128-15

Table 721.1(2)

Proponent: Mike Fischer, Kellen Company, representing The Gypsum Association (mfischer@kellencompany.com)

2015 International Building Code

Revise as follows:

TABLE 721.1(2)

RATED FIRE-RESISTANCE PERIODS FOR VARIOUS WALLS AND PARTITIONS [a, o, p]

MATERIAL	ITEM NUMBER	CONSTRUCTION	MINIMUM FINISHED THICKNESS FACE-TO- FACE[b](inches)			
			4 hours	3 hours	2 hours	1 hour
15. Exterior or interior walls	15-2.4[d]	$3^5/_8$" No. 16 gage steel studs at 16" on center or 2" × 4" wood studs at 16" on center. Where metal lath is used, attach to the exterior side of studs with minimum 1" long No. 6 drywall screws at 6" on center. Brick units of clay or shale not less than $2^5/_8$" thick complying with ASTM C 216 installed in accordance with Section 1405.6 with a minimum 1" airspace. Interior side covered with two layers of $^5/_8$" thick Type X gypsum wallboard. Bottom layer attached to studs with 1" long No. 6 drywall screws at 24" on center. Top layer attached to studs with $1^5/_8$" long No. 6 drywall screws at 12" on center.	---	---	$8^1/_2$	—
<u>15. Exterior or interior walls (cont.)</u>	<u>15-3.1</u>	<u>One layer 1" thick liner panel, inserted between 2 ½" floor and ceiling runners with 2 ½" C-H, C-T or I-shape studs between panels.</u> <u>2 layers of 5/8" Type X gypsum board or gypsum panel products applied parallel or at right angles to studs with 1" long drywall screws spaced 24" on center on base layer and 1-5/8" long drywall screws spaced 12" on center on face layer.</u>	<u>---</u>	<u>---</u>	<u>3-3/4</u>	<u>---</u>
<u>15. Exterior or interior walls (cont.)</u>	<u>15-3.2</u>	<u>One layer 1" thick liner panel, inserted between 2 ½" floor and ceiling runners with 2 ½" C-H, C-T or I-shape studs between panels.</u> <u>1 layer of 5/8" Type X gypsum board or gypsum panel products applied parallel or at right angles to each side of studs with 1" long drywall screws spaced 12" on center.</u>	<u>---</u>	<u>---</u>	<u>3-3/4</u>	<u>---</u>

(Portions of table and footnotes not shown remain unchanged)

Reason: This proposal adds in two new configurations for wall assemblies to Table 721.1(2).
These assemblies are found in the latest edition of the Gypsum Association Fire-Resistance Design Manual (the first one is based on GA File Nos. WP 7054, WP 7058, WP 7060, WP 7065.2, WP 7065.4, WP 7065.5, WP 7076, WP 7078, and WP 7265; the second one is based on WP 7059, WP 7061, WP 7077, and WP 7257) and are consistent with UL designs (U415, U417, U438, U497, U498, V455, V473, and V493).

Inclusion of these additional configurations provide appropriate guidance for designers to achieve a 2-hour rating with a minimum assembly thickness of 3-3/4"

Cost Impact: Will not increase the cost of construction
The proposal adds additional options for the user of the code to meet current testing provisions and adds no new additional requirements to the code.

FS 128-15 : T721.1-FISCHER5358

FS 129-15

Table 721.1 (3)

Proponent: David Tyree, representing American Wood Council (dtyree@awc.org)

2015 International Building Code

Revise as follows:

TABLE 721.1 (3)
MINIMUM PROTECTION FOR FLOOR AND ROOF SYSTEMS[a, q]

FLOOR OR ROOF CONSTRUCTION	ITEM NUMBER	CEILING CONSTRUCTION	THICKNESS OF FLOOR OR ROOF SLAB (inches)				MINIMUM THICKNESS OF CEILING (inches)			
			4 hours	3 hours	2 hours	1 hour	4 hours	3 hours	2 hours	1 hour

30. Wood I-joist (minimum I-joist depth 9$^{1}/_{2}$" with a minimum flange depth of 1$^{1}/_{2}$" and a minimum flange cross-sectional area of 2.25 square inches; minimum web thickness of $^{3}/_{8}$") @ 24" o.c. Fiberglass insulation placed between I-joists supported by the resilient channels.	30-1.1	Minimum 0.019" thick resilient channel 16" o.c. (channels doubled at wallboard end joints), placed perpendicular to the joists and attached to each joist by 1$^{1}/_{4}$" Type S drywall screws. Two layers of $^{1}/_{2}$" Type X gypsum wallboard applied with the long dimension perpendicular to the ~~I-joists~~resilient channels with end joints staggered. The base layer is fastened with 1$^{1}/_{4}$" Type S drywall screws spaced 12" o.c. and the face layer is fastened with 1$^{5}/_{8}$" Type S drywall screws spaced 12" o.c. Face layer end joints shall not occur on the same I-joist as base layer end joints and edge joints shall be offset 24" from base layer joints. Face layer to be attached to base layer with 1$^{1}/_{2}$" Type G drywall screws spaced 8" o.c. placed 6" from face layer end joints. Face layer wallboard joints to be taped and covered with joint compound.	—	—	—	Varies	—	—	—	1

(Portions of table and footnotes not shown remain unchanged)

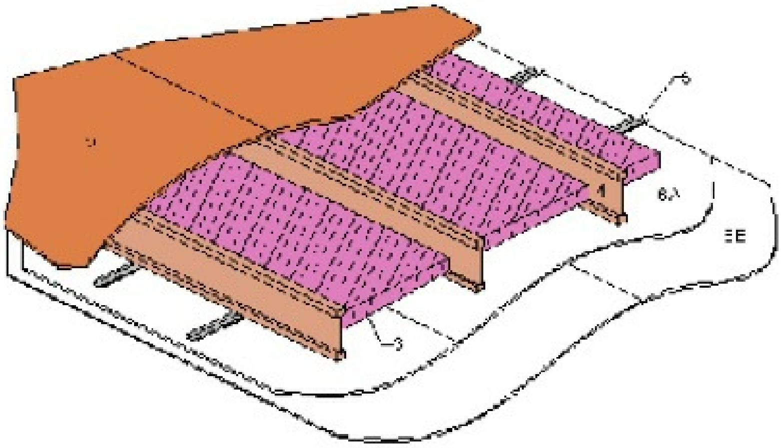
Reason: This proposal, in our opinion, is an editoral change as it simply is provided to correct what is currently specified in the 2015 IBC. The current text entry as published in the 2015 IBC is not correctly shown as the current code does not specify the resilient channel requirement as shown in the following link and the figure shown in the reason. This figure was referenced in the AWC code proposal submitted last code cycle and approved by the membership. (http://www.awc.org/publications/dca/dca3/WIJ-1.7.I-joist_2-layers_with_RCs.htm)
The reason statement for including this proposal previously in the 2015 IBC stated:

Many code officials have come to rely upon Table 720 as the preferred source of information regarding fire resistance rated assemblies. Because of its importance, we believe that the table should offer the most common generic assemblies. Floor systems utilizing I-joists have increased from less than 10 percent in 1990 to more than 50 percent. With the increased prevalence of I-joist floor/ceiling assemblies, including this assembly in the table will make the IBC more complete and it will be more useful to code officials. It is also expected that the document will be "user friendly", particularly for designers. In an effort to fulfill this expectation, we propose this common assembly for incorporation into Table 720.1(3). It is supported by ASTM E-119 test results as shown on the attached page. The following information and test results are provided with the understanding that their inclusion does not place them within the copyright release requirements of the signature statement.

For a complete list of AWC code change proposals and additional information please go to http://www.awc.org/Code-Officials/2015-IBC-Code-Changes.

WIJ-1.7 One-Hour Fire-Resistive Ceiling Assembly

Floor[a]/Ceiling - 100% Design Load - 1 Hour Rating - ASTM E 119 / NFPA 251



1. Floor Topping (optional, not shown): Gypsum concrete, lightweight or normal concrete topping.
2. Floor Sheathing: Minimum 23/32 inch thick tongue-and-groove wood sheathing (Exposure 1). Installed per code requirements with minimum 8d common nails.
3. Insulation: Fiberglass insulation placed between I-joists supported by the resilient channels.
4. Structural Members: Wood I-joists spaced a maximum of 24 inches on center.

Minimum I-joist flange depth: 1-1/2 inches — Minimum I-joist flange area: 2.25 inches^2
Minimum I-joist web thickness: 3/8 inch — Minimum I-joist depth: 9-1/2 inches

See ASTM D 5055-07 for qualification requirements.

5. Resilient Channels: Minimum 0.019 inch thick galvanized steel resilient channel attached perpendicular to the bottom flange of the I-joists with one 1-1/4 inch drywall screw. Channels spaced a maximum of 16 inches on center [24 inches on center when I-joists are spaced a maximum of 16 inches on center].
6. Gypsum Wallboard: Two layers of minimum 1/2 inch Type X gypsum wallboard attached with the long dimension perpendicular to the resilient channels as follows:

6a. Wallboard Base Layer: Base layer of wallboard attached to resilient channels using 1-1/4 inch Type S drywall screws at 12 inches on center.

6b. Wallboard Face Layer: Face layer of wallboard attached to resilient channels through base layer using 1-5/8 inch Type S drywall screws spaced 12 inches on center. Edge joints of wallboard face layer offset 24 inches from those of base layer. Additionally, wallboard face layer attached to base layer with 1-1/2 inch Type G drywall screws spaced 8 inches on center, placed 1-1/2 inches from face layer end joints.

7. Finish System (not shown): Face layer joints covered with tape and coated with joint compound. Screw heads covered with joint compound.

Fire Test conducted at National Research Council of Canada — Report No: A-4219.13.2 — March 23, 1998

STC and IIC Sound Ratings for Listed Assembly							
Without Gypsum Concrete				With Gypsum Concrete			
Cushioned Vinyl		Carpet & Pad		Cushioned Vinyl		Carpet & Pad	
STC	IIC	STC	IIC	STC	IIC	STC	IIC
59	50	55 [b]	68 [b]	65	51	63 [b]	65 [b]

[a] This assembly may also be used in a fire-rated roof/ceiling application, but only when constructed exactly as described.

[b] STC and IIC values estimated by David L. Adams Associates, Inc

AMERICAN WOOD COUNCIL — — January 2009

Cost Impact: Will not increase the cost of construction
An editorial correction to the existing code.

FS 129-15 : T721.1-TYREE5069

FS 130-15

Table 721.1 (3)

Proponent: David Tyree, representing American Wood Council (dtyree@awc.org); Sam Francis (sfrancis@awc.org)

2015 International Building Code

Revise as follows:

TABLE 721.1 (3)
MINIMUM PROTECTION FOR FLOOR AND ROOF SYSTEMS[a, q]

FLOOR OR ROOF CONSTRUCTION	ITEM NUMBER	CEILING CONSTRUCTION	THICKNESS OF FLOOR OR ROOF SLAB (inches)				MINIMUM THICKNESS OF CEILING (inches)			
			4 hours	3 hours	2 hours	1 hour	4 hours	3 hours	2 hours	1 hour

27. Wood I-joist (minimum I-joist depth 9 $^{1}/_{2}$ " with a minimum flange depth of 1 $^{5}/_{16}$ " and a minimum flange cross-sectional area of 1.95 square inches; minimum web thickness of $^{3}/_{8}$ ") @ 24" o.c.	27-1.1	Minimum 0.019" thick resilient channel 16" o.c. (channels doubled at wallboard end joints), placed perpendicular to the joist and attached to each joist by 1 $^{1}/_{4}$ " Type S drywall screws. Two layers of $^{1}/_{2}$ " Type X gypsum wallboard applied with the long dimension perpendicular to the ~~I-joists~~resilient channels with end joints staggered. The base layer is fastened with 1 $^{1}/_{4}$ " Type S drywall screws spaced 12" o.c. and the face layer is fastened with 1 $^{5}/_{8}$ " Type S drywall screws spaced 12" o.c. Face layer end joints shall not occur on the same I-joist as base layer end joints and edge joints shall be offset 24" from base layer joints. Face layer to also be attached to base layer with 1 $^{1}/_{2}$ " Type G drywall screws spaced 8" o.c. placed 6" from face layer end joints. Face layer wallboard joints to be taped and covered with joint compound.	—	—	—	Varies	—	—	—	1

(Portions of table and footnotes not shown remain unchanged)

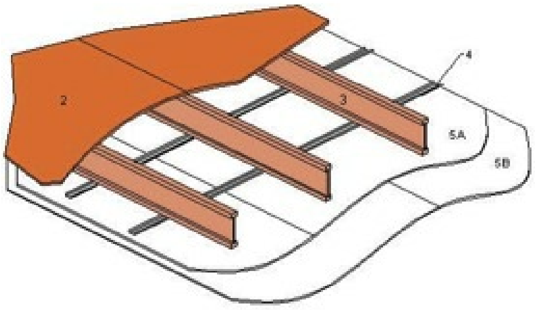
Reason: This proposal, in our opinion, is an editoral change as it simply is provided to correct what is currently specified in the 2015 IBC. The current text entry as published in the 2015 IBC is not correctly shown as the current code does not specify the resilient channel requirement as shown in the following link and the figure shown in the reason. This figure was referenced in the AWC code proposal submitted last code cycle and approved by the membership. (http://www.awc.org/publications/dca/dca3/WIJ-1.6.I-joist_2-layers_with_RCs.htm)
The reason statement for including this proposal previously in the 2015 IBC stated:

Reason: Many code officials have come to rely upon Table 720 as the preferred source of information regarding fire resistance rated assemblies. Because of its importance, we believe that the table should offer the most common generic assemblies. Floor systems utilizing I-joists have increased from less than 10 percent in 1990 to more than 50 percent. With the increased prevalence of I-joist floor/ceiling assemblies, including this assembly in the table will make the IBC more complete and it will be more useful to code officials. It is also expected that the document will be "user friendly", particularly for designers. In an effort to fulfill this expectation, we propose this common assembly for incorporation into Table 720.1(3). It is supported by ASTM E-119 test results as shown on the attached page. The following information and test results are provided with the understanding that their inclusion does not place them within the copyright release requirements of the signature statement. For a complete list of AWC code change proposals and additional information please go to http://www.awc.org/Code-Officials/2015-IBC-Code-Changes. For more information concerning CLT lumber and construction, please go to http://www.rethinkwood.com/tall-wood-survey.

For a complete list of AWC code change proposals and additional information please go to http://www.awc.org/Code-Officials/2015-IBC-Code-Changes.

WIJ-1.6 One-Hour Fire-Resistive Ceiling Assembly

Floor[a]/Ceiling - 100% Design Load - 1 Hour Rating - ASTM E 119 / NFPA 251



1. Floor Topping (optional, not shown): Gypsum concrete, lightweight or normal concrete topping.
2. Floor Sheathing: Minimum 23/32 inch thick tongue-and-groove wood sheathing (Exposure 1). Installed per code requirements with minimum 8d common nails.
3. Structural Members: Wood I-joists spaced a maximum of 24 inches on center.

Minimum I-joist flange depth: 1-5/16 inches — Minimum I-joist flange area: 1.95 inches^2
Minimum I-joist web thickness: 3/8 inch — Minimum I-joist depth: 9-1/2 inches

See ASTM D 5055-07 for qualification requirements.

4. Resilient Channels[b]: Minimum 0.019 inch thick galvanized steel resilient channel attached perpendicular to the bottom flange of the I-joists with one 1-1/4 inch drywall screw. Channels spaced a maximum of 16 inches on center [24 inches on center when I-joists are spaced a maximum of 16 inches on center].
5. Gypsum Wallboard: Two layers of minimum 1/2 inch Type X gypsum wallboard attached with the long dimension perpendicular to the resilient channels as follows:

5a. Wallboard Base Layer: Base layer of wallboard attached to resilient channels using 1-1/4 inch Type S drywall screws at 12 inches on center.

5b. Wallboard Face Layer: Face layer of wallboard attached to resilient channels through base layer using 1-5/8 inch Type S drywall screws spaced 12 inches on center. Edge joints of wallboard face layer offset 24 inches from those of base layer. Additionally, wallboard face layer attached to base layer with 1-1/2 inch Type G drywall screws spaced 8 inches on center, placed 1-1/2 inches from face layer end joints.

6. Finish System (not shown): Face layer joints covered with tape and coated with joint compound. Screw heads covered with joint compound.

Fire Test conducted at National Research Council of Canada — Report No: A-4440.1 — June 24, 1997

STC and IIC Sound Ratings for Listed Assembly							
Without Gypsum Concrete				**With Gypsum Concrete**			
Cushioned Vinyl		**Carpet & Pad**		**Cushioned Vinyl**		**Carpet & Pad**	
STC	**IIC**	**STC**	**IIC**	**STC**	**IIC**	**STC**	**IIC**
-	-	54	68	-	-	58[c]	55[c]

[a] This assembly may also be used in a fire-rated roof/ceiling application, but only when constructed exactly as described.
[b] Direct attachment of gypsum wallboard in lieu of attachment to resilient channels is typically deemed acceptable. When gypsum wallboard is directly attached to the I-joists, the wallboard should be installed with long dimension perpendicular to the I-joists and sound ratings for WIJ-1.5 should be used.
[c] STC and IIC values estimated by David L. Adams Associates, Inc

AMERICAN WOOD COUNCIL — AMERICAN FOREST & PAPER ASSOCIATION, INC — January 2009

Cost Impact: Will not increase the cost of construction
Editoral correction to existing code language.

FS 130-15 : T721.1-TYREE5066

FS 131-15

722

Proponent: Victor Cuevas, representing City of Los Angeles

2015 International Building Code

Delete without substitution:

~~**SECTION 722**~~
~~**CALCULATED FIRE RESISTANCE**~~

Reason: Delete entire section and reference out of the code since it's not frequently used.

Cost Impact: Will increase the cost of construction
Revision to Section 722 will remove the design options from the code and place them on a separate document. This will increase the cost of construction if a designer has to purchase the separate design standard.

FS 131-15 : 722-CUEVAS4805

FS 132-15

803.3

Proponent: David Tyree, representing American Wood Council (dtyree@awc.org)

2015 International Building Code

Revise as follows:

803.3 Heavy timber exemption. Exposed portions of building elements complying with the requirements for buildings of Type IV construction in Section 602.4 shall not be subject to *interior finish* requirements except in interior exit stairways, interior exit ramps, and exit passageways.

Reason: Cross laminated timber may be used to form the entire interior surfaces of egress elements and should be regulated in those circumstances. The requirement is the same for any other material used in those circumstances. For a complete list of AWC code change proposals and additional information please go to http://www.awc.org/Code-Officials/2015-IBC-Code-Changes.

Cost Impact: Will increase the cost of construction
May increase cost of construction as a higher flamespread requirement would be required in these new areas.

FS 132-15 : 803.3-TYREE4646

FS 133-15

803.9.1 (New)

Proponent: William Koffel, representing Self (wkoffel@koffel.com)

2015 International Building Code

Add new text as follows:

803.9.1 **Identification.** Each HDPE or PP panel used as an interior finish shall be identified by the manufacturer with a *manufacturer's designation* indicating compliance with 803.1.2. The designation shall be acid etched, sand blasted, laser etched, embossed, or of a type that, once applied, cannot be removed without being destroyed.

Reason: The Manufacturer's Designation provides a method by which code officials and others can determine that the panels are in compliance with the Code. This can be easily done and the requirement is similar to that which is required for safety glazing.

Cost Impact: Will not increase the cost of construction
The cost of compliance is with the testing. Provided the panels have been tested as required by the Code, there should be no cost impact associated with providing a Manufacturer's Designation.

FS 133-15 : 803.9.1 (New)-
KOFFEL5442

FS 134-15

Table 803.11

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Building Code

Revise as follows:

TABLE 803.11
INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY[k]

GROUP	SPRINKLERED[l]			NONSPRINKLERED		
	Interior exit stairways, interior exit ramps and exit passageways[a, b]	Corridors and enclosure for exit access stairways and exit access ramps	Rooms and enclosed spaces[c]	Interior exit stairways, interior exit ramps and exit passageways[a, b]	Corridors and enclosure for exit access stairways and exit access ramps	Rooms and enclosed spaces[c]
A-1 & A-2	B	B	C	A	A[d]	B[e]
A-3[f] , A-4, A-5	B	B	C	A	A[d]	C
B, E, M, R-1	B	C[m]	C	A	B	C
R-4	B	C	C	A	B	B
F	C	C	C	B	C	C
H	B	B	C[g]	A	A	B
I-1	B	C	C	A	B	B
I-2	B	B	B[h, i]	A	A	B
I-3	A	A[j]	C	A	A	B
I-4	B	B	B[h, i]	A	A	B
R-2	C	C	C	B	B	C
R-3	C	C	C	C	C	C
S	C	C	C	B	B	C
U	No restrictions			No restrictions		

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929m^2 .

a. Class C interior finish materials shall be permitted for wainscotting or paneling of not more than 1,000 square feet of applied surface area in the grade lobby where applied directly to a noncombustible base or over furring strips applied to a noncombustible base and fireblocked as required by Section 803.13.1.

b. In other than Group I-3 occupancies in buildings less than three stories above grade plane, Class B interior finish for nonsprinklered buildings and Class C interior finish for sprinklered buildings shall be permitted in interior exit stairways and ramps.

c. Requirements for rooms and enclosed spaces shall be based upon spaces enclosed by partitions. Where a fire-resistance rating is required for structural elements, the enclosing partitions shall extend from the floor to the ceiling. Partitions that do not comply with this shall be considered enclosing spaces and the rooms or spaces on both sides shall be considered one. In determining the applicable requirements for rooms and enclosed spaces, the specific occupancy thereof shall be the governing factor regardless of the group classification of the building or structure.

d. Lobby areas in Group A-1, A-2 and A-3 occupancies shall not be less than Class B materials.

e. Class C interior finish materials shall be permitted in places of assembly with an occupant load of 300 persons or less.

f. For places of religious worship, wood used for ornamental purposes, trusses, paneling or chancel furnishing shall be permitted.

g. Class B material is required where the building exceeds two stories.

h. Class C interior finish materials shall be permitted in administrative spaces.

i. Class C interior finish materials shall be permitted in rooms with a capacity of four persons or less.

j. Class B materials shall be permitted as wainscotting extending not more than 48 inches above the finished floor in corridors and exit access stairways and ramps.

k. Finish materials as provided for in other sections of this code.

l. Applies when protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

m. Corridors in ambulatory care facilities shall be provided with Class A or B materials.

Reason: This footnote increases the corridor finish requirements for ambulatory care facilities, eliminated the Class C option for sprinklered facilities. The sub-group of Group contains occupants who are incapable of self-preservation. While it is not a defend-in-place scenario, where occupants are expected to stay inside of the building, it is a staged evacuation scenario. Occupants will stay in the building for a short period of time, but the ultimate goal is complete evacuation. This upgrade is to ensure that the corridor are tenable until evacuation is complete. This also matches the current requirements for certification under Medicaid and Medicare.
The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will increase the cost of construction
Increasing the finish rating on a corridor will add new construction cost over what is required currently in the IBC/IFC. Any medicare certified ambulatory care facilities are required by federal CMS regulations to have this system, therefore, the cost of construction will not increase for those facilities. Note that not all ambulatory care facilities are medicare certified.

FS 134-15 : T803.11-WILLIAMS4167

FS 135-15

803.11 (New)

Proponent: Marcelo Hirschler, representing GBH International (gbhint@aol.com)

2015 International Building Code

Add new text as follows:

803.11 Laminated products factory-produced with a wood substrate Laminated products factory-produced with a wood substrate shall comply with one of the following:

1. The laminated product shall meet the criteria of Section 803.1.1 when tested in accordance with NFPA 286 using the product mounting system, including adhesive, of actual use, as described in Section 5.8 of NFPA 286.
2. The laminated product shall have a Class A, B, or C flame spread index and smoke developed index, based on the requirements of Table 803.1.1, in accordance with ASTM E84 or UL 723. Test specimen preparation and mounting shall be in accordance with ASTM E2579.

Add new standard(s) as follows: ASM E2579-13 Standard Practice for Specimen Preparation and Mounting of Wood Products to Assess Surface Burning

Reason: This language has not yet been incorporated into the IFC (which did incorporate the language dealing with on site applied facings in IFC section 803.7), because it wanted the IBC to take the lead. ASTM has developed mounting methods for both "facings or wood veneer intended to be applied on site over a wood substrate" and laminated products that are factory-produced and have a wood substrate. The concept is that facings that are produced as part of a commercial (factory-produced) panel are finished products and the manufacturer should be responsible to ensure that the product itself (the full panel) is safe and there is no need to discuss a substrate. It has been shown that, when veneers are applied over a wood substrate the resulting flame spread is much higher than when applied over gypsum board or over a non-combustible substrate. Therefore the requirement in ASTM E2579 is that the testing be done with the full product and, thus, there will no need to retest for different substrates. Similarly, NFPA 286 contains a section that addresses testing of wall covering materials, including facings applied on site and laminated products produced in the factory. Facings applied on site over wood substrates are tested using ASTM E2404.
Note that this proposal is not intended to replace existing section 803.11 but to be incorporated between existing sections 803.10 and 803.12. Note also that the proposal to add a clarification of the requirements for facings or wood veneers intended to be applied on site over a wood substrate is also intended to be incorporated as a new section between existing sections 803.10 and 803.12.

NFPA 286 language

5.8 Wall or Ceiling Covering Materials.

5.8.2 Where the wall or ceiling covering system is a factory produced wall panel, the adhesive shall be the same one used in the manufacture of the factory-produced wall or ceiling panel.

ASM E2579 - Standard Practice for Specimen Preparation and Mounting of Wood Products to Assess Surface Burning

1. Scope

1.1 This practice describes procedures for specimen preparation and mounting when testing wood products to assess flame spread and smoke development as surface burning characteristics using Test Method E84.

1.2 This practice applies also to laminated products factory produced with a wood substrate (see 8.6). This practice does not apply to wood veneers or facings intended to be applied on site over a wood substrate, which are covered by Practice E2404.

1.3 Testing is conducted with Test Method E84.

ASTM E2404 – Standard Practice for Specimen Preparation and Mounting of Textile, Paper or Polymeric (Including Vinyl) Wall or Ceiling Coverings, and of Facings and Wood Veneers Intended to be Applied on Site Over a Wood Substrate, to Assess Surface Burning Characteristics

1. Scope

1.1 This practice describes procedures for specimen preparation and mounting when testing textile, paper or polymeric (including vinyl and expanded vinyl) wall or ceiling covering materials to assess flame spread and smoke development as surface burning characteristics using Test Method E84.

1.2 This practice applies also to facings or wood veneers intended to be applied on site over a wood substrate (see 8.7). This practice does not apply to laminated products factory produced with a wood substrate, which are covered by Practice E2579.

1.3 Testing is conducted with Test Method E84.

Cost Impact: Will not increase the cost of construction
Clarifies the mounting method for factory produced panels mounted on wood substrates.

Analysis: A review of the standard proposed for inclusion in the code, ASTM E2579, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS 135-15 : 803.11 (New)-
HIRSCHLER4298

FS 136-15

803.11 (New)

Proponent: Marcelo Hirschler, representing GBH International (gbhint@aol.com)

2015 International Building Code

Add new text as follows:

803.11 Facings or wood veneers intended to be applied on site over a wood substrate Facings or veneers intended to be applied on site over a wood substrate shall comply with one of the following:

1. The facing or veneer shall meet the criteria of Section 803.1.1 when tested in accordance with NFPA 286 using the product-mounting system, including adhesive, as described in Section 5.9 of NFPA 286.
2. The facing or veneer shall have a Class A, B or C flame spread index and smoke-developed index, based on the requirements of Table 803.11, in accordance with ASTM E 84 or UL 723. Test specimen preparation and mounting shall be in accordance with ASTM E 2404.

Reason: This language has already been approved by the IFC (section 803.7). ASTM has developed mounting methods for both "facings or wood veneer intended to be applied on site over a wood substrate" and laminated products that are factory-produced and have a wood substrate. The IFC agreed to move ahead with this one (dealing with on site facings) but wanted the IBC to take the lead with the factory-produced ones. The concept is that these facings (applied on site) are basically the same as wall coverings and the manufacturer should be responsible for the facing only and needs to ensure that the material is safe and should test over the appropriate substrate. It has been shown that, when veneers are applied over a wood substrate the resulting flame spread is much higher than when applied over gypsum board or over a non-combustible substrate. Therefore the requirement in ASTM E2404 is that the testing be done over a standard wood substrate and, thus, there will no need to retest for different types of wood. Similarly, NFPA 286 contains a section that addresses testing of wall covering materials, including facings applied on site and laminated products produced in the factory. Panels including factory applied facings with wood substrates are tested using ASTM E2579.
Note that this proposal is not intended to replace existing section 803.11 but to be incorporated between existing sections 803.10 and 803.12. Note also that the proposal to add a clarification of the requirements for laminated products factory-produced with a wood substrate is also intended to be incorporated as a new section between existing sections 803.10 and 803.12.

NFPA 286 language

5.9 Laminated Products with Wood Substrates.

5.9.1 Laminated products shall be tested as they are intended to be installed.

5.9.1.1 The test specimens shall consist of the finished product, namely the combination of the facing or veneer, the adhesives or fasteners used, and the specific wood substrate that will be used.

5.9.2 If the laminated product consists of a facing or veneer intended to be applied on-site over a wood substrate, the facing or veneer shall be tested as described in 5.9.2.1 and 5.9.2.2.

5.9.2.1* The test specimens shall comply with the following:

(1) Specimens shall consist of the facing or veneer mounted on the "A" face of nominal 12 mm (15⁄32 in.) untreated plywood with a face veneer of Douglas fir.

(2) The plywood shall comply with NIST Voluntary Product Standard PS 1, Structural Plywood.

(3) The plywood shall carry one of the following grade stamps: (a) APA-The Engineered Wood Association (b) TECO, indicating that the plywood has been graded PS 1 A-B and is for exterior exposure (c) CSA Standard O121, Douglas Fir Plywood.

5.9.2.2 The adhesive used to attach the facing or veneer to the wood substrate in 5.9.2.1 shall be that specified by the manufacturer of the facing or veneer and applied in accordance with manufacturer's application instructions.

Also, for information, from NFPA 286:

5.8.9 Wall or Ceiling Coverings Intended to Be Applied over a Wood Substrate. If the wall or ceiling coverings are intended to be applied over a wood substrate, the specimens shall consist of the wall or ceiling covering mounted on untreated plywood, with a face veneer of Douglas fir. The plywood shall have the same thickness as the wood substrate used in actual installations, and shall comply with NIST Voluntary Product Standard PS 1-07, Structural Plywood. The plywood shall be marked with a grade stamp indicating that the plywood has been graded PS 1-07 A-B and is for exterior exposure. The grade stamp shall be issued by a quality control agency. Alternatively, the plywood shall be permitted to be stamped as conforming to CSA Standard O121, Douglas Fir Plywood.

ASTM E2404 – Standard Practice for Specimen Preparation and Mounting of Textile, Paper or Polymeric (Including Vinyl) Wall or Ceiling Coverings, and of Facings and Wood Veneers Intended to be Applied on Site Over a Wood Substrate, to Assess Surface Burning Characteristics

1. Scope

1.1 This practice describes procedures for specimen preparation and mounting when testing textile, paper or polymeric (including vinyl and expanded vinyl) wall or ceiling covering materials to assess flame spread and smoke development as surface burning characteristics using Test Method E84.

1.2 This practice applies also to facings or wood veneers intended to be applied on site over a wood substrate (see 8.7). This practice does not apply to laminated products factory produced with a wood substrate, which are covered by Practice E2579.

1.3 Testing is conducted with Test Method E84.

ASM E2579 - Standard Practice for Specimen Preparation and Mounting of Wood Products to Assess Surface Burning Characteristics

1. Scope

1.1 This practice describes procedures for specimen preparation and mounting when testing wood products to assess flame spread and smoke development as surface burning characteristics using Test Method E84.

1.2 This practice applies also to laminated products factory produced with a wood substrate (see 8.6). This practice does not apply to wood veneers or facings intended to be applied on site over a wood substrate, which are covered by Practice E2404.

1.3 Testing is conducted with Test Method E84.

Cost Impact: Will not increase the cost of construction
This clarifies the testing protocol.

FS 136-15 : 803.11 (New)-HIRSCHLER4299

FS 137-15

803.13.1, 803.13.1.1

Proponent: Lee Kranz, City of Bellevue, WA, representing Washington Association of Building Officials Technical Code Development Committee

2015 International Building Code

Revise as follows:

803.13.1 Direct attachment and furred construction. Where walls ~~and~~, ceilings or structural elements are required by any provision in this code to be of fire-resistance-rated or noncombustible construction, the *interior finish* material shall be applied directly against such construction or to furring strips not exceeding $1^3/_4$ inches (44 mm), applied directly against such surfaces.

803.13.1.1 Furred construction~~.~~ If the interior finish material is applied to furring strips, the intervening spaces between such furring strips shall comply with one of the following:

1. Be filled with material that is inorganic or noncombustible;
2. Be filled with material that meets the requirements of a Class A material in accordance with Section 803.1.1 or 803.1.2; or
3. Be fireblocked at a maximum of 8 feet (2438 mm) in every direction in accordance with Section 718.

Exception: Concealed spaces created with noncombustible furring strips.

Reason: Currently, Section 803.13.1.1 could be interpreted to require fire stopping or fire blocking materials even if there were no combustible materials within the concealed spaces created by the furring stripes. The proposed exception clarifies that there is no need for fire stopping or fire blocking when there is nothing combustible within the concealed space.
The term "structural elements" is added to Section 803.13.1 for consistency with Section 803.13.

Cost Impact: Will not increase the cost of construction
This code change will save money because there will be no need to provide fire blocking or fire stopping unless there are combustible materials within a fire-reistance rated wall assembly.

FS 137-15 : 803.13.1.1-KRANZ3769

FS 138-15

803.13.2

Proponent: Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

803.13.2 Set-out construction. Where walls and ceilings are required to be of fire-resistance-rated or noncombustible construction and walls are set out or ceilings are dropped distances greater than specified in Section 803.13.1, Class A finish materials, in accordance with Section 803.1.1 or 803.1.2, shall be used.

Exceptions:

1. Where *interior finish* materials are protected on both sides by an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
2. Where *interior finish* materials are attached to noncombustible backing or furring strips installed as specified in Section 803.13.1.1.
3. <u>Where the combustible void is filled with an approved noncombustible material.</u>

Reason: The proposed third exception meets the intent of the code in that noncombustible material, while not structural, meets the combustibility requirements of Section 803.13.1. The applicability of this solution is codified in 803.13.1 item 2. This proposal simply allows larger areas to be filled. This would reduce the complexity of framing small pop-outs and covering with gypsum board or plaster.

Cost Impact: Will not increase the cost of construction
This proposal adds an additional option when addressing set-out construction, but does not change the current code requirements, so the cost of construction is not affected by this proposal.

FS 138-15 : 803.13.2-DIGIOVANNI3839

FS 139-15

803.1, 803.1.1, 803.1.1.1 (New), 803.1.2, 803.1.2.1, 803.1.3, 803.1.3.1, 803.1.4, 803.5, 803.5.1 (New), 803.5.1.1 (New), 803.5.2 (New), 803.6, 803.7, 803.8, 803.9, 803.11

Proponent: Marcelo Hirschler, GBH International, representing GBH International (gbhint@aol.com)

2015 International Building Code

Revise as follows:

803.1 General. *Interior wall and ceiling finish* materials shall be classified for fire performance and smoke development in accordance with Section 803.1.1 or 803.1.2, except as shown in Sections ~~803.2~~803.1.3 through 803.13. Materials tested in accordance with Section ~~803.1.2~~80 3.1.1 shall not be required to be tested in accordance with Section ~~803.1.1~~803.1.2.

803.1.1 Interior wall and ceiling finish materials~~.~~ tested in accordance with NFPA 286 Interior wall and ceiling finish materials shall be classified in accordance with ~~ASTM E 84 or UL 723~~NFPA 286 and comply with Section 803.1.1.1. ~~Such *interior finish* materials~~Materials complying with Section 803.1.1.1 shall be ~~grouped in~~considered to also comply with the ~~following classes in accordance with their flame spread and *smoke-developed indexes*.~~
requirements of a Class A~~:= Flame spread index 0-25; smoke developed index 0-450.~~
~~Class B:= Flame spread index 26-75; smoke developed index 0-450.~~
~~Class C:= Flame spread index 76-200; smoke developed index 0-450.~~

> ~~**Exception:** Materials tested~~, in accordance with Section 803.1.2.

Add new text as follows:

803.1.1.1 Acceptance Criteria for NFPA 286 The interior finish shall comply with the following:

1. During the 40 kW exposure, flames shall not spread to the ceiling.
2. The flame shall not spread tot he outer extremity of the sample on any wall or ceiling.
3. Flashover, as defined in NFPA 286, shall not occur.
4. The peak heat release rate throughout the test shall not exceed 800 kW.
5. The total smoke released throughout the test shall not exceed 1,000 m^2.

Revise as follows:

803.1.2 ~~Room corner test for interior~~Interior wall or ceiling finish materials~~.~~ tested in accordance with ASTM E84 or UL 723
Interior wall ~~or~~and ceiling finish materials shall be ~~permitted to~~classified in accordancew ith ASTM E 84 or UL 723. Such interior finish materials shall be grouped in the following classes in accordance with their flame spread and smoke-developed indexes.
Class A: = Flame spread index 0-25; smoke-developed index 0-450.
Class B: = Flame spread index 26-75; smoke-developed index 0-450.
Class C: - Flame spread index 76-200; smoke-developed index 0-450.

> **Exception:** Materials tested in accordance with ~~NFPA 286. Interior wall or ceiling finish materials tested~~Section 803.1.1 and as indicated in ~~accordance with NFPA 286 shall comply with Section 803.1.2.1.~~Sections 803.1.3 through 803.13.

~~**803.1.2.1 Acceptance criteria for NFPA 286.** The interior finish shall comply with the following:~~

1. ~~During the 40 kW exposure, flames shall not spread to the ceiling.~~
2. ~~The flame shall not spread to the outer extremity of the sample on any wall or ceiling.~~
3. ~~Flashover, as defined in NFPA 286, shall not occur.~~
4. ~~The peak heat release rate throughout the test shall not exceed 800 kW.~~
5. ~~The total smoke released throughout the test shall not exceed 1,000 m^2.~~

803.1.3 ~~Room corner test for textile~~Interior wall ~~coverings~~ and ~~expanded vinyl wall coverings.~~ceiling finish materials with different requirements ~~Textile wall coverings and expanded vinyl wall coverings~~
The materials indicated in Sections 803.2 through 803.13 shall ~~meet the criteria of Section 803.1.3.1 when~~be tested as indicated in the ~~manner intended for use in accordance with the Method B protocol of NFPA 265 using the product-mounting system, including adhesive.~~corresponding sections.

~~**803.1.3.1 Acceptance criteria for NFPA 265.** The interior finish shall comply with the following:~~

1. ~~During the 40 kW exposure, flames shall not spread to the ceiling.~~
2. ~~The flame shall not spread to the outer extremities of the samples on the 8-foot by 12-foot (203 by 305 mm) walls.~~
3. ~~Flashover, as defined in NFPA 265, shall not occur.~~

4. ~~The total smoke released throughout the test shall not exceed 1,000 m^2.~~

~~**803.1.4 Acceptance criteria for textile and expanded vinyl wall or ceiling coverings tested to ASTM E 84 or UL 723.** Textile wall and ceiling coverings and expanded vinyl wall and ceiling coverings shall have a Class A flame spread index in accordance with ASTM E 84 or UL 723 and be protected by an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2. Test specimen preparation and mounting shall be in accordance with ASTM E 2404.~~

803.5 Textile wall coverings. Where used as interior wall finish materials, textile wall coverings, including materials having woven or nonwoven, napped, tufted, looped or similar surface and carpet and similar textile materials, shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of one of the following: Section ~~803.1.2~~803.1.1, ~~803.1.3~~Section 803.5.1 or ~~803.1.4~~Section 803.5.2.

Add new text as follows:

803.5.1 Room corner test for textile wall coverings and expanded vinyl wall coverings Textile wall coverings and expanded vinyl wall coverings shall meet the criteria of Section 803.5.1.1 when tested in the manner intended for use in accordance with the Method B protocol of NFPA 265 using the product mounting system, including adhesive.

803.5.1.1 Acceptance Criteria for NFPA 265 The interior finish shall comply with the following:

1. During the 40 kW exposure, flames shalln ot spread to the ceiling.
2. The flame shall not spread to the outer extremities of the samples on the 8-foot by 12-foot (203 by 305 mm) walls.
3. Flashover, as defined in NFPA 265, shall not occur.
4. The total smoke release throughout the test shall not exceed 1,000 m^2.

803.5.2 Acceptance Criteria for textile and expanded vinyl wall or ceiling coverings tested to ASTM E 84 or UL 723 Textile wall and ceiling coverings and expanded vinyl wall and ceiling coverings shall have a Class A flame spread index in accordance with ASTM E 84 or UL 723 and be protected by an automatic sprinkler system installed in accordance with Section 903.1.1 or 903.1.2. Test specimen preparation and mounting shall be in accordance with ASTM E 2404.

Revise as follows:

803.6 Textile ceiling coverings. Where used as interior ceiling finish materials, textile ceiling coverings, including materials having woven or nonwoven, napped, tufted, looped or similar surface and carpet and similar textile materials, shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of Section ~~803.1.2~~803.1.1 or ~~803.1.4~~of Section 803.5.2.

803.7 Expanded vinyl wall coverings. Where used as interior wall finish materials, expanded vinyl wall coverings shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of one of the following: Section ~~803.1.2~~803.1.1, ~~803.1.3~~Section 803.5.1 or ~~803.1.4~~Section 803.5.2.

803.8 Expanded vinyl ceiling coverings. Where used as interior ceiling finish materials, expanded vinyl ceiling coverings shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of Section ~~803.1.2~~803.1.1 or ~~803.1.4~~Section 803.5.2.

803.9 High-density polyethylene (HDPE) and polypropylene (PP). Where high-density polyethylene or polypropylene is used as an interior finish it shall comply with Section ~~803.1.2~~803.1.1.

803.11 Interior finish requirements based on group. *Interior wall and ceiling finish* shall have a flame spread index not greater than that specified in Table 803.11 for the group and location designated. *Interior wall and ceiling finish* materials tested in accordance with NFPA 286 and meeting the acceptance criteria of Section ~~803.1.2.1~~803.1.1.1, shall be permitted to be used where a Class A classification in accordance with ASTM E 84 or UL 723 is required.

Reason: This reorganizes section 803 to make it follow the testing logic, but it does not change any of the requirements.
Any interior wall and ceiling finish material is permitted to be tested to NFPA 286 and therefore this should come first, as section 803.1.1. This needs to be followed by the criteria for NFPA 286 testing. The section also needs to say that anything that passes NFPA 286 (i.e. the corresonding criteria) is acceptable as a Class A in accordance with ASTM E84 and does not need retesting. Then comes the section on ASTM E84, with the corresponding criteria, as section 803.1.2.

The next section, 803.1.3, addresses the materials that have other requirements and cannot simply be tested to either one of the above without further details. That includes all of the materials in sections 803.2 through 803.13.

Textile wall coverings and expanded vinyl wall coverings are covered in 803.5 and 803.7. Therefore the testing in accordance with NFPA 265 needs to move to those sections and that is being done. When dealing with expanded vinyl wall coverings the criteria are not repeated but just reference the textile wall coverings section.

Textile and expanded vinyl ceiling coverings stay as is, just with the section reference changed. The same is true for HDPE and PP.

The only other change is the section reference in 803.11, again without changing requirements.

Table 803.1 does not need any changes.

In order to ensure that the proposed reorganization appears in the correct order, I attach a copy of the final text as it should read, legislative language.

The text as it should read, in its final form is shown below:

Section 803, as proposed for IBC 2018, in final form

803.1 General. Interior wall and ceiling finish materials shall be classified for fire performance and smoke development in accordance with Section 803.1.1 or 803.1.2, except as shown in Sections 803.1.3 through 803.13. Materials tested in accordance with Section 803.1.1 shall not be required to be tested in accordance with Section 803.1.2.

803.1.1 Interior wall and ceiling finish materials tested in accordance with NFPA 286. Interior wall and ceiling finish materials shall be classified in accordance with NFPA 286 and comply with Section 803.1.1.1. Materials complying with Section 803.1.1.1 shall be considered also to comply with the requirements of a Class A in accordance with Section 803.1.2.

803.1.1.1 Acceptance criteria for NFPA 286. The interior finish shall comply with the following:
1. During the 40 kW exposure, flames shall not spread to the ceiling.
2. The flame shall not spread to the outer extremity of the sample on any wall or ceiling.
3. Flashover, as defined in NFPA 286, shall not occur.
4. The peak heat release rate throughout the test shall not exceed 800 kW.
5. The total smoke released throughout the test shall not exceed 1,000 m^2.

803.1.2 Interior wall and ceiling finish materials tested in accordance with ASTM E84 or UL 723. Interior wall and ceiling finish materials shall be classified in accordance with ASTM E 84 or UL 723. Such interior finish materials shall be grouped in the following classes in accordance with their flame spread and smoke-developed indexes.
Class A: = Flame spread index 0-25; smoke developed index 0-450.
Class B: = Flame spread index 26-75; smoke developed index 0-450.
Class C: = Flame spread index 76-200; smoke developed index 0-450.
Exception: Materials tested in accordance with Section 803.1.1 and as indicated in Section 803.1.3 through 803.13.

803.1.3 Interior wall and ceiling finish materials with different requirements. The materials indicated in Sections 803.2 through 803.13 shall be tested as indicated in the corresponding sections.

803.2 Thickness exemption. Materials having a thickness less than 0.036 inch (0.9 mm) applied directly to the surface of walls or ceilings shall not be required to be tested.

803.3 Heavy timber exemption. Exposed portions of building elements complying with the requirements for buildings of Type IV construction in Section 602.4 shall not be subject to interior finish requirements.

803.4 Foam plastics. Foam plastics shall not be used as interior finish except as provided in Section 2603.9. This section shall apply both to exposed foam plastics and to foam plastics used in conjunction with a textile or vinyl facing or cover.

803.5 Textile wall coverings. Where used as interior wall finish materials, textile wall coverings, including materials having woven or nonwoven, napped, tufted, looped or similar surface and carpet and similar textile materials, shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of one of the following: Section 803.1.1, Section 803.5.1 or Section 803.5.2.

803.5.1 Room corner test for textile wall coverings and expanded vinyl wall coverings. Textile wall coverings and expanded vinyl wall coverings shall meet the criteria of Section 803.5.1.1 when tested in the manner intended for use in accordance with the Method B protocol of NFPA 265 using the product-mounting system, including adhesive.

8**03.5.1.1 Acceptance criteria for NFPA 265**. The interior finish shall comply with the following:
1. During the 40 kW exposure, flames shall not spread to the ceiling.
2.The flame shall not spread to the outer extremities of the samples on the 8-foot by 12-foot (203 by 305 mm) walls.
3. Flashover, as defined in NFPA 265, shall not occur.
4. The total smoke released throughout the test shall not exceed 1,000 m2.

803.5.2 Acceptance criteria for textile and expanded vinyl wall or ceiling coverings tested to ASTM E 84 or UL 723. Textile wall and ceiling coverings and expanded vinyl wall and ceiling coverings shall have a Class A flame spread index in accordance with ASTM E 84 or UL 723 and be protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2. Test specimen preparation and mounting shall be in accordance with ASTM E 2404.

803.6 Textile ceiling coverings. Where used as interior ceiling finish materials, textile ceiling coverings, including materials having woven or nonwoven, napped, tufted, looped or similar surface and carpet and similar textile materials, shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of Section 803.1.1 or of Section 803.5.2.

803.7 Expanded vinyl wall coverings. Where used as interior wall finish materials, expanded vinyl wall coverings shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of one of the following: Section 803.1.1, Section 803.5.1 or Section 803.5.2.

803.8 Expanded vinyl ceiling coverings. Where used as interior ceiling finish materials, expanded vinyl ceiling coverings shall be tested in the manner intended for use, using the product mounting system, including adhesive, and shall comply with the requirements of Section 803.1.1 or of Section 803.5.2.

803.9 High-density polyethylene (HDPE) and polypropylene (PP). Where high-density polyethylene or polypropylene is used as an interior finish it shall comply with Section 803.1.1.

803.10 Site-fabricated stretch systems. Where used as interior wall or interior ceiling finish materials, site-fabricated stretch systems containing all three components described in the definition in Chapter 2 shall be tested in the manner intended for use, and shall comply with the requirements of Section 803.1.1 or 803.1.2. If the materials are tested in accordance with ASTM E 84 or UL 723, specimen preparation and mounting shall be in accordance with ASTM E 2573.

803.11 Interior finish requirements based on group. Interior wall and ceiling finish shall have a flame spread index not greater than that specified in Table 803.11 for the group and location designated. Interior wall and ceiling finish materials tested in accordance with NFPA 286 and meeting the acceptance criteria of Section 803.1.1.1, shall be permitted to be used where a Class A classification in accordance with ASTM E 84 or UL 723 is required.

803.12 Stability. Interior finish materials regulated by this chapter shall be applied or otherwise fastened in such a manner that such materials will not readily become detached where subjected to room temperatures of 200°F (93°C) for not less than 30 minutes.

803.13 Application of interior finish materials to fire resistance-rated or noncombustible building elements.
Where interior finish materials are applied on walls, ceilings or structural elements required to have a fire-resistance rating or to be of noncombustible construction, these finish materials shall comply with the provisions of this section.

803.13.1 Direct attachment and furred construction. Where walls and ceilings are required by any provision in this code to be of fire-resistance-rated or noncombustible construction, the interior finish material shall be applied directly against such construction or to furring strips not exceeding 13/4 inches (44 mm), applied directly against such surfaces.

803.13.1.1 Furred construction. If the interior finish material is applied to furring strips, the intervening spaces between such furring strips shall comply with one of the following:
1. Be filled with material that is inorganic or noncombustible;
2. Be filled with material that meets the requirements of a Class A material in accordance with Section 803.1.1 or 803.1.2; or
3. Be fire-blocked at a maximum of 8 feet (2438 mm) in every direction in accordance with Section 718.

803.13.2 Set-out construction. Where walls and ceilings are required to be of fire-resistance-rated or noncombustible construction and walls are set out or ceilings are dropped distances greater than specified in Section 803.13.1, Class A finish materials, in accordance with Section 803.1.1 or 803.1.2, shall be used.

Exceptions:
1. Where interior finish materials are protected on both sides by an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.
2. Where interior finish materials are attached to noncombustible backing or furring strips installed as specified in Section 803.13.1.1.

803.13.2.1 Hangers and assembly members. The hangers and assembly members of such dropped ceilings that are below the horizontal fire-resistance-rated floor or roof assemblies shall be of noncombustible materials. The construction of each set-out wall and horizontal fire-resistance-rated floor or roof assembly shall be of fire-resistance-rated construction as required elsewhere in this code.

Exception: In Type III and V construction, fire retardant-treated wood shall be permitted for use as hangers and assembly members of dropped ceilings.

803.13.3 Heavy timber construction. Wall and ceiling finishes of all classes as permitted in this chapter that are installed directly against the wood decking or planking of Type IV construction or to wood furring strips applied directly to the wood decking or planking shall be fire-blocked as specified in Section 803.13.1.1.

803.13.4 Materials. An interior wall or ceiling finish material that is not more than 1/4 inch (6.4 mm) thick shall be applied directly onto the wall, ceiling or structural element without the use of furring strips and shall not be suspended away from the building element to which that finish material it is applied.

Exceptions:
1. Noncombustible interior finish materials.
2. Materials that meet the requirements of Class A materials in accordance with Section 803.1.1 or 803.1.2 where the qualifying tests were made with the material furred out from the noncombustible backing shall be permitted to be used with furring strips.
3. Materials that meet the requirements of Class A materials in accordance with Section 803.1.1 or 803.1.2 where the qualifying tests were made with the material suspended away from the noncombustible backing shall be permitted to be used suspended away from the building element.

Cost Impact: Will not increase the cost of construction
This is simply a reorganization without changing requirements.

FS 139-15 : 803.1-HIRSCHLER3573

FS 140-15

406.8.3, 424.2, 804.2, 804.3, Chapter 35

Proponent: Tim Earl, GBH International, representing GBH International (tearl@gbhinternational.com)

2015 International Building Code

Revise as follows:

406.8.3 Floor surface.
Repair garage floors shall be of concrete or similar noncombustible and nonabsorbent materials.

> **Exception:** Slip-resistant, nonabsorbent, *interior floor finishes* having a critical radiant flux not more than 0.45 W/cm^2, as determined by <u>ASTM E648 or </u>NFPA 253, shall be permitted.

424.2 Materials. Children's play structures shall be constructed of noncombustible materials or of combustible materials that comply with the following:

1. *Fire-retardant-treated* wood complying with Section 2303.2.
2. Light-transmitting plastics complying with Section 2606.
3. Foam plastics (including the pipe foam used in softcontained play equipment structures) having a maximum heat-release rate not greater than 100 kilowatts when tested in accordance with UL 1975 or when tested in accordance with NFPA 289, using the 20 kW ignition source.
4. Aluminum composite material (ACM) meeting the requirements of Class A *interior finish* in accordance with Chapter 8 when tested as an assembly in the maximum thickness intended for use.
5. Textiles and films complying with the fire propagation performance criteria contained in Test Method 1 or Test Method 2, as appropriate, of NFPA 701.
6. Plastic materials used to construct rigid components of soft-contained play equipment structures (such as tubes, windows, panels, junction boxes, pipes, slides and decks) exhibiting a peak rate of heat release not exceeding 400 kW/ m^2 when tested in accordance with ASTM E 1354 at an incident heat flux of 50 kW/m^2 in the horizontal orientation at a thickness of 6 mm.
7. Ball pool balls, used in soft-contained play equipment structures, having a maximum heat-release rate not greater than 100 kilowatts when tested in accordance with UL 1975 or when tested in accordance with NFPA 289, using the 20 kW ignition source. The minimum specimen test size shall be 36 inches by 36 inches (914 mm by 914 mm) by an average of 21 inches (533 mm) deep, and the balls shall be held in a box constructed of galvanized steel poultry netting wire mesh.
8. Foam plastics shall be covered by a fabric, coating or film meeting the fire propagation performance criteria contained in Test Method 1 or Test Method 2, as appropriate, of NFPA 701.
9. The floor covering placed under the children's play structure shall exhibit a Class I interior floor finish classification, as described in Section 804, when tested in accordance with <u>ASTM E648 or </u>NFPA 253.

804.2 Classification. *Interior floor finish* and floor covering materials required by Section 804.4.2 to be of Class I or II materials shall be classified in accordance with <u>ASTM E648 or </u>NFPA 253. The classification referred to herein corresponds to the classifications determined by<u> ASTM E648 or</u> NFPA 253 as follows: Class I, 0.45 watts/cm^2 or greater; Class II, 0.22 watts/cm^2 or greater.

804.3 Testing and identification. *Interior floor finish* and floor covering materials shall be tested by an agency in accordance with<u> ASTM E648 or</u> NFPA 253 and identified by a hang tag or other suitable method so as to identify the manufacturer or supplier and style, and shall indicate the *interior floor finish* or floor covering classification in accordance with Section 804.2. Carpet-type floor coverings shall be tested as proposed for use, including underlayment. Test reports confirming the information provided in the manufacturer's product identification shall be furnished to the building official upon request.

Add new standard(s) as follows:
<u>E648-14c Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source</u>

Reason: ASTM E648 is technically equivalent to NFPA 253. Since the flooring industry routinely references ASTM E648, this proposal will remove confusion when people reference the ASTM test instead of the NFPA test.

Cost Impact: Will not increase the cost of construction
This change simply adds a reference to another standard, allowing users to reference either ASTM E648 or NFPA 253, so there is no impact on cost.

Analysis: A review of the standard proposed for inclusion in the code, ASTM E648, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS 141-15

901.7

Proponent: Maureen Traxler, City of Seattle, representing Washington Association of Building Officials Technical Code Development Committee (maureen.traxler@seattle.gov)

2015 International Building Code

Revise as follows:

901.7 Fire areas. Where buildings, or portions thereof, are divided into *fire areas* so as not to exceed the limits established for requiring a *fire protection system* in accordance with this chapter, such *fire areas* shall be separated by *fire* walls constructed in accordance with Section 706, *fire barriers* constructed in accordance with Section 707, exterior walls constructed in accordance with Section 705, or *horizontal assemblies* constructed in accordance with Section 711, or ~~both, having a *fire-resistance rating* of not less than that determined in accordance with Section 707.3.10~~combination.

Reason: The definition of "fire area" specifically includes areas "enclosed and bounded by fire walls, fire barriers, exterior walls or horizontal assemblies." Section 901.7 seems to conflict with that by specifying only fire barriers and horizontal assemblies to create fire areas. The reference to the fire-resistance rating of the wall is deleted because the reference to Section 707 includes Table 707.3.10.

Cost Impact: Will not increase the cost of construction
This is an editorial proposal that will not affect the cost of construction.

FS 141-15 : 901.7-TRAXLER3871

FS 142-15

909.20.1

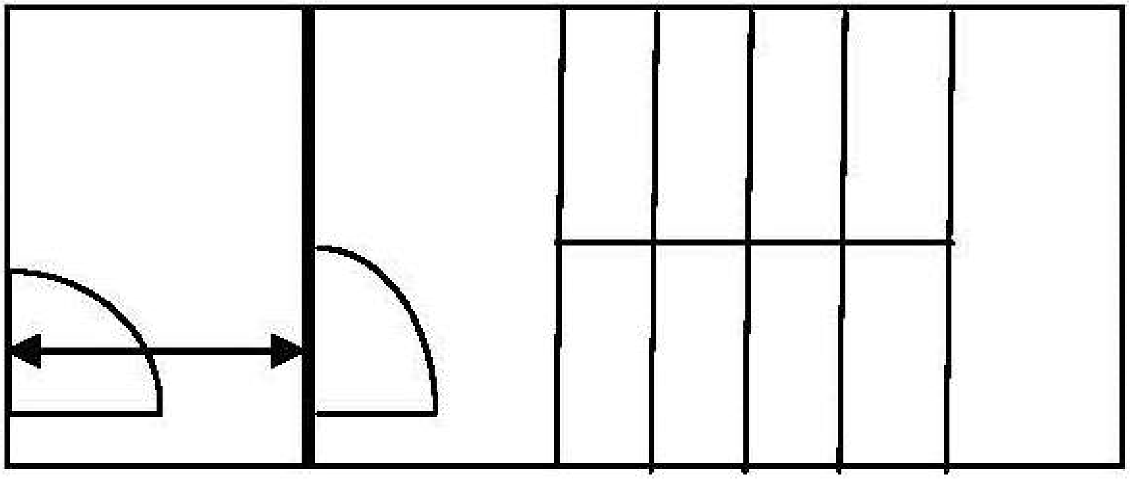
Proponent: Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

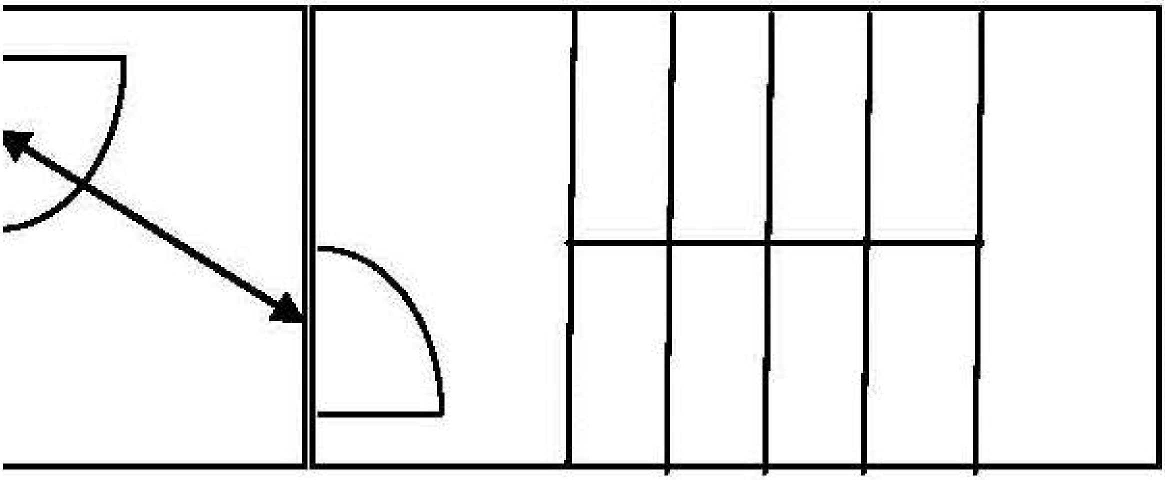
2015 International Building Code

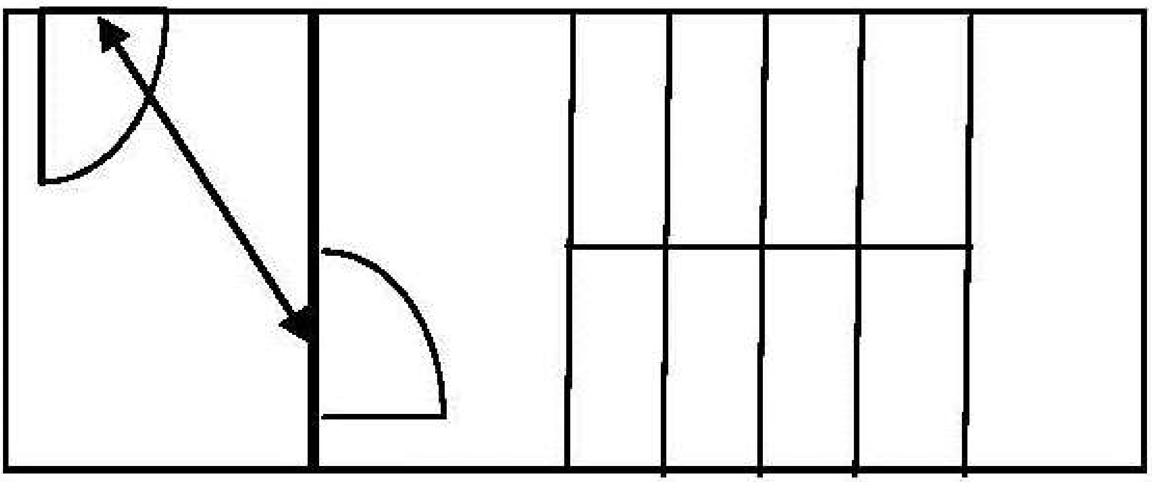
Revise as follows:

909.20.1 Access. Access to the *stairway* or *ramp* shall be by way of a vestibule or an open exterior balcony. The minimum dimension of the vestibule shall be not less than the required width of the *corridor* leading to the vestibule but shall not have a clear width of less than 44 inches (1118 mm) and shall not have a length of less than 72 inches (1829 mm) in the direction of egress travel into the stairway between the centerline of the doorways into the vestibule and stairway.

Reason: The proposed code change seeks to clarify the dimensional requirements in vestibules used to access stairway doors in smoke proof enclosures. A smoke proof enclosure is an interior exit stairway that is protected with a two-hour fire barrier and incudes a vestibule separating the occupied story from the stairway. The vestibule seeks to keep smoke from migrating into the stairway portion due to egress by occupants and due to fire fighting operations. The dimensional requirements for the vestibule seek to allow sufficient distance between the doorway into the vestibule and into the stairway such that both doorways are not open at the same time. Additionally the vestibule provides fire fighters with a safe area to attack a fire on the fire floor without compromising the smoke proof integrity of the stairway. Both the handbook and the commentary conservatively dimension the 72 inch dimension to be perpendicular to the access doorway into the stairway from the vestibule. If the two doorways are not in line, offset or perpendicular to one another the direction of travel into the vestibule, within the vestibule and into the stairway can change and it does not appear reasonable to require 72 inch by 72 inch vestibules if sufficient space is provided to clear the doorways arcs. The code change also requires that the 44 inch width be a clear width for consistency with the requirements in Section 1003.3.3 in the event a standpipe is placed within the vestibule or pressurization ductwork is located within the vestibule.
Please see the atached figures that address possible configurations of vestibules that are addressed by this code change.







Cost Impact: Will not increase the cost of construction
This code change may reduce the size of vestibules thereby increasing useable floor area.

FS 142-15 : 909.20.1-FATTAH5006

FS 143-15

909.20.5

Proponent: William Webb, representing Self (webbfpc@gmail.com)

2015 International Building Code

Revise as follows:

909.20.5 Stairway and ramp pressurization alternative. Where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, the vestibule is not required, provided each interior *exitstairway* or *ramp* is pressurized to not less than ~~0.10~~0.05 inch of water (~~25~~12.5 Pa) and not more than 0.35 inches of water (87 Pa) in the shaft relative to the building measured with all *interior exitstairway* and *ramp* doors closed under maximum anticipated conditions of stack effect and wind effect.

Reason: This change is consistent with a similar requirement for the pressure differential across smoke barriers. It is also consistent with the NFPA *Life Safety Code, NFPA 101* for smokeproof enclosures in sprinkler protected buildings. It is recognized in NFPA 92, *Standard for Smoke Control Systems. The Handbook of Smoke Control Engineering* and the *Principles of Smoke Management* contain tables giving the suggested minimum pressure design difference across a barrier, Table 9.1 and Table 6.12, respectively. The latter text states on page 107, "These values for sprinklered buildings were calculated from the equation for buoyancy of combustion gases (Chapter 5) for a gas temperature of 1700°F (927°C), for a neutral plane located at a height of two-thirds of the ceiling height below the ceiling and with a safety factor of 0.03 in. H_2O (7.5 Pa)."

Bibliography: IBC 2012, ¶ 909.6.1; NFPA Life Safety Code, NFPA 101 2012, ¶7.2.3.9.1; Standard for Smoke Control Systems, NFPA 92-2012 ¶ 4.4.2.1.1 and Table 4.4.2.1.1 Handbook of Smoke Control Engineering; John H. Klote, James A. Milke, Paul G. Turnbull, Ahmed Kashef and Michael J. Ferreira; 2012;Page 223
ManagementPrinciples of Smoke; John H. Klote and James A. Milke; 2002; Pages 107 & 108

Cost Impact: Will not increase the cost of construction
The proposed change should result in no increased cost is because the requirements are less than the code currently, so it will be easier to meet the revised requirements.

FS 143-15 : 909.20.5-WEBB3443

FS 144-15

909.21.1

Proponent: William Webb, Rolf Jensen & Associates, Inc., representing Rolf Jensen & Associates, Inc. (wwebb@rjagroup.com)

2015 International Building Code

Revise as follows:

909.21.1 Pressurization requirements.
Elevator hoistways shall be pressurized to maintain a minimum positive pressure of 0.10 inch of water (25 Pa) and a maximum positive pressure of ~~0.25~~0.35 inch of water (~~67~~88 Pa) with respect to adjacent occupied space on all floors. This pressure shall be measured at the midpoint of each hoistway door, with all elevator cars at the floor of recall and all hoistway doors on the floor of recall open and all other hoistway doors closed. The pressure differentials shall be measured between the hoistway and the adjacent elevator landing. The opening and closing of hoistway doors at each level must be demonstrated during this test. The supply air intake shall be from an outside, uncontaminated source located a minimum distance of 20 feet (6096 mm) from any air exhaust system or outlet.

Exceptions:

1. On floors containing only Group R occupancies, the pressure differential is permitted to be measured between the hoistway and a *dwelling unit* or *sleeping unit* .
2. Where an elevator opens into a lobby enclosed in accordance with Section 3007.6 or 3008.6, the pressure differential is permitted to be measured between the hoistway and the space immediately outside the door(s) from the floor to the enclosed lobby.
3. The pressure differential is permitted to be measured relative to the outdoor atmosphere on floors other than the following:
   - 3.1. The fire floor.
   - 3.2. The two floors immediately below the fire floor.
   - 3.3. The floor immediately above the fire floor.
4. The minimum positive pressure of 0.10 inch of water (25 Pa) and a maximum positive pressure of ~~0.25~~0.35 inch of water (~~67~~88 Pa) with respect to occupied floors are not required at the floor of recall with the doors open.
5. Where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the minimum pressure differential shall be 0.05 inch water (12 Pa).

Reason: There has been no research about the maximum pressure differential for elevator pressurization systems. There is no technical reason to limit the value to 0.25 in water (67 Pa). The suggested value of 0.35 in water (88 Pa) is the recognized maximum for stair pressure systems. It is recognized that the minimum pressure differential across smoke barriers in sprinklered protected buildings is 0.05 inch water (12 Pa), as noted in IBC 909.6.1.

Cost Impact: Will not increase the cost of construction
The proposed change should result in no increased cost is because the requirements are less than the code currently, so it will be easier to meet the revised requirements.

FS 144-15 : 909.21.1-WEBB3440

FS 145-15

909.21.3, Chapter 35

Proponent: Tony Crimi, representing International Firestop Council (tcrimi@sympatico.ca)

2015 International Building Code

Revise as follows:

909.21.3 Ducts for system. Any duct system that is part of the pressurization system shall be protected with the same *fire-resistance rating* as required for the elevator shaft enclosure.

Exception: HVAC ducts tested and listed for in accordance with ASTM E2816 with minimum F and T rating of not less than 2 hours, continuously from the air handling appliance or equipment to the air outlet and inlet terminal.

Add new standard(s) as follows:

ASTM E2816-11, Standard Test Methods for Fire Resistive Metallic HVAC Duct Systems

Reason: This proposal permits an additional option for protection of ducts that are part of a pressurization system by using a tested and listed assembly conforming to the new ASTM E2816-11, Standard Test Methods for Fire Resistive Metallic HVAC Duct Systems evaluated for the specific purpose. IBC section 717.2,1 requires that where the installation of a fire damper will interfere with the operation of a required smoke control system in accordance with Section 909, approved alternative protection shall be utilized. Where mechanical systems, including ducts and dampers, serve as part of the smoke control system, the expected performance of these systems in smoke control mode must be addressed in the rational analysis required by Section 909.4.

This principle of protecting HVAC ducts used as part of a smoke control system from the effects of fire exposure is also already contained in section 909.4.4 which requires that the design consider the effects of the heating, ventilating and air-conditioning (HVAC) systems on both smoke and fire transport. This analysis includes the types of smoke control systems to be employed, their methods of operation, and the methods of construction to be utilized. The analysis is required to include, but not be limited to, stack effects, buoyancy effects, wind effects, HVAC design, climate, duration of operation, and the interaction effects of the operation of multiple smoke control systems for all design scenarios. The ASTM test method achieves this by evaluate the ability of a HVAC duct system to resist the spread of fire from one compartment to other compartments separated by a fire resistance rated construction when the HVAC duct system is exposed to fire under various conditions. This test is now also referenced as part of ICC-ES AC179, Acceptance Criteria for Metallic HVAC Duct Enclosure Assemblies. The purpose of these acceptance criteria is to establish requirements for fire protection enclosure systems applied to metallic HVAC ducts, which provides an alternate to required fire-resistance-rated shafts or an alternate to required fire dampers in specific locations. This criteria provides an alternate to shaft enclosures for vertical ducts.

Cost Impact: Will not increase the cost of construction
This proposal may reduce the cost of construction as it provides an alternative to the existing provision, while maintaining a comparable level of safety.

Analysis: A review of the standard proposed for inclusion in the code, ASTM E2816, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS 145-15 : 909.21.3-CRIMI4314

FS 146-15

1403.5

Proponent: Henry Green, National Institute of Building Sciences, representing National Institute of Building Sciences (hgreen@nibs.org)

2015 International Building Code

Revise as follows:

1403.5 Vertical and lateral flame propagation. Exterior walls on buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain a combustible *water-resistive barrier* in accordance with Section 1404.2 shall be tested in accordance with and comply with the acceptance criteria of NFPA 285. For the purposes of this section, fenestration products ~~and~~, flashing of fenestration products and water resistive barrier flashing and accessories at other locations, including through-wall flashings, shall not be considered part of the *water-resistive barrier*.

Exceptions:

1. Walls in which the *water-resistive barrier* is the only combustible component and the *exterior wall* has a wall covering of brick, concrete, stone, terra cotta, stucco or steel with minimum thicknesses in accordance with Table 1405.2.
2. Walls in which the *water-resistive barrier* is the only combustible component and the *water-resistive barrier* has a peak heat release rate of less than 150 kW/m^2, a total heat release of less than 20 MJ/m^2 and an effective heat of combustion of less than 18 MJ/kg as determined in accordance with ASTM E 1354 and has a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E 84 or UL 723. The ASTM E 1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m^2.

Reason: This proposal clarifies the intention of the current code that the trigger for requiring NFPA 285 testing is the water-resistive barrier material and not its accessories. It extends to the excepted accessories specifically mentioned to include flashings that are not associated with fenestration.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction. The proposal seeks to clarify only, not to alter or increase requirements.

FS 146-15 : 1403.5-GREEN5428

FS 147-15

1403.5

Proponent: Marcelo Hirschler, representing GBH International (gbhint@aol.com)

2015 International Building Code

Revise as follows:

1403.5 Vertical and lateral flame propagation. Exterior walls on buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain a combustible *water-resistive barrier* shall be tested in accordance with and comply with the acceptance criteria of NFPA 285. For the purposes of this section, fenestration products and flashing of fenestration products shall not be considered part of the *water-resistive barrier*.

Exceptions:

1. Walls in which the *water-resistive barrier* is the only combustible component and the *exterior wall* has a wall covering of brick, concrete, stone, terra cotta, stucco or steel with minimum thicknesses in accordance with Table 1405.2.
2. Walls in which the *water-resistive barrier* is the only combustible component and the *water-resistive barrier* complies with the following: (a) It has a peak heat release rate of less than 150 kW/m^2, a total heat release of less than 20 MJ/m^2 and an effective heat of combustion of less than 18 MJ/kg as determined in accordance with ASTM ~~E 1354 and has a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E 84 or UL 723~~E1354. The ASTM ~~E 1354~~E1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m^2. (b) It has a flame spread index of 25 or less and a smoke developed index of 450 or less as determined in accordance with ASTM E84 or UL 723, when tested using Type X gypsum board as the substrate.

Reason: Exception 2 was added during the cycle leading to IBC 2015. There has been a lot of concern that insufficient clarification exists as to how to test the water-resistive barriers with ASTM E84, since the substrate used will affect the test results, particularly for this materials. The proposed clarification should make it clear that Type X gypsum board should be used as the substrate.

Cost Impact: Will not increase the cost of construction
This is clarification regarding the testing protocol and will not change the materials involved.

FS 147-15 : 1403.5-HIRSCHLER4297

FS 148-15

1403.5

Proponent: Theresa Weston, DuPont Building Innovations, representing DuPont Building Innovations (theresa.a.weston@usa.dupont.com)

2015 International Building Code

Revise as follows:

1403.5 Vertical and lateral flame propagation. Exterior walls on buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain a combustible *water-resistive barrier* shall be tested in accordance with and comply with the acceptance criteria of NFPA 285. Water-resistive barrier materials complying with Section 703.5.1 or water-resistive barrier materials applied over a noncombustible structural base in compliance with Section 703.5.2 are noncombustible. For the purposes of this section, fenestration products and flashing of fenestration products shall not be considered part of the *water-resistive barrier*.

Exceptions:

1. Walls in which the *water-resistive barrier* is the only combustible component and the *exterior wall* has a wall covering of brick, concrete, stone, terra cotta, stucco or steel with minimum thicknesses in accordance with Table 1405.2.
2. Walls in which the *water-resistive barrier* is the only combustible component and the *water-resistive barrier* has a peak heat release rate of less than 150 kW/m^2, a total heat release of less than 20 MJ/m^2 and an effective heat of combustion of less than 18 MJ/kg as determined in accordance with ASTM E 1354 and has a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E 84 or UL 723. The ASTM E 1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m^2.

Reason: There is significant industry confusion as whether the combusitbility testing in Sections 703.5.1 and 703.5.2 applies to water-resistive barriers. This proposal provides a pointer to those sections and clarifies the meaning of combusitible and noncombustible.

Cost Impact: Will not increase the cost of construction
This proposal provides clarity only and does not change code requirements.

FS 148-15 : 1403.5-WESTON5619

FS 149-15

Part I:
1403.5, 1407.10.4, 1409.10.4
Part II:
2603.5.5

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IBC-FIRE SAFETY COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: John Woestman, Kellen Company, representing Extruded Polystyrene Foam Association (XPSA) (jwoestman@kellencompany.com)

Part I

2015 International Building Code

Revise as follows:

1403.5 Vertical and lateral flame propagation. Exterior walls on buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain a combustible *water-resistive barrier* shall be tested in accordance with and comply with the acceptance criteria of NFPA 285. For the purposes of this section, fenestration products and flashing of fenestration products shall not be considered part of the *water-resistive barrier*. The required NFPA 285 fire performance of the exterior wall assembly shall be permitted to be established by any of the following methods or procedures:

1. NFPA 285 fire performance designs documented in an approved source.
2. NFPA 285 fire performance designs certified by an approved agency.
3. Engineering analysis of an exterior wall assembly based on a comparison of building element, component or assemblies designs that are equivalent to the fire exposure and acceptance criteria set forth in NFPA 285.

Exceptions:

1. Walls in which the *water-resistive barrier* is the only combustible component and the *exterior wall* has a wall covering of brick, concrete, stone, terra cotta, stucco or steel with minimum thicknesses in accordance with Table 1405.2.
2. Walls in which the *water-resistive barrier* is the only combustible component and the *water-resistive barrier* has a peak heat release rate of less than 150 kW/m^2, a total heat release of less than 20 MJ/m^2 and an effective heat of combustion of less than 18 MJ/kg as determined in accordance with ASTM E 1354 and has a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E 84 or UL 723. The ASTM E 1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m^2.

1407.10.4 Full-scale tests. The MCM system shall be tested in accordance with, and comply with, the acceptance criteria of NFPA 285. Such testing shall be performed on the MCM system with the MCM in the maximum thickness intended for use. The required NFPA 285 fire performance of the exterior wall assembly shall be permitted to be established by any of the following methods or procedures:

1. NFPA 285 fire performance designs documented in an approved source.
2. NFPA 285 fire performance designs certified by an approved agency.
3. Engineering analysis of an exterior wall assembly based on a comparison of building element, component or assemblies designs that are equivalent to the fire exposure and acceptance criteria set forth in NFPA 285.

1409.10.4 Full-scale tests. The HPL system shall be tested in accordance with, and comply with, the acceptance criteria of NFPA 285. Such testing shall be performed on the HPL system with the HPL in the minimum and maximum thicknesses intended for use. The required NFPA 285 fire performance of the exterior wall assembly shall be permitted to be established by any of the following methods or procedures:

1. NFPA 285 fire performance designs documented in an approved source.
2. NFPA 285 fire performance designs certified by an approved agency.
3. Engineering analysis of an exterior wall assembly based on a comparison of building element, component or assemblies designs that are equivalent to the fire exposure and acceptance criteria set forth in NFPA 285.

Part II

2015 International Building Code

Revise as follows:

2603.5.5 Vertical and lateral fire propagation. The exterior wall assembly shall be tested in accordance with and comply with the acceptance criteria of NFPA 285. The required NFPA 285 fire performance of the exterior wall assembly shall be permitted to be established by any of the following methods or procedures:

1. NFPA 285 fire performance designs documented in an approved source.
2. NFPA 285 fire performance designs certified by an approved agency.
3. Engineering analysis of an exterior wall assembly based on a comparison of building element, component or assemblies designs that are equivalent to the fire exposure and acceptance criteria set forth in NFPA 285.

Exceptions:

1. One-story buildings complying with Section 2603.4.1.4.
2. Wall assemblies where the foam plastic insulation is covered on each face by not less than 1-inch (25 mm) thickness of masonry or concrete and meeting one of the following:
   2.1 There is no airspace between the insulation and the concrete or masonry.
   2.2 The insulation has a flame spread index of not more than 25 as determined in accordance with ASTM E 84 or UL 723 and the maximum airspace between the insulation and the concrete or masonry is not more than 1 inch (25 mm).

Reason: This code change specifies the documentation requirements for NFPA 285 fire performance designs. In a similar manner as Section 703.3, the proposed wording will allow NFPA 285 tests to be documented in an approved source, listed by an approved agency, or engineering judgments and other performance designs to be used in lieu of an actual NFPA 285 test on the specific assembly. This will recognize existing NPFA 285 test reports and third-party listings as well as permit the addition or substitution of materials within an NFPA 285 complying assemblies provided sufficient analytical data (i.e. engineering analysis) is made available to the code official. The code change reflects current practice in the market. This code change proposal delineates sources available for compliance documentation for a wide variety of NFPA 285 tested assemblies.

Cost Impact:

Part I: Will not increase the cost of construction
No cost increase. This proposal identifies options to comply with existing NFPA 285 testing requirements.

Part II: Will not increase the cost of construction
No cost increase. This proposal identifies options to comply with existing NFPA 285 testing requirements.

FS 149-15 : 1403.5-WOESTMAN5559

FS 150-15

1404.2

Proponent: Jay Crandell, ARES Consulting, representing Foam Sheathing Committee of the American Chemistry Council

2015 International Building Code

Revise as follows:

1404.2 Water-resistive barrier. *Water-resistive barrier* material assemblies shall be installed in accordance with the manufacturer's installation instructions using and *approved* installation method tested for water penetration resistance in accordance with one of the following:

1. The *water-resistive barrier* assembly shall be tested as a component of a complete exterior wall envelope system in accordance with Section 1403.2, Exception 2; or
2. The *water-resistive barrier* assembly shall be tested in accordance with Section 1403.2, Exception 2, without exterior wall finish materials using a minimum differential pressure of 2.86 pounds per square foot (psf)(0.136 kN/m^2) and a minimum test exposure duration of 15 minutes.

> **Exception:**Not fewer than one layer of No.15 asphalt felt, complying with ASTM D 226 for Type 1 felt ~~or other *approved* materials,~~ shall be attached to the studs or sheathing, with flashing as described in Section 1405.4, in such a manner as to provide a continuous *water-resistive barrier* behind the *exterior wall* veneer.

Reason: The proposal specifies that water-resistive barriers be installed in accordance with the manufacturer's installation instructions to assist in proper use and enforcement. It also coordinates and unifies WRB assembly water penetration testing requirements. Furthermore, an exception statement continues to prescriptively recognize ASTM D226 Type 1 asphalt felt as a deemed-to-comply solution (i.e., assembly water resistance testing not required).
The concept of this proposal is to use the same test method (ASTM E 331) and adjust test conditions for two optional qualification approaches to account for the presence or absence of an exterior wall finish material over the water-resistive barrier. It is important to be able to test these two ways to appropriate qualify WRB asemblies (1) for use with a specific exterior wall envelope system (including a specific cladding material) or (2) to more generally qualify a WRB assembly for use with multiple exterior wall finish materials by testing the WRB assembly in an unprotected or exposed condition.

The water penetration resistance test criteria proposed for the second condition, where the WRB assembly is unprotected, is consistent with criteria specified in ASTM E 331 (e.g., 2.86 psf and 15 minute duration with no water penetration). This requirement is also consistent with that used in another code referenced standard for water-resistive barrier coatings that are tested in an unprotected condition (refer to Section 1408.4.1.1) for use with EIFS. Thus, the proposal is consistent with two-code referenced standards. It is also reasonably consistent with the performance of asphalt felt when tested in an unprotected condition and, therefore, complies with the equivalency intent of the code as based on testing by three different certified laboratories where performance of 5 to 15 minutes at 2.86 psf was observed for asphalt felt using ASTM E 331.

The need for a uniform and effective water-penetration resistance requirement is documented in the literature (Hall and Hoigard, 2005; Dorin, 2006; Lstiburek, 2012). In particular, Hall and Hoigard (2005) evaluated current code requirements, acceptance criteria, and field experience. They also report comparative test data under installed water exposure conditions, demonstrating that at least some polymeric building wrap materials are capable of performing equivalenty to asphalt-saturated felt materials. The relevant conclusions from the study include:

1. "Current builing code provisions offer no rational means of assessing the equivalency of alternative WRB products to ASTM D-226 type I asphalt-saturated felt..."

2. "The [material only water resistance tests] fail to address several important moisture transport mechanisms that affect the in-service performance of WRBs."

The proposed requirements are consistent with the intent of equivalency between code-recognized materials and methods (e.g., asphalt felt) and other alternative WRB materials and assemblies. Therefore, this proposal will help to ensure acceptable and consistent perormance of various types of alternative WRB materials and assemblies in a non-exclusionary and effective manner.

Bibliography: Dorin, L. (2005). The importance of integrating flashing and the water resistive barrier in the exterior wall systems of residential buildings. *Journal of the ASTM International*, Vol. 3, No. 5, ASTM International, West Conshohocken, PA
Hall, G.D. and Hoigard, K.R., "Water-Resistive Barriers: How do they compare?", *Interface*, November 2005.

Lstiburek, J., "Leaks & Holes", *ASHRAE Journal*, December 2012.

Cost Impact: Will not increase the cost of construction
This code change proposal has no cost impact because it does not change the requirement for any code-recognized water resistive barrier, such as asphalt felt. For WRB materials and assemblies that are not code recognized, but which are tested for assembly water-penetration resistance meeting the performance intent of the code and equivalency to code-recognized materials, there also are no cost impacts because there is no change in requirements. Thus, a variety of code-compliant options are maintained and potential long-term cost impacts to construction of non-compliant materials will be reduced or avoided.

FS 151-15

1404.2

Proponent: Brian Johnson, Forensic Building Science, representing Forensic Building Science

2015 International Building Code

Revise as follows:

1404.2 Water-resistive barrier. ~~Not fewer than one~~One layer of No.15 asphalt felt, free from holes and breaks, complying with ASTM D 226 for Type 1 felt or other *approved* ~~materials,~~ water-resistive barrier shall be ~~attached to the~~ applied over studs or sheathing of all exterior walls. Such felt or material shall be applied horizontally, with the upper layer lapped over the lower layer not less than 2 inches (51 mm). Where joints occur, felt shall be lapped not less than 6 inches (152 mm). The felt or other approved material shall be continuous to the top of walls and terminated at penetrations and in building appendages in a manner to meet the requirements of the exterior wall envelope as described in Section 1403.2 with flashing as described in Section 1405.4, in such a manner as to provide a continuous *water-resistive barrier* behind the *exterior wall* veneer.

Reason: The language between the IRC and IBC do not match for the same material. The laps required in the IRC are generally a match to the laps required by felt manufacturers in their ESRs and a number of synthetic weather-resistive barrier manufacturers (Tyvek, Typar, R-wrap, etc).
The change reduces the burden on building officials by allowing generic (typical, historical, and customary) requirements that match those in the IRC to be enforced here without forcing the building official to find the manufacturer installation details or ESR to verify the minimum dimensions. Not all felts come with manufacturer identification lables or stamps indicating conformity with ASTM D226 Type I. The change also provides a uniform level of weather protection between building and residential codes.

Cost Impact: Will not increase the cost of construction
No cost impact. These requirements formalize current (and best) practice, match the existing requirements in the IRC, and therefore no increase in costs is associated with the (largely editorial, code-correlation) revision.

FS 151-15 : 1404.2-JOHNSON5603

FS 152-15

1403.2, 1404.2, 1404.2.1 (New)

Proponent: Theresa Weston, DuPont Building Innovations, representing DuPont Building Innovatons (theresa.a.weston@usa.dupont.com)

2015 International Building Code

Revise as follows:

1403.2 Weather protection. Exterior walls shall provide the building with a weather-resistant *exterior wallenvelope*. The *exterior wallenvelope* shall include flashing, as described in Section 1405.4. The *exterior wallenvelope* shall be designed and constructed in such a manner as to prevent the accumulation of water within the wall assembly by providing a *water-resistive barrier* behind the exterior veneer, as described in Section 1404.2, and a means for draining water that ~~enters~~<u>intrudes past</u> the ~~assembly~~<u>exterior veneer</u> to the exterior. Protection against condensation in the *exterior wall* assembly shall be provided in accordance with Section 1405.3.

Exceptions:

1. A weather-resistant *exterior wallenvelope* shall not be required over concrete or masonry walls designed in accordance with Chapters 19 and 21, respectively.
2. Compliance with the requirements for a means of drainage, and the requirements of Sections 1404.2 and 1405.4, shall not be required for an *exterior wallenvelope* that has been demonstrated through testing to resist wind-driven rain, including joints, penetrations and intersections with dissimilar materials, in accordance with ASTM E 331 under the following conditions:
    - 2.1. *Exterior wallenvelope* test assemblies shall include at least one opening, one control joint, one wall/eave interface and one wall sill. Tested openings and penetrations shall be representative of the intended end-use configuration.
    - 2.2. *Exterior wallenvelope* test assemblies shall be at least 4 feet by 8 feet (1219 mm by 2438 mm) in size.
    - 2.3. *Exterior wallenvelope* assemblies shall be tested at a minimum differential pressure of 6.24 pounds per square foot (psf) (0.297 kN/m^2).
    - 2.4. *Exterior wallenvelope* assemblies shall be subjected to a minimum test exposure duration of 2 hours.The *exterior wallenvelope* design shall be considered to resist wind-driven rain where the results of testing indicate that water did not penetrate control joints in the *exterior wall* envelope, joints at the perimeter of openings or intersections of terminations with dissimilar materials.
3. Exterior insulation and finish systems (EIFS) complying with Section 1408.4.1.

1404.2 Water-resistive barrier. Not fewer than one layer of No.15 asphalt felt, complying with ASTM D 226 for Type 1 felt or other *approved* materials~~, shall be attached to the studs or sheathing, with flashing as described in Section 1405.4, in such a manner as to provide a continuous *water-resistive barrier* behind the *exterior wall* veneer.~~<u>.</u>

Add new text as follows:

<u>**1404.2.1** **Installaton** The water-resistive barrier, free from holes or breaks other those required by fasteners, shall be attached to the studs or sheathing, and integrated with flashing as described in Section 1405.4, in such a manner to provide a continuous water-resistive barrier behind the exterior wall veneer. The water-resistive barrier shall be continuous to the top of walls and terminated at penetrations and building appendages in a manner to meet the requirements of the exterior wall envelope as described in Section 1403.2.</u>

Reason: This proposal is intended to provide clarity by:

(1) clarifying is Section 1403.2 that the means of drainage is to manage water from weather which intrudes past the exterior surface of the veneer (either through the veneer or at penetration interfaces) rather than all water that asssembly, which might be interpreted to include the need to drain an internal insulation cavity from condensation moisture or a burst pipe.

(2) separating the WRB material requirements from its installation requirements in Section 1404.2. Additional text in this section specifies installation attributes critical to ensuring the continuity of the water-resistive barrier currently required in the code, and provides more consistency with the International Residential Code.

Cost Impact: Will not increase the cost of construction
There are no changes in requirements only clarification of existing code language.

FS 152-15 : 1403.2-WESTON5343

FS 153-15

1404.2

Proponent: Theresa Weston, DuPont Building Innovations, representing DuPont Building Innovatons (theresa.a.weston@usa.dupont.com)

2015 International Building Code

Revise as follows:

1404.2 Water-resistive barrier. Not fewer than one layer of ~~No.15 asphalt felt~~water-resistive barrier, complying with ASTM ~~D 226 for Type 1 felt~~E 2556 or other *approved* materials, shall be attached to the studs or sheathing, with flashing as described in Section 1405.4, in such a manner as to provide a continuous *water-resistive barrier* behind the *exterior wall* veneer.

Reason: The proposal updates the water-resistive barrier reference to the most recent consensus standard. ASTM E2556 includes housewrap materials, building papers and felt, instead of just felt and therefore is more representative of the state of the industry. Furthermore, the current reference standard is scoped for roof systems, while ASTM E2556 was developed and is scoped for wall systems and so, therefore, is more appropriate for this section of the code. ASTM E2556 is currently referenced in Section 2510 for Stucco water-resistive barriers so its adoption in this section would increase consistency within the code. ASTM E2556 is consistent with the current ICC-ES acceptance criteria for water-resistive barriers (AC-38) and therefore should not limit the use of current WRBs.

Cost Impact: Will not increase the cost of construction
The requirements in the referenced standard are consistent with requirements in ICC-ES Acceptance Criteria AC-38, the most broadly used water-resistive barrier qualification criteria, so will not change the water-resistive barriers requirements or costs associated with them.

FS 153-15 : 1404.2-WESTON5376

FS 154-15

202 (New), , 1402.1, 1404.3 (New), 1405.5 (New)

Proponent: Laverne Dalgleish, Building Professionals, representing Air Barrier Association of America

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

AIR BARRIER. Materials assembled and joined together to provide a barrier to air leakage through the buildling envelope. An air barrier may be a single material or a combination of materials.

SECTION 202 DEFINITIONS

CONTINUOUS AIR BARRIER. A combination of materials and assemblies that restrict or prevent the passage of air thorugh the building thermal envelope.

Revise as follows:

1402.1 Definitions. The following terms are defined in Chapter 2:
ADHERED MASONRY VENEER.
AIR BARRIER.
ANCHORED MASONRY VENEER.
BACKING.
CONTINUOUS AIR BARRIER.
EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS).
EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS) WITH DRAINAGE.
EXTERIOR WALL.
EXTERIOR WALL COVERING.
EXTERIOR WALL ENVELOPE.
FENESTRATION.
FIBER-CEMENT SIDING.
HIGH-PRESSURE DECORATIVE EXTERIOR-GRADE COMPACT LAMINATE (HPL).
HIGH-PRESSURE DECORATIVE EXTERIOR-GRADE COMPACT LAMINATE (HPL) SYSTEM.
METAL COMPOSITE MATERIAL (MCM).
METAL COMPOSITE MATERIAL (MCM) SYSTEM.
POLYPROPYLENE SIDING.
PORCELAIN TILE.
VENEER.
VINYL SIDING.
WATER-RESISTIVE BARRIER.

Add new text as follows:

1404.3 Air barriers. Air barrier materials shall comply with Section C402.5.1.2.1 of the *International Energy Conservation Code*. Air barrier assemblies shall comply with Section C402.5.1.2.2 of the *International Energy Conservation Code*.

1405.5 Air barrier installation. A continuous air barrier shall be provided in accordance with Section C402.5.1.1 of the *International Energy Conservation Code*.

Reason: To clarify the need for air-barriers in the construction of building envelope assemblies and coordinate with energy code provisions for air-barriers.
Air barriers should not just be a requirement for energy code compliance from the standpoint of controlling overall building air leakage. Air barriers also play an important role in controlling leakage of warm, moist air into building cavities where it can increase the risk of condensation on cold surfaces within a building envelope assembly. In this requard, air barriers should be considered to be at least as important as vapor retarders as addressed in current Section 1405.3 of the IBC. Thus, it is important to include a reference to air barriers in the IBC to recognize that air barriers are not just an energy code concern and are important to durable construction in the IBC. With the above purpose in mind, this proposal simply coordinates the IBC wall construction requirements with air-barrier requirments already found in the IECC (without any technical change). The definitions are directly from the IECC.

Bibliography: IECC 2015 Published May 30, 2014 Page 325
IECC 2015 Published May 30, 2014 Page 326

Cost Impact: Will increase the cost of construction
If a state has adopted the IECC 2012 or ASHRAE 90.1 2010, then there is no increase cost of construction. If a state has not adopted IECC 2012 or ASHRAE 90.1 2010, then adding a requirment for air barrier will increase the cost of construction by aproximately $4.00 per square foot of area. This cost is offset by reducing both building maintainance and building repair by an even greater amount over the life of the building.

FS 154-15 : 1402.1-DALGLEISH5452

FS 155-15

1404.12.2

Proponent: Matthew Dobson, representing Vinyl Siding Institute (mdobson@vinylsiding.org)

2015 International Building Code

Revise as follows:

1404.12.2 Fire separation distance. ~~The~~
Polypropylene siding shall not be installed on walls with a fire separation distance ~~between a building with polypropylene siding and the adjacent building shall be not~~of less than ~~10~~5 feet (~~3048~~1524 mm).

Exception: Walls perpendicular to the line used to determine the fire separation distance.

Reason: This is a clarification of where the limitation on polypropylene should apply. It should only apply to walls where the product is used and not the whole building. In many cases the product is used on front elevations or areas of high architectural interest. If the product is only used on a few walls only those walls should be counted and regulated by this provision.
Also, the perpendicular wall exception has been added because the exposure hazard being limited here typically will not create a problem as the exposure will not be facing the adjacent building.

Cost Impact: Will not increase the cost of construction
This change has no impact on cost as it simply clarifies where the product can be used relative to fire safety.

FS 155-15 : 1404.12.2-DOBSON5336

FS 156-15

202 (New), 1404.13 (New), Table 1405.2, 1405.15 (New), 1405.15.1 (New), Chapter 35

Proponent: Matthew Dobson, representing Vinyl Siding Institute

2015 International Building Code

Add new text as follows:

SECTION 202 DEFINITIONS

INSULATED VINYL SIDING A vinyl cladding product, with manufacturer-installed foam plastic insulating material as an integral part of the cladding product, having a thermal resistance of not less than R-2.

1404.13 Insulated Vinyl Siding. Insulated vinyl siding shall be certified and labeled as conforming to the requirements of ASTM D 7793 by an approved quality control agency.

TABLE 1405.2
MINIMUM THICKNESS OF WEATHER COVERINGS

COVERING TYPE	MINIMUM THICKNESS (inches)
Insulated Vinyl Siding	0.035 (vinyl siding layer only)

(Portions of table and footnotes not shown remain unchanged)

1405.15 Insulated vinyl siding. Insulated vinyl siding complying with ASTM D7793 shall comply with Section 1405.14.

1405.15.1 Insulated vinyl siding and accessories Insulated vinyl siding and accessories shall be installed in accordance with manufacturer's instructions

Add new standard(s) as follows: ASTM D7793-13 Standard Specification for Insulated Vinyl Siding

Reason: This proposal carries forward changes from the 2015 International Residential Code and 2015 International Energy Conservation Code. Insulated vinyl siding's ASTM standard was developed over the past few years and product is now being certified to this standard. It was not ready for adoption during the last cycle of the International Building Code.
Insulated vinyl siding, which is a form of insulated siding, is included in the 2015 International Energy Conservation Code among the materials that can be used as continuous insulation outside of the building framing to provide the required total wall R-value for buildings in the coldest climate zones.

The foam plastic used with insulated vinyl siding is required to meet the requirements of Chapter 26 of the IBC.

Installation practices, wind, and height limitations are the same for insulated vinyl siding as vinyl siding. Therefore we have referenced the installation section for vinyl siding for this area.

Cost Impact: Will not increase the cost of construction
This change standardizes a cladding and continuous insulation category and will provide additional options.

Analysis: A review of the standard proposed for inclusion in the code, ASTM D7793, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS 156-15 : 1404.13 (New)-DOBSON5330

FS 157-15

Table 1405.2

Proponent: Charles Clark, Jr, Brick Industry Association, representing Brick Industry Association (cclark@bia.org)

2015 International Building Code

Revise as follows:

TABLE 1405.2
MINIMUM THICKNESS OF WEATHER COVERINGS

COVERING TYPE	MINIMUM THICKNESS (inches)
Anchored masonry veneer	2.0 ~~2.625~~

(Portions of table and footnotes not shown remain unchanged)

Reason: For more than 30 years, the minimum nominal thickness of anchored masonry veneer allowed by the most prevalent residential model code available at the time has been 2 inches. The IRC has allowed a minimum nominal thickness of 2 inches since its inception in the year 2000. All editions of the CABO One and Two Family Dwelling Code in our office library that go back as far as the year 1983 have allowed a minimum nominal thickness of 2 inches. In short, anchored masonry veneer has performed well for thirty years with an allowable minimum nominal dimension of 2 inches on residential structures and should be permitted as the minimum dimension on all structures.

Cost Impact: Will not increase the cost of construction
This change will not result in an increase to the cost of construction. In fact, this change may result in a reduction in the cost of construction as brick shelves in foundations could be slightly smaller, lintels and shelf angles supporting brick could be slightly smaller, and the seismically-induced load of brick veneer would be slightly lower.

FS 157-15 : T1405.2-CLARK5503

FS 158-15

Table 1405.2

Proponent: Jason Thompson, representing National Concrete Masonry Association (jthompson@ncma.org)

2015 International Building Code

Revise as follows:

TABLE 1405.2
MINIMUM THICKNESS OF WEATHER COVERINGS

COVERING TYPE	MINIMUM THICKNESS (inches)
Adhered masonry veneer Architectural Cast Stone Other	 0.75 0.25
Anchored masonry veneer Stone (natural) Architectural Cast Stone Other	 2 1.25 2.625
~~Stone (cast artificial, anchored)~~	~~1.5~~
~~Stone (natural)~~	~~2~~

(Portions of table and footnotes not shown remain unchanged)

Reason: Table 1405.2 addresses several types of masonry veneer systems; including both anchored (attached to a backup system using ties or anchors) as well as adhered (bonded to a backup system using mortar or other approved adhesive material). This change proposes to reorganize the minimum veneer thickness requirements in Table 1405.2 to clarify which minimum thickness requirements apply to specific products depending upon whether they are used as an anchored or adhered veneer.

While mostly a reorganization, there are some minor substantive revisions proposed, including:

The term "stone (cast artificial)" is replaced with "architectural cast stone" as this is consistent with industry practices and the terminology used in Chapter 21.

A minimum thickness of 0.75 inches for adhered architectural cast stone products has been added. The default thickness of 0.25 inches for adhered veneer systems is not appropriate for architectural cast stone due to production, transportation, and installation constraints. The minimum thickness of 0.75 inches is consistent with industry practices and recommendations from the Cast Stone Institute.

The minimum thickness of anchored architectural cast stone is reduced slightly from 1.5 inches to 1.25 inches, also consistent with industry practices and recommendations from the Cast Stone Institute. While minor, the changes proposed here bring the requirements of Table 1405.2 in line with referenced standards and industry practice.

Cost Impact: Will not increase the cost of construction

The changes proposed are primarily to clarify the requirements of Table 1405.2 and make them consistent with referenced standards and industry recommendations.

FS 158-15 : T1405.2-THOMPSON5341

FS 159-15

1405.3

Proponent: Jay Crandell, representing Foam Sheathing Committee of the American Chemistry Council

2015 International Building Code

Revise as follows:

1405.3 Vapor retarders. Vapor retarders as described in Section 1405.3.3 shall be provided in accordance with Sections 1405.3.1 and 1405.3.2~~, or an~~. An approved design using accepted engineering practice for hygrothermal analysis shall be provided for any of the following conditions:

1. Buildings with high indoor moisture generation.
2. Exterior building envelope assemblies that are enclosed when the framing members or insulation materials exceed 19 percent moisture content.
3. Alternative means and methods to Sections 1405.3.1 and 1405.3.2.

Reason: This proposal establishes some basic (but important) conditions of use associated with the intended performance of the moisture vapor control provisions in the code. These concerns are consistently repeated in various studies, ASTM and ASHRAE guides, expert recommendations, and some state and local codes. Experience has shown that when one or more of these factors is "out of control", they are commonly associated with observed moisture problems in buildings or assemblies. Without these use conditions declared, the provisions of the code may be applied to conditions that they were not intended for and there is no means for enforcement to assist in avoiding such cases. Without these limitations specified (or as an alternative meeting the intent of this proposal), the moisture vapor control requirements should be revised to more specifically address variations in vapor retarder requirements with variations in use conditions and climate to avoid inadvertent misapplication.

Cost Impact: Will not increase the cost of construction
These requirements are already required by the intent of the code and are often done as a matter of good construction practice to control risk and reduce construction cost and business cost in the long run. These factors help control intial wall moisture content which also can reduce short term serviceability or "call-back" costs, such as nail pops or bowing walls.

FS 159-15 : 1405.3-CRANDELL5001

FS 160-15

1405.3.1

Proponent: Maureen Traxler, representing Seattle Dept of Planning & Development (maureen.traxler@seattle.gov)

2015 International Building Code

Revise as follows:

1405.3.1 Class I and II vapor retarders. Class I and II vapor retarders shall not be provided on the interior side of frame walls in Zones 1 and 2. Class I vapor retarders shall not be provided on the interior side of frame walls in Zones 3 and 4 other than Marine 4. Class I or II vapor retarders shall be provided on the interior side of frame walls in Zones 5, 6, 7, 8 and Marine 4. The appropriate zone shall be selected in accordance with Chapter 3 of the *International Energy Conservation Code*.

Exceptions:

1. Basement walls.
2. Below-grade portion of any wall.
3. Construction where moisture or its freezing will not damage the materials.
4. Conditions where Class III vapor retarders are required in Section 1405.3.2.

Reason: This proposal clarifies the vapor retarder requirement for Zone Marine 4. The second sentence of the paragraph forbids Class I vapor retarders on the interior side of walls in Zone 4, but the thrid sentence requires either Class I or II vapor retarder on the interior side in Zone Marine 4. We propose that the prohibition applies to Zone 4 except in Marine areas.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because it is a clarification of existing code language.

FS 160-15 : 1405.3.1-TRAXLER4695

FS 161-15

202 (New), Table 1405.3.2

Proponent: Matthew Dobson, representing Vinyl Siding Institute (mdobson@vinylsiding.org)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

CONTINUOUS INSULATION Insulating material that is continuous across all structural members without thermal bridges other than fasteners and service openings. It is installed on the interior or exterior or is integral to any opaque surface of the building envelope.

Revise as follows:

TABLE 1405.3.2
CLASS III VAPOR RETARDERS

ZONE	CLASS III VAPOR RETARDERS PERMITTED FOR:[a]
Marine 4	Vented cladding over wood structural panels Vented cladding over fiberboard Vented cladding over gypsum Continuous insulation~~Insulated sheathing~~ with *R*-value ≥ R2.5 over 2 × 4 wall Continuous Insulation~~Insulated sheathing~~ with *R*-value ≥ R3.75 over 2 × 6 wall
5	Vented cladding over wood structural panels Vented cladding over fiberboard Vented cladding over gypsum Continuous insulation~~Insulated sheathing~~ with *R*-value ≥ R5 over 2 × 4 wall Continuous insulation ~~Insulated sheathing~~ with *R*-value ≥ R7.5 over 2 × 6 wall
6	Vented cladding over fiberboard Vented cladding over gypsum Continuous insulation ~~Insulated sheathing~~ with *R*-value ≥ R7.5 over 2 × 4 wall Continuous insulation~~Insulated sheathing~~ with *R*-value ≥ R11.25 over 2 × 6 wall
7 and 8	Continuous insulation Insulated sheathingwith *R*-value ≥ R10 over 2 × 4 wall Continuous insulation~~Insulated sheathing~~ with *R*-value ≥ R15 over 2 × 6 wall

For SI: 1 pound per cubic foot = 16 kg/m^3 .

a. Spray foam with a minimum density of 2 lbs/ft^3 applied to the interior cavity side of wood structural panels, fiberboard, insulating sheathing or gypsum is deemed to meet the insulating sheathing requirement where the spray foam *R*-value meets or exceeds the specified insulating sheathing *R*-value.

Reason: This change makes the IBC constent with the term now defined and used in the IECC, continuous insulation.

Cost Impact: Will not increase the cost of construction
This is simply a correlation change.

FS 161-15 : T1405.3.2-DOBSON5372

FS 162-15

202, Table 1405.3.2

Proponent: Mike Fischer, Kellen Company, representing The Center for the Polyurethanes Industry of the American Chemistry Council and Polyisocyanurate Insulation Manufacturers Association (PIMA) (mfischer@kellencompany.com)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

~~**DEFINITIONS**~~**CONTINUOUS INSULATION (ci)** Insulating material that is continuous across all structural members without thermal bridges other than fasteners and service openings. It is installed on the interior or exterior or is integral to any opaque surface of the building envelope.

Revise as follows:

TABLE 1405.3.2
CLASS III VAPOR RETARDERS

ZONE	CLASS III VAPOR RETARDERS PERMITTED FOR:[a]
Marine 4	Vented cladding over wood structural panels Vented cladding over fiberboard Vented cladding over gypsum Continuous insulation~~Insulated sheathing~~ with *R*-value ≥ R2.5 over 2 × 4 wall Continuous insulation~~Insulated sheathing~~ with *R*-value ≥ R3.75 over 2 × 6 wall
5	Vented cladding over wood structural panels Vented cladding over fiberboard Vented cladding over gypsum Continuous insulation~~Insulated sheathing~~ with *R*-value ≥ R5 over 2 × 4 wall Continuous insulation~~Insulated sheathing~~ with *R*-value ≥ R7.5 over 2 × 6 wall
6	Vented cladding over fiberboard Vented cladding over gypsum Continuous insulation~~Insulated sheathing~~ with *R*-value ≥ R7.5 over 2 × 4 wall Continuous insulation Insulated ~~sheathing~~ with *R*-value ≥ R11.25 over 2 × 6 wall
7 and 8	Continuous insulation~~Insulated sheathing~~ with *R*-value ≥ R10 over 2 × 4 wall Continuous insulation~~Insulated sheathing~~ with *R*-value ≥ R15 over 2 × 6 wall

For SI: 1 pound per cubic foot = 16 kg/m^3 .

a. Spray foam with a maximum permeance of 1.5 perms at the installed thickness.~~minimum density of 2 lbs/ft^3~~applied to the interior cavity side of wood structural panels, fiberboard, insulating sheathing or gypsum is deemed to meet the continuous insulation ~~insulating sheathing~~ requirement where the spray foam *R*-value meets or exceeds the specified insulating sheathing *R*-value.

Reason: The 2015 International Codes have introduced a new term, continuous insulation, which has replaced the previous term "insulated sheathing"

in the codes. Insulated sheathing generally refers to a rigid board product; the intent of the product is to provide an insulation material that contains limited thermal bridging- particularly at framing members (see definition below). While all insulated sheathing meets the criteria for continuous insulation, not all continuous insulation is a "sheathing" product.
The proposal revises the table to broaden the available product solutions to include all types of continuous insulation in order to meet the intent of the code as it related to the appropriate use of vapor retarders, and adds the definition of continuous insulation from the IRC and IECC.

The proposal further modifies the footnote to remove the density requirement, and replace it with a vapor permeance requirement that more appropriately addresses the intent of the footnote.

These changes are consistent with changes made to the 2015 IRC, Table R702.7.1.

[RE] CONTINUOUS INSULATION (ci). Insulating material that is continuous across all structural members without thermal bridges other than fasteners and service openings. It is installed on the interior or exterior or is integral to any opaque surface of the building envelope.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification of current requirements.

FS 162-15 : T1405.3.2-FISCHER5432

FS 163-15

1405.3.4

Proponent: Matthew Dobson, representing Vinyl Siding Institute (mdobson@vinylsiding.org)

2015 International Building Code

Revise as follows:

1405.3.4 Minimum clear airspaces and vented openings for vented cladding. For the purposes of this section, vented cladding shall include the following minimum clear airspaces:

1. Vinyl, polypropylene, or insulated vinyl lap or horizontal aluminum siding applied over a weather-resistive barrier as specified in this chapter.
2. Brick veneer with a clear airspace as specified in this code.
3. Other *approved* vented claddings.

Reason: This change recognizes the similar characteristics polypropylene siding and insulated vinyl siding have to vinyl siding as vented cladding. Polypropylene siding is very similar to vinyl siding as it has similar profiles and is installed by hanging it on the wall.
Insulated vinyl siding has been studied closely and has shown to have as good if not better performance as a vented cladding like vinyl siding. Here is the link to this study: http://web.ornl.gov/sci/buildings/2012/2010%20B11%20papers/49_Drumheller.pdf.

Bibliography: http://web.ornl.gov/sci/buildings/2012/2010%20B11%20papers/49_Drumheller.pdf

Cost Impact: Will not increase the cost of construction
This a simple recognition of performance, it will not impact cost.

FS 163-15 : 1405.3.4-DOBSON5384

FS 164-15

1405.4, Chapter 35

Proponent: Theresa Weston, DuPont Building Innovations, representing DuPont Building Innovations (theresa.a.weston@usa.dupont.com)

2015 International Building Code

Revise as follows:

1405.4 Flashing. Flashing shall be installed in such a manner so as to prevent moisture from entering the wall or to redirect that moisture to the exterior. Flashing shall be installed at the perimeters of exterior door and window assemblies, penetrations and terminations of *exterior wall* assemblies, *exterior wall* intersections with roofs, chimneys, porches, decks, balconies and similar projections and at built-in gutters and similar locations where moisture could enter the wall. Flashing with projecting flanges shall be installed on both sides and the ends of copings, under sills and continuously above projecting *trim*. <u>When self-adhered membranes are used as flashings, those self-adhered flashings shall comply with AAMA 711.</u>

Add new standard(s) as follows:

<u>AAMA 711-13 Voluntary Specification for Self Adhering Flashing Used for Installation of Exterior Wall Fenestration Products</u>

Reason: Self-adhered membranes are a growing segment of the flashing material market, but no material property or performance requirements for these materials are currently included in the code. AAMA 711 was developed to insure that this type of material meet minimum performance specifications. This proposal incorporates this industry standard by reference into the code, as was previously done in the 2012 International Residential Code. The properties and quality of flashing materials are crucial to successful implementation of the water management in wall systems.

Cost Impact: Will not increase the cost of construction
The proposal does not mandate the use of a specific material, and therefore does not increase code requirements or associated costs.

Analysis: A review of the standard proposed for inclusion in the code, AAMA 711, with regard to the ICC criteria for referenced stanards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS 164-15 : 1405.4-WESTON5390

FS 165-15

1405.4, Chapter 35

Proponent: Theresa Weston, DuPont Building Innovations, representing DuPont Building Innovations (theresa.a.weston@usa.dupont.com)

2015 International Building Code

Revise as follows:

1405.4 Flashing. Flashing shall be installed in such a manner so as to prevent moisture from entering the wall or to redirect that moisture to the exterior. Flashing shall be installed at the perimeters of exterior door and window assemblies, penetrations and terminations of *exterior wall* assemblies, *exterior wall* intersections with roofs, chimneys, porches, decks, balconies and similar projections and at built-in gutters and similar locations where moisture could enter the wall. Flashing with projecting flanges shall be installed on both sides and the ends of copings, under sills and continuously above projecting *trim*. <u>When fluid applied membranes are used as flashing, those fluid applied membrane flashings shall comply with AAMA 714.</u>

Add new standard(s) as follows:

<u>AAMA 714-15 Voluntary Specification for Liquid Applied Flashing Used to Create a Water-Resistive Seal around Exterior Wall Openings in Buildings</u>

Reason: Fluid applied membranes are gaining in use in the market, but no material property or performance requirements for these materials are currently included in the code. Industry has developed standard AAMA 714 to insure that this type of material meets minimum performance specificatons. This proposal incorporates AAMA 714 by reference into the code. The properties and quality of flashing materials are crucial to the successful implementation of the water management in building envelopes.

Cost Impact: Will not increase the cost of construction
This proposal does not mandate the use of any material, and therefore does not increase code requirements or have associated costs.

Analysis: A review of the standard proposed for inclusion in the code, AAMA 714, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FS 165-15 : 1405.4-WESTON5633

FS 166-15

1405.4.2

Proponent: Charles Clark, Jr, representing Masonry Alliance for Codes and Standards (cclark@bia.org)

2015 International Building Code

Revise as follows:

1405.4.2 Masonry. Flashing and weep holes in anchored veneer designed in accordance with Section 1405.6 shall be located ~~in the first course of masonry~~not more than 16 inches (407 mm) above finished ground level above the foundation wall or slab~~, and~~. At other points of support, including structural floors, shelf angles and lintels~~ where anchored veneers are designed~~, flashing and weep holes shall be located in ~~accordance with Section 1405.6.~~the first course of masonry above the support.

Reason: Far too often, flashing and weep holes in anchored masonry veneer are located in the base of the wall such that they end up below the finished grade making them ineffective. This code change removes the text that indicates that they must be installed in the first course above grade at the base of a wall and instead requires that they be installed within a minimum distance above the finished grade. Flashing and weep holes supported on shelf angles or lintels would still be required to be in the first course of masonry located immediately above the support.

Cost Impact: Will not increase the cost of construction
If anything, this should lower the cost of construction as it would alleviate relocation of the grade to ensure that flashing and weep holes are indeed above grade.

FS 166-15 : 1405.4.2-CLARK5529

FS 167-15

1406.3, 2612.5

Proponent: John Woestman, Kellen Company, representing Composite Lumber Manufacturers Association (CLMA) (jwoestman@kellencompany.com)

2015 International Building Code

Revise as follows:

1406.3 Balconies and similar projections. Balconies and similar projections of combustible construction other than fire-retardant-treated wood shall be fire-resistance rated where required by Table 601 for floor construction or shall be of Type IV construction in accordance with Section 602.4. The aggregate length of the projections shall not exceed 50 percent of the building's perimeter on each floor.

Exceptions:

1. On buildings of Type I and II construction, three stories or less above *grade plane*, *fire-retardant-treated wood* shall be permitted for balconies, porches, decks and exterior stairways not used as required exits.
2. Untreated wood ~~is~~, and plastic composites that comply with ASTM D7032 and Section 2612, are permitted for pickets and rails or similar guardrail devices that are limited to 42 inches (1067 mm) in height.
3. Balconies and similar projections on buildings of Type III, IV and V construction shall be permitted to be of Type V construction, and shall not be required to have a *fire-resistance rating* where sprinkler protection is extended to these areas.
4. Where sprinkler protection is extended to the balcony areas, the aggregate length of the balcony on each floor shall not be limited.

2612.5 Construction requirements. Plastic composites meeting the requirements of Section 2612 shall be permitted to be used as exterior deck boards, stair treads, handrails and guards ~~in buildings of Type VB~~where combustible construction is permitted.

Reason: In Section 1406.3, plastic composites which comply with ASTM D7032 and Section 2612.3 are required to be tested to ASTM E84 and achieve a flame spread index of not more than 200. While most untreated wood has an ASTM E84 flame spread index below 200, a few species of untreated wood has a FSI of potentially over 200 (Ponderosa Pine, Northern White Pine), and a few species have FSI approaching 200 (Southern Pine, Poplar). Source: http://www.fpl.fs.fed.us/documnts/fplgtr/fplgtr190/chapter_18.pdf. This proposal, in 1406.3, seeks to allow plastic composites meeting the specified criteria to be used in the same applications where untreated wood may be used in balcony construction.
Regarding Section 2612.5: In the IBC, there are several specific exterior applications where combustible construction is allowed, or where noncombustible construction is not required, with buildings of other than Type VB. This proposal seeks to allow plastic composites which comply with the requirements of Section 2612 in those applications. IBC Section 1403.6 Balconies, is one of those applications. IBC 3104.3 Pedestrian walkways, is another.

Cost Impact: Will not increase the cost of construction
No mandatory cost increase. This proposal would allow additional materials (plastic composites) to be used in several specific applications. It may be noted plastic composites generally cost more than wood but the use of plastic composites is at the discretion of the building owner.

FS 167-15 : 1406.3-WOESTMAN5573

FS 168-15

1409.2

Proponent: Jesse Beitel, representing Trespa NA (jbeitel@haifire.com)

2015 International Building Code

Revise as follows:

1409.2 Exterior wall finish. HPL used as exterior wall covering or as elements of balconies and similar projections and bay and oriel windows to provide cladding or weather resistance shall comply with Sections 1409.4 ~~and~~ through 1409.14.

Reason: This code proposal is a correction to the original proposal. When the Section for High Pressure Laminates was added to the IBC via FS164-09/10, there was an error in the submitted proposal. In the reason statement, it was stated that FS164 was to add language for HPL the paralled Section 1407. Section 1407.2 reads "....shall comply with Sections 1407.4 through 1407.14." The error that occurred in Section 1409.2 was "......shall comply with Sections 1407.4 and 1407.14." In both the 2012 and the 2015 Codes the "and" is used versus the "through" which was the original intent. The use of the "and" eliminates fire testing, etc. that are needed for the application of the HPLs.
Currently HPL manufacturers do use the "through" intent to evaluate their products.

Cost Impact: Will not increase the cost of construction
The manufacturers of the HPLs currently test as if the "through" was in the code.

FS 168-15 : 1409.2-BEITEL5352

FS 169-15

2603.3

Proponent: Mike Fischer, Kellen Company, representing The Center for the Polyurethanes (mfischer@kellencompany.com)

2015 International Building Code

Revise as follows:

2603.3 Surface-burning characteristics. Unless otherwise indicated in this section, foam plastic insulation and foam plastic cores of manufactured assemblies shall have a flame spread index of not more than 75 and a smoke-developed index of not more than 450 where tested in the maximum thickness intended for use in accordance with ASTM E 84 or UL 723. Loose fill-type foam plastic insulation shall be tested as board stock for the flame spread and smoke-developed indexes.

Exceptions:

1. Smoke-developed index for interior *trim* as provided for in Section 2604.2.
2. In cold storage buildings, ice plants, food plants, food processing rooms and similar areas, foam plastic insulation where tested in a thickness of 4 inches (102 mm) shall be permitted in a thickness up to 10 inches (254 mm) where the building is equipped throughout with an automatic fire sprinkler system in accordance with Section 903.3.1.1. The approved *automatic sprinkler system* shall be provided in both the room and that part of the building in which the room is located.
3. Foam plastic insulation that is a part of a Class A, B or C roof-covering assembly provided the assembly with the foam plastic insulation satisfactorily passes NFPA 276 or UL 1256. The smoke-developed index shall not be limited for roof applications.
4. Foam plastic insulation greater than 4 inches (102 mm) in thickness shall have a maximum flame spread index of 75 and a smoke-developed index of 450 where tested at a minimum thickness of 4 inches (102 mm), provided the end use is approved in accordance with Section 2603.9 using the <u>maximum </u>thickness and density intended for use.
5. Flame spread and smoke-developed indexes for foam plastic interior signs in *covered and open mall buildings* provided the signs comply with Section 402.6.4.

Reason: This change is a clarification only; it provides consistency with the IRC and clarifies that testing at a maximum thickness is appropriately applied to installations of thicknesses at or less than the tested specimen.

Cost Impact: Will not increase the cost of construction
The change is a clarification only; it does not add in new requirements.

FS 169-15 : 2603.3-FISCHER5446

FS 170-15

2603.3

Proponent: Samir Mokashi (samir.mokashi@codeul.com); Avery Lindeman, Green Science Policy Institute, representing Green Science Policy Institute (avery@greensciencepolicy.org); Veena Singla, Natural Resources Defense Council, representing Natural Resources Defense Council (vsingla@nrdc.org); Bruce Hammond, Hammond & Company Inc., representing Hammond & Company, Inc. (bruce@hammondandcompany.com); Tom Lent, Healthy Building Network, representing Healthy Building Network (tlent@healthybuilding.net); Nancy Hulsey, HKS, Inc. , representing HKS, Inc. (nhulsey@hksinc.com); Joshua Klyber (JoshuaKlyber@gmail.com); Vytenis Babrauskas, Fire Science & Technology Inc., representing Fire Science & Technology Inc.; Robin Guenther, representing Perkins+Will (robin.guenther@perkinswill.com); David Eisenberg, Development Center for Appropriate Technology, representing Development Center for Appropriate Technology (strawnet@gmail.com); Marjorie Smith, Siegel & Strain Architects, representing Siegel & Strain Architects (Msmith@siegelstrain.com); Stacia Miller, International Living Future Institute, representing International Living Future Institute (stacia.miller@living-future.org); Clark Brockman, SERA Architects, Inc., representing SERA Architects, Inc. (clarkb@serapdx.com); Larry Strain, representing Siegel & Strain Architects (lstrain@siegelstrain.com); Russ Pitkin, SERA Architects, Inc., representing SERA Architects, Inc; Kathy Gerwig, Kaiser Permanente (kathy.gerwig@kp.org); Tony Stefani, representing San Francisco Firefighters Cancer Prevention Foundation; Dennis Murphy, USGBC California, representing USGBC California (dennis@usgbc-california.org); Martin Hammer, representing Martin Hammer, Architect (mfhammer@pacbell.net)

2015 International Building Code

Revise as follows:

2603.3 Surface-burning characteristics. Unless otherwise indicated in this section, foam plastic insulation and foam plastic cores of manufactured assemblies shall have a flame spread index of not more than 75 and a smoke-developed index of not more than 450 where tested in the maximum thickness intended for use in accordance with ASTM E 84 or UL 723. Loose fill-type foam plastic insulation shall be tested as board stock for the flame spread and smoke-developed indexes.

Exceptions:

1. Smoke-developed index for interior *trim* as provided for in Section 2604.2.
2. In cold storage buildings, ice plants, food plants, food processing rooms and similar areas, foam plastic insulation where tested in a thickness of 4 inches (102 mm) shall be permitted in a thickness up to 10 inches (254 mm) where the building is equipped throughout with an automatic fire sprinkler system in accordance with Section 903.3.1.1. The approved *automatic sprinkler system* shall be provided in both the room and that part of the building in which the room is located.
3. Foam plastic insulation that is a part of a Class A, B or C roof-covering assembly provided the assembly with the foam plastic insulation satisfactorily passes NFPA 276 or UL 1256. The smoke-developed index shall not be limited for roof applications.
4. Foam plastic insulation greater than 4 inches (102 mm) in thickness shall have a maximum flame spread index of 75 and a smoke-developed index of 450 where tested at a minimum thickness of 4 inches (102 mm), provided the end use is approved in accordance with Section 2603.9 using the thickness and density intended for use.
5. Flame spread and smoke-developed indexes for foam plastic interior signs in *covered and open mall buildings* provided the signs comply with Section 402.6.4.
6. <u>Foam plastic insulation located between a concrete slab on grade and its subgrade. Such insulation shall also be exempt from the limiting oxygen index (LOI) requirements of ASTM C578.</u>

Reason: This proposal exempts foam plastic insulation used between a concrete slab on grade and its subgrade from the flame spread index (FSI) and smoke-developed index (SDI) requirements of Section 2603.3 and from the limiting oxygen index (LOI) criteria of ASTM C578. This will maintain building fire safety while reducing the health and environmental impacts of toxic or potentially toxic flame retardant chemicals, and it will increase consumer choice.

Ignition and propagation of fire requires three elements: fuel, an ignition source, and oxygen. The proposed exemption from FSI, SDI, and LOI requirements applies only to foam plastic insulation protected between a concrete slab on grade and its subgrade, where there is no significant exposure to ignition sources or oxygen. Since the foam plastic insulation will not burn under these conditions, the provisions of Section 2603.3, which limit the surface burning characteristics (FSI and SDI) of foam plastic insulation, are not relevant and provide no fire safety benefit. Similarly, there is no fire safety benefit from meeting the limiting oxygen index (LOI) criteria in ASTM C578. FSI, SDI, and LOI requirements are unnecessary for below-grade uses of foam plastic insulation, where the elements required for a fire do not exist. However, the flame retardants used in foam plastic insulation to meet these requirements pose a significant hazard to human health and ecosystems.

The proposed change does not require additional protection at slab joints or penetrations beyond those required by other applicable code provisions. At these locations it is highly unlikely that foam plastic insulation will be exposed to an ignition source, and if a portion of the insulation were somehow exposed, there would not be sufficient oxygen to propagate fire. Other slab-on-grade insulation that is not substantially covered by the slab, such as insulation between a slab edge and a foundation wall, is not covered by the proposed exception, and must comply with Section 2603.3 as well as Section 2603.4 (thermal barriers).

Satisfying the FSI, SDI, and LOI criteria typically requires the addition of flame retardants to foam plastic insulation. During manufacture and installation, workers are likely to be exposed to these flame retardants, which have been associated with neurological and reproductive impairments, hormonal and immune problems, and cancer. These flame retardants are released into the environment during manufacture, demolition, and disposal, and they will eventually migrate out of landfills and other repositories. When thermally processed or burned (for instance, in an incinerator or a landfill), insulation containing halogenated flame retardants can generate highly persistent and toxic halogenated dioxins and furans and other toxic combustion byproducts. Exposure to these dioxins and furans has been associated with cancer and other human health and ecological harm.

HBCD (hexabromocyclododecane) is the flame retardant used most commonly in polystyrene insulation, a typical variety of foam plastic insulation used below-grade. In 2013 under the Stockholm Convention, over 150 countries agreed to eliminate HBCD from the global marketplace due to its persistence and toxicity. The chemical alternatives to HBCD are also highly persistent halogenated flame retardants and are expected to have some comparable adverse human health and ecological impacts. Reducing the unnecessary use of harmful flame retardants will reduce exposure and harm to construction workers, emergency responders, the general public, and ecosystems.

The proposed change does not prohibit the use of flame retardants in foam plastic insulation. Instead, it describes conditions under which foam plastic insulation without added flame retardants can be used safely in buildings.

It is envisioned that insulation without flame retardants for use as described in this proposed exception would require labeling that complies with Section 2603.2. This labeling would be the responsibility of the insulation manufacturer, in the same way that it is currently the manufacturer's responsibility to properly label foam plastic insulation for the end uses described in Exceptions 1 through 5 of Section 2603.3.

This code change will maintain fire safety, reduce the adverse health and environmental impacts of toxic flame retardants used in foam plastic insulation, and expand consumer choice.

Cost Impact: Will not increase the cost of construction
The proposed code change will not require any action that increases construction costs since it does not mandate any change from current practice. Utilizing the proposed code change would not require any alteration to design or construction practices. The proposed change would enable voluntary manufacture and use of alternative foam plastic insulation products that do not contain flame retardant chemicals. The cost of using these alternative insulation products may be higher, lower, or the same as the cost of using currently available insulation depending on formulation costs, production volumes, consumer demand, and level of competition.

FS 170-15 : 2603.3-LINDEMAN3804

FS 171-15

2603.3

Proponent: Samir Mokashi (samir.mokashi@codeul.com); Avery Lindeman, Green Science Policy Institute, representing Green Science Policy Institute (avery@greensciencepolicy.org); Veena Singla, Natural Resources Defense Council, representing Natural Resources Defense Council (vsingla@nrdc.org); Vytenis Babrauskas, Fire Science & Technology Inc., representing Fire Science & Technology Inc.; Tom Lent, Healthy Building Network, representing Healthy Building Network (tlent@healthybuilding.net); Tony Stefani, representing San Francisco Firefighters Cancer Prevention Foundation (stefanit@sbcglobal.net); Bruce Hammond, Hammond & Company Inc., representing Hammond & Company Inc. (bruce@hammondandcompany.com); Nancy Hulsey, HKS, Inc., representing HKS, Inc. (nhulsey@hksinc.com); Joshua Klyber (JoshuaKlyber@gmail.com); Robin Guenther, representing Perkins+Will (robin.guenther@perkinswill.com); David Eisenberg, Development Center for Appropriate Technology, representing Development Center for Appropriate Technology (strawnet@gmail.com); Marjorie Smith, Siegel & Strain Architects, representing Siegel & Strain Architects (Msmith@siegelstrain.com); Stacia Miller, International Living Future Institute, representing International Living Future Institute (stacia.miller@living-future.org); Clark Brockman, SERA Architects, Inc., representing SERA Architects, Inc. (clarkb@serapdx.com); Larry Strain, representing Siegel& Strain Architects (lstrain@siegelstrain.com); Russ Pitkin, SERA Architects, Inc., representing SERA Architects, Inc.; Kathy Gerwig, representing Kaiser Permanente; Dennis Murphy, USGBC California, representing USGBC California (dennis@usgbc-california.org); Martin Hammer, representing Martin Hammer, Architect (mfhammer@pacbell.net)

2015 International Building Code

Revise as follows:

2603.3 Surface-burning characteristics. Unless otherwise indicated in this section, foam plastic insulation and foam plastic cores of manufactured assemblies shall have a flame spread index of not more than 75 and a smoke-developed index of not more than 450 where tested in the maximum thickness intended for use in accordance with ASTM E 84 or UL 723. Loose fill-type foam plastic insulation shall be tested as board stock for the flame spread and smoke-developed indexes.

Exceptions:

1. Smoke-developed index for interior *trim* as provided for in Section 2604.2.
2. In cold storage buildings, ice plants, food plants, food processing rooms and similar areas, foam plastic insulation where tested in a thickness of 4 inches (102 mm) shall be permitted in a thickness up to 10 inches (254 mm) where the building is equipped throughout with an automatic fire sprinkler system in accordance with Section 903.3.1.1. The approved *automatic sprinkler system* shall be provided in both the room and that part of the building in which the room is located.
3. Foam plastic insulation that is a part of a Class A, B or C roof-covering assembly provided the assembly with the foam plastic insulation satisfactorily passes NFPA 276 or UL 1256. The smoke-developed index shall not be limited for roof applications.
4. Foam plastic insulation greater than 4 inches (102 mm) in thickness shall have a maximum flame spread index of 75 and a smoke-developed index of 450 where tested at a minimum thickness of 4 inches (102 mm), provided the end use is approved in accordance with Section 2603.9 using the thickness and density intended for use.
5. Flame spread and smoke-developed indexes for foam plastic interior signs in *covered and open mall buildings* provided the signs comply with Section 402.6.4.
6. Foam plastic insulation located a minimum of 6 inches (152 mm) below finished grade and separated from building interiors by a masonry or concrete wall or foundation. Such insulation shall also be exempt from the limiting oxygen index (LOI) requirements of ASTM C578.

Reason: This proposal exempts foam plastic insulation used below grade and separated from the building interior from the flame spread index (FSI) and smoke-developed index (SDI) requirements of Section 2603.3 and from the limiting oxygen index (LOI) criteria of ASTM C578. This will maintain building fire safety while reducing the health and environmental impacts of toxic or potentially toxic flame retardant chemicals, and it will increase consumer choice.

Ignition and propagation of fire requires three elements: fuel, an ignition source, and oxygen. The proposed exemption from FSI, SDI, and LOI requirements applies only to foam plastic insulation that is at least 6 inches below finish grade, where there is no significant exposure to ignition sources or oxygen. Since the foam plastic insulation will not burn under these conditions, the provisions of Section 2603.3, that limit surface burning characteristics (FSI and SDI) of foam plastic insulation, are not relevant and provide no fire safety benefit. Similarly, there is no fire safety benefit from meeting the limiting oxygen index (LOI) criteria in ASTM C578. FSI, SDI, and LOI requirements are unnecessary for below-grade uses of foam plastic insulation, where the elements required for a fire do not exist. However, the flame retardants used in foam plastic insulation to meet these requirements pose a significant hazard to human health and ecosystems.

The proposed change does not require additional protection at below-grade wall penetrations beyond those required by other applicable code provisions. At these locations it is highly unlikely that foam plastic insulation on the exterior side of the wall will be exposed to an ignition source, and if a portion of the insulation were somehow exposed, there would not be sufficient oxygen to propagate fire.

Satisfying the FSI, SDI, and LOI criteria typically requires the addition of flame retardants to foam plastic insulation. During manufacture and installation, workers are likely to be exposed to these flame retardants, which have been associated with neurological and reproductive impairments, hormonal and immune problems, and cancer. These flame retardants are released into the environment during manufacture, demolition, and disposal, and they will eventually migrate out of landfills and other repositories. When thermally processed or burned (for instance, in an incinerator or a landfill), insulation containing halogenated flame retardants can generate highly persistent and toxic halogenated dioxins and furans and other toxic combustion byproducts. Exposure to these dioxins and furans has been associated with cancer and other human health and ecological harm.

HBCD (hexabromocyclododecane) is the flame retardant used most commonly in polystyrene insulation, a typical variety of foam plastic insulation used below-grade. In 2013 under the Stockholm Convention, over 150 countries agreed to eliminate HBCD from the global marketplace due to its persistence and toxicity. The chemical alternatives to HBCD are also highly persistent halogenated flame retardants and are expected to have some comparable adverse health and ecological impacts. Reducing the unnecessary use of harmful flame retardants will reduce exposure and harm to construction workers, emergency responders, the general public, and ecosystems.

The proposed change does not prohibit the use of flame retardants in foam plastic insulation. Instead, it describes conditions under which foam plastic insulation without flame retardants can be used safely in buildings. This change would include below-grade insulation placed horizontally for frost-protected shallow foundations per Section 1809.5(2); such insulation must also comply with the insulation protection requirements of this section and the referenced standard ASCE 32.

It is envisioned that insulation without flame retardants for use as described in this proposed exception would require labeling that complies with Section 2603.2. This labeling would be the responsibility of the insulation manufacturer, in the same way that it is currently the manufacturer's responsibility to properly label foam plastic insulation for the end uses described in Exceptions 1 through 5 of Section 2603.3.

This code change will maintain fire safety, reduce the adverse health and environmental impacts of toxic flame retardants used in foam plastic insulation, and expand consumer choice.

Cost Impact: Will not increase the cost of construction
The proposed code change will not require any action that increases construction costs since it does not mandate any change from current practice. Utilizing the proposed code change would not require any alteration to design or construction practices. The proposed change would enable voluntary manufacture and use of alternative foam plastic insulation products that do not contain flame retardant chemicals. The cost of using these alternative insulation products may be higher, lower, or the same as the cost of using currently available insulation depending on formulation costs, production volumes, consumer demand, and level of competition.

FS 171-15 : 2603.3-LINDEMAN3805

FS 172-15

2603.4

Proponent: Marcelo Hirschler, representing GBH International (gbhint@aol.com)

2015 International Building Code

Revise as follows:

2603.4 Thermal barrier. Except as provided for in Sections 2603.4.1 and 2603.9, foam plastic shall be separated from the interior of a building by an approved thermal barrier of $^{1}/_{2}$-inch (12.7 mm) gypsum wallboard, heavy timber in accordance with Section 602.4, or a material that is tested in accordance with and meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275. Combustible concealed spaces shall comply with Section 718.

Reason: Thermal barriers are materials that comply with NFPA 275. In order to comply with NFPA 275 thermal barrier materials (in combination with the foam plastic insulation they are supposed to protect) are supposed to resist flashover after exposure to a room-corner test (using a test specimen that covers 3 walls and the ceiling of an 8 ft. by 12 ft. by 8 ft. room) such as NFPA 286, as well as comply with a number of other requirements (peak heat release rate of no more than 800 kW, flames that don't reach the extremities of the test specimen, total smoke release of no more than 1,000 m^2). As an alternative to testing to NFPA 286 the thermal barriers are allowed to be tested to FM 4880, UL 1040 or UL 1715, all severe large scale tests.

Beyond the test just mentioned, thermal barriers must also be able to pass a fire resistance test using a time-temperature curve like the one in ASTM E119 for 15 minutes.

It is clear (and fire test data have shown this) that thin wood panel materials will not comply with these requirements, because if a thin wood panel, covering a foam plastic insulation material, is exposed to the fire source in NFPA 286, it will reach flashover well before the end of the 15 minute test period.

Discussions held during the IRC hearings for the 2015 edition addressed the interest by some proponents that a wood material be permitted to be used as a thermal barrier without testing. Therefore, this proposal suggests that heavy timber is a wood material that could safely be used as a thermal barrier, while thin wood panels are not appropriate thermal barriers.

Cost Impact: Will not increase the cost of construction
This provides an alternate option for use as a thermal barrier and does not mandate any material.

FS 172-15 : 2603.4-HIRSCHLER4580

FS 173-15

2603.5.5

Proponent: John Woestman, Kellen Company, representing Extruded Polystyrene Foam Association (XPSA) (jwoestman@kellencompany.com)

2015 International Building Code

Revise as follows:

2603.5.5 Vertical and lateral fire propagation. The exterior wall assembly shall be tested in accordance with and comply with the acceptance criteria of NFPA 285 and the foam plastic insulation shall comply with the provisions of Section 2603.5.4.

Exceptions:

1. One-story buildings complying with Section 2603.4.1.4.
2. Wall assemblies where the foam plastic insulation is covered on each face by not less than 1-inch (25 mm) thickness of masonry or concrete and meeting one of the following:
    2.1. There is no airspace between the insulation and the concrete or masonry.
    2.2. The insulation has a flame spread index of not more than 25 as determined in accordance with ASTM E 84 or UL 723 and the maximum airspace between the insulation and the concrete or masonry is not more than 1 inch (25 mm).

Reason: This proposed code change clarifies the existing dual requirement of a satisfactory NFPA 285 test in Section 2603.5.5 and an ASTM E 84 / UL 723 test in Section 2603.5.4. This proposal does not add any additional test requirements to the code. There is currently a misunderstanding in the market that a foam plastic insulation material which would not meet the ASTM E84 Class A performance requirements is allowed by the code to be used in an assembly which has passed the NFPA 285 assembly fire test. This proposal clarifies the applicability of the code provisions of 2603.5.4, by requiring a Class A material in an NFPA 285 assembly.

Cost Impact: Will not increase the cost of construction
No cost increase. Proposed change reinforces current code requirement.

FS 173-15 : 2603.5.5-WOESTMAN5564

FS 174-15

2603.5.5

Proponent: Henry Green, National Institute of Building Sciences, representing National Institute of Building Sciences (hgreen@nibs.org)

2015 International Building Code

Revise as follows:

2603.5.5 Vertical and lateral fire propagation. The exterior wall assembly shall be tested in accordance with and comply with the acceptance criteria of NFPA 285.

Exceptions:

1. One-story buildings complying with Section 2603.4.1.4.
2. Wall assemblies where the foam plastic insulation is covered on each face by not less than 1-inch (25 mm) thickness of masonry or concrete and meeting one of the following:
   - 2.1. There is no airspace between the insulation and the concrete or masonry.
   - 2.2. The insulation has a flame spread index of not more than 25 as determined in accordance with ASTM E 84 or UL 723 and the maximum airspace between the insulation and the concrete or masonry is not more than 1 inch (25 mm).

3. In other than *high rise building*, buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1

Reason: Currently, Section 2603.5 requires all foam plastic exterior insulation materials to conform to the limits of NFPA 285. This test replicates the response of materials to a fire extending through an exterior window of a building. The code does not differentiate as to whether there is a potential for such a fire to occur in a building. Flashover fires that would cause the flame to break out of the building will not occur in a building that has a fully operational sprinkler system.

Cost Impact: Will not increase the cost of construction
This proposal would establish an exception to the testing requirement thus reducing the cost of construction for buildings that fall under the exception. It will have no impact on buildings not subject to the exception.

FS 174-15 : 2603.5.5-GREEN5435

FS 175-15

2603.5.8 (New)

Proponent: Mike Fischer, Kellen Company, representing the Center for the Polyurethanes Industry of the American Chemistry Council (mfischer@kellencompany.com)

2015 International Building Code

Add new text as follows:

2603.5.8 Concealed spaces. Concealed spaces of exterior walls and exterior wall coverings shall comply with Section 718.

Reason: This proposal seeks to provide language referencing the Section 718 fireblocking requirements for concealed spaces of exterior walls and exterior wall coverings.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification and adds no new requirements.

FS 175-15 : 2603.5.8 (New)-FISCHER5521

FS 176-15

2603.6 (New)

Proponent: Anthony Apfelbeck, City of Altamonte Building/Fire Safety, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Building Code

Add new text as follows:

2603.6 Exterior Walls Foam plastic in thicknesses of ½ inch (12.7 mm) or greater on exterior walls shall be separated from the exterior of a building by an approved thermal barrier consisting of one of the following:

1. Minimum 1/2-inch (12.7 mm) gypsum wallboard.
2. A material that is tested in accordance with and meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275.
3. Minimum ½ in. thick exterior wall coverings of:

    Concrete, stone or masonry veneer,
    Fiber cement siding,
    Hardboard siding,
    Particle board,
    Wood siding, or
    Wood structural panel.

Reason: Historically the IBC required foam plastic insulation to be protected from the interior by a thermal barrier, such as ½ in. gypsum wallboard (2603.4). This provided an acceptable level of fire performance from a fire originating within the home. There are no requirements to provide a thermal barrier to protect the insulation from an exterior fire because foam plastic insulation in the wall cavity would typically be protected by a ½ in. OSB attached to the exterior of the wall studs which serves as a shear wall.
Energy efficiency requirements now require exterior walls to include higher R-values, which is often provided by continuous insulation in the form of foam board stock attached on the outside of the shear wall. The only covering provided over the insulation is typically a thin water barrier and exterior siding, such as vinyl siding.

Fire test experiments conducted by UL http://www.youtube.com/watch?v=K8pGUULE3Xc (a compelling seven minute video) compare the fire performance between traditional residential exterior wall constructions with no continuous insulation outside of the exterior ½ in. OSB shear wall, versus two constructions with ½ in. and 1 in. polystyrene foam continuous insulation with vinyl exterior wall covering. When subjected to a small exterior fire, similar to that produced by a gas grill, the two wall constructions with exterior continuous insulation performed badly. In one case the fire extended up the wall and into the attic vents in 1:51 minutes, and in the other case the fire fully involved the exterior wall and the roofing became involved in just over two minutes. In a real life fire, the home would be totally involved before the first responding engine company could be expected to arrive, assuming they were notified when the fire first impinged on the wall.

This proposal requires foam insulation on exterior walls in thickness ½ in. or greater (the same min. thickness in the UL fire experiments) to be protected from the exterior of the building by an approved thermal barrier that complies with Section 2603.4 requirements (items 1 and 2) or min. ½ in. thick exterior wall coverings with comparable thermal transmission properties.

Bibliography: UL Fire Test Demonstration Video:
http://www.youtube.com/watch?v=K8pGUULE3Xc

Cost Impact: Will increase the cost of construction
The proposal is not likely to increase the cost of construction if one of the exterior sidings described in the proposal is used. The cost of construction is likely to increase if a siding not described in the proposal is used, and an additional thermal barrier is required under that siding.

FS 176-15 : 2603.6 (New)-APFELBECK3714

FS 177-15

202 (New), , 2603.6 (New), 2603.6.1 (New), 2603.6.2 (New), 2603.6.3 (New)

Proponent: Mike Fischer, Kellen Company, representing the Center for the Polyurethanes Industry of the American Chemistry Council (mfischer@kellencompany.com)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

BUILDING ELEMENT. A building assembly used to determine the construction classification that is a primary structural frame, a wall or partition, or a floor or roof assembly and the associated structural members.

SECTION 202 DEFINITIONS

BUILDING ELEMENT, INTERIOR. A building element that is not part of an exterior wall or roof assembly.

SECTION 202 DEFINITIONS

INTERIOR BUILDING ELEMENT. See "Building Element, Interior"

Add new text as follows:

2603.6 Interior building elements. Interior building elements of all Construction Types shall comply with Sections 2603.2 through 2603.4 and Sections 2603.6.1 through 2603.6.3.

2603.6.1 Fire resistant rated constuction Where interior building elements are required to have a fire-resistance rating, substantiation of the fire-resistance rating shall be in accordance with the methods permitted in Section 703.3 or from data based on tests of assemblies consistent with the end-use configuration and conducted in accordance with ASTM E 119 or UL 263.

2603.6.2 Thermal barrier Any foam plastic insulation shall be separated from the building interior by a thermal barrier in accordance with Section 2603.4, unless special approval is obtained on the basis of Section 2603.9.

2603.6.3 Concealed spaces Concealed spaces within interior building elements shall comply with Section 718

Reason: Section 603.1, Exception 3 permits the use of "Foam plastics in accordance with Chapter 26." in Type I and II construction. Chapter 26 addresses foam plastic in Section 2603 Foam Plastic Insulation and Section 2604 Interior finish and trim, however, specific discussion regarding Construction Type is primarily limited to 2603.4.1.13 for installations in sill plates and headers without a prescriptive thermal barrier and in 2603.5 relative to exterior walls. Although one may interpret Section 602.2 and Section 603.1, Exception 3 as allowing the use of foam plastics in all building elements of Type I and II construction, Chapter 26 does not clearly confirm this interpretation.
This proposal provides language to Section 2603 to clarify the acceptable use of foam plastic in all types of construction. The proposed new definitions are intended to clarify the meaning of "interior building element" as used in Section 602 to differentiate exterior walls from interior elements such as interior walls, floors, ceilings and roofs.

Cost Impact: Will not increase the cost of construction
The proposed change clarifies existing requirements of the IBC, therefore, will not increase the cost of construction.

FS 177-15 : 2603.6 (New)-FISCHER5524

FS 178-15

2603.7, 2603.7.1, 2603.7.2

Proponent: Tony Crimi, representing North American Insulation Manufacturers Association (tcrimi@sympatico.ca)

2015 International Building Code

2603.7 Foam plastic insulation used as interior finish or interior trim in plenums. Foam plastic insulation used as interior wall or ceiling finish or as interior trim in plenums shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 and shall comply with one or more of Sections 2603.7.1, 2603.7.2 and 2607.3.

2603.7.1 Separation required. The foam plastic insulation shall be separated from the plenum by a thermal barrier complying with Section 2603.4 and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.

Revise as follows:

2603.7.2 Approval. The foam plastic insulation shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use and shall meet the acceptance criteria of Section 803.1.2 when tested in accordance with NFPA 286. ~~The foam plastic insulation shall be approved based on tests conducted in accordance with Section 2603.9.~~

Reason: The last sentence of 2603.7.2 creates a conflict with the remainder of the requirement.
IBC 2603.7 and 2603.7.1 are clear in stating that ASTM E84 or UL 723 are to be used to determine the flame spread index and smoke developed index. This is very typical in the IBC. IBC 2603.7.2 also identifies the required test methods as ASTM E 84 and UL 723, and the required ratings to be derived from those tests, and identifies NFPA 286 and the acceptance criteria in 803.1.2 (which includes smoke measurement) as a requirement.

The problem is then with the last sentence of 2603.7.2 which directs the Code official to "approve" the insulation based on a different set of room fire tests, which do not all provide a flame spread and smoke developed value. It is not clear if this is to be in addition to the flame spread and smoke developed results, or in place of those tests.

Since 2603.9 does not exempt the material from compliance with 2603.7, it appears that both sets of criteria must be met. This is reasonable in that 3 of the 4 large-scale tests identified in 2603.9 do not have limitations on smoke development. Furthermore, based on the language in 2603.9, alternative tests could also be permitted, and what those do or do not measure is not known. However, since compliance with NFPA 286 is already required in 2603.7.2, and NFPA 286 and the acceptance criteria in 803.1.2 are also identified in 2603.9, it appears this sentence is redundant.

Cost Impact: Will not increase the cost of construction
The proposal will potentially eliminate redundant testing to additional standards other than UL 723, ASTM E84, and NFPA 286

FS 178-15 : 2603.7.2-CRIMI4628

FS 179-15

2603.7.4 (New)

Proponent: Tony Crimi, representing North American Insulation Manufacturers Association (tcrimi@sympatico.ca)

2015 International Building Code

Add new text as follows:

<u>**2603.7.4 Building panel systems** Foam plastic insulation used as part of a factory assembled panel system shall be covered by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm). The foamed plastic insulation shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use. The manufactured building panel system shall also conform to the flame spread and smoke-developed requirements of Chapter 8 when tested in accordance with ASTM E 84 or UL 723 at the thickness intended for use, unless special approval is obtained on the basis of Section 2603.9. Assemblies tested shall include seams, joints and other typical details used in the installation of the assembly and shall be tested in the manner intended for use.</u>

Reason: This proposal introduces clear language for testing of metal faced foamed plastic core sandwich panels. The proposal clarifies that both the foamed plastic insulation and the foam filled panel systems need to be tested. The requirement to test a joint or seam is included for consistency with current laboratory and Certification practices. This portion of the proposal language is taken directly from IBC section 2603.9. The requirements for the foamed plastic core material are identical to 2603.7.3. However, the requirements for the finished panel system would be as required by Chapter 8, depending upon the use of the product.
The IBC has several references to foamed plastic sandwich panels. Typically, sandwich panels are manufactured products. Many use a covering of corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm). However, it is not clear whether the current provision in 2603.7.3 applies to factory assembled panels because the ASTM E84/UL 723 testing requirement only expresses limits for the foam insulation core, not for the composite product.

When sandwich wall or ceiling panels are tested, they do not always yield better flame spread and smoke developed values than the base foam insulation core. For example, higher smoke developed indexes This is demonstrated in numerous UL Listings under their CCN "BLBT" for Surface Burning Characteristics of Building Units. Based on this experience, Laboratories like UL evaluate this effect by testing the sample with a longitudinal butt joint, using a factory or field joint (as applicable).

For building units consisting of an interior core material faced on both surfaces, the UL certification of the product already includes the surface-burning characteristics of the core material in addition to the surface-burning characteristics of the finished product.

Cost Impact: Will not increase the cost of construction

The proposal is consistent with the practices of Laboratories such as UL.

FS 179-15 : 2603.7.4 (New)-CRIMI4717

FS 180-15

2606.11

Proponent: Mike Fischer, Kellen Company, representing the Plastic Glazing Coalition of the American Chemistry Council (mfischer@kellencompany.com)

2015 International Building Code

Revise as follows:

2606.11 Greenhouses. Light-transmitting plastics shall be permitted in lieu of ~~plain~~ glass in greenhouses.

Reason: The use of the word "plain" glass is not defined. Does plain glass refer to non-tempered? Clear (as in non-coated, or as in non-tinted?) Non-wired? The proposal removes the ambiguous and unnecessary adjective.

Cost Impact: Will not increase the cost of construction
The proposal is editorial only. There is no change in requirements.

FS 180-15 : 2606.11-FISCHER3638

FS 181-15

2609.4

Proponent: David Kulina, representing Engel Architects (david@engelarch.com)

2015 International Building Code

Revise as follows:

2609.4 Area limitations. Roof panels shall be limited in area and the aggregate area of panels shall be limited by a percentage of the floor area of the room or space sheltered in accordance with Table 2609.4.

Exceptions:

1. The area limitations of Table 2609.4 shall be permitted to be increased by 100 percent in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
2. Low-hazard occupancy buildings, such as swimming pool shelters, shall be exempt from the area limitations of Table 2609.4, provided that the buildings do not exceed 5,000 square feet (465 m^2) in area and have a minimum fire separation distance of 10 feet (3048 mm).
3. Greenhouses that are occupied for growing ~~plants on a production~~ or ~~research basis~~maintaining plants, without public access, shall be exempt from the area limitations of Table 2609.4 provided they have a minimum fire separation distance of 4 feet (1220 mm).
4. Roof coverings over terraces and patios in occupancies in Group R-3 shall be exempt from the area limitations of Table 2609.4 and shall be permitted with light-transmitting plastics.

Reason: Light transmitting plastics are necessary in most greenshoues used for plants, irregardless of whether those plants are grown or simply maintained. For example, many retailers have greenhouses not open to the public in which they keep plants until ready for sale. Also, many colleges have greenhouses to hold plants during winter months. Furthermore, current plastics are actually safer than glass in the event of large hail.

Cost Impact: Will not increase the cost of construction
This change will actually decrease the cost of construction by allowing for the use of light transmitting plastics in lieu of glass.

FS 181-15 : 2609.4-KULINA4562

FS 182-15

2611.1, 2611.2, 2611.3, 2611.3 (New), 2611.4

Proponent: Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

2611.1 General. Light-transmitting plastic interior~~ wall~~ signs shall be limited as specified in Section 2606 and Sections 2611.2 through 2611.4.

> **Exception:** Light-transmitting plastic interior wall signs in *covered and open mall buildings* shall comply with Section 402.6.4~~. Light-transmitting plastic interior signs shall also comply with Section 2606.~~

Delete without substitution:

~~**2611.2 Aggregate area.** The sign shall not exceed 20 percent of the wall area.~~

Revise as follows:

~~**2611.3**~~**2611.2 Maximum area.** The ~~sign~~ aggregate area of all light-transmitting plastics shall not exceed 24 square feet (2.23 m^2).

> **Exception:** In buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the aggregate area of light-transmitting plastics shall not exceed 100 square feet, provided all plastics are Class CC1 in accordance with Section 2606.4.

Add new text as follows:

2611.3 Separation Signs exceeding the aggregate area of 2611.2 shall be separated from each other by not less than 4 feet horizontally and 8 feet vertically.

Revise as follows:

2611.4 Encasement. ~~Edges~~Backs of wall mounted signs and ~~backs~~non-illuminated portions of ~~the sign~~ all signs regulated by this section shall be fully encased in metal.

Reason: Base code is out of date and creates undue impact on interior signs. These allowances have been incorporated into the Southern Nevada Building Code for several code cycles without incident.

1. The intent of this amendment is to codify an equivalent level of protection to allow larger signs.

2. It makes no sense to only regulate wall mounted signs inside buildings and not pole, and ceiling mounted signs too. Deletion of the reference to "wall" in the first sentence of Section 2611.1 clarifies that Section 2611 applies to all light-transmitting plastic interior signs, including wall-mounted, hanging, and base-supported signs.

3. The original proponent of this section, which is now 2611 of the IBC, intended it to apply to all plastic faced signs, not just wall mounted signs. In addition, the initial development of this requirement did not take into account a CC1 plastic, or fully sprinklered buildings.

4. A minimum CC1 plastic is required to limit the burning characteristics of the light-transmitting material.

5. The way 2611.1 is written, and according to the original proponent of this section, mall signs are only regulated in Section 402.6.4. Moving this stipulation into an exception provides clarification.

6. The original Section 2611.2 has been replaced with reasonable separation distances as described in the following item.

7. The separation requirements stipulated in 2611.2 eliminate the potential for multiple signs, each less than the allowable square footage (24 or 100), creating a single fuel package. The intent is to treat multiple signs in close proximity, or possibly multiple pieces/portions of the same sign, as a single fuel package. These separation distances were gleaned from Table 2607.4. This stipulation can be considered to be more conservative than base code and be used as partial justification for the increased sizes in the exceptions to Section 2611.3.

8. The modification to Section 2611.3 is proposed to eliminate interpretations of what the 24 square feet maximum area applies to. With the proposed modification, the 24 square feet limitation applies to the total area of light-transmitting plastics in the sign, regardless if the sign has a plastic facing on one or more sides. The intent is to treat the sign as a single fuel package regardless of configuration.

9. The size limitation in the Exception to Section 2611.3 was partially based on Sections 2607 and 2608, along with Table 2607.4. Section 2607 does not allow light-transmitting plastic wall panels to be used in Groups A-1 or A-2 occupancies. Item 1 of Section 2608.2 has a basic limitation of 16 square feet with a vertical dimension not exceeding 4 feet for a single panel of light-transmitting plastic glazing. Other restrictions are listed in Section 2608.2, but are exempt in sprinklered buildings. The size allowances in Table 2607.4, along with the sprinkler allowances in Section 2607.5, allow a CC2 light-transmitting plastic wall panel up to a maximum of 200 square feet with the required separation distances to an adjacent panel. Since 2611 requires compliance with 2606, at a minimum, a CC2 plastic would be required. Since 2607 is not applicable to A-1 or A-2 occupancies, it should be reasonable to allow light-transmitting plastic interior signs of Class CC1 with the additional mitigating aspects specified.

10. In addition to the preceding item, partial justification for the size limitations listed have been gleaned from Appendix H. Although the definition of sign in Section H102 appears to only apply to exterior signs, Appendix H can be used for guidance. Section H106 limits approved plastics in internally illuminated signs to 120 square feet. Section H107 appears to apply to externally illuminated plastic faced signs and has a basic limitation of 200 square feet. Therefore, the 120 square foot limitation appears to be the Appendix H reference most applicable to the intent of this amendment. With the

additional separation requirements and protection specified, it seems reasonable to allow the increased area specified.

11. Under the base IBC language, all light-transmitting plastic interior signs are required to have metal on five sides (edges and backs). However, suspended or base supported multi-faced light-transmitting plastic interior signs are relatively common. The amendment clarifies that hanging or base supported signs that have metal encasement on the sides only are permitted.

Cost Impact: Will not increase the cost of construction
This proposal is intended to clarify requirements for interior light-transmitting plastic signs, and allow for flexibility in increasing the size of such signs.

FS 182-15 : 2611-DIGIOVANNI3853

FS 183-15

1410.1, 2612.2, 2612.2.1, 2612.2.2, 2612.3, 2612.4, 2612.6

Proponent: John Woestman, representing Composite Lumber Manufacturers Association (CLMA) (jwoestman@kellencompany.com)

2015 International Building Code

Revise as follows:

1410.1 Plastic composite decking. Exterior deck boards, stair treads, handrails and ~~guardrail systems~~guards constructed of plastic composites, including plastic lumber, shall comply with Section 2612.

2612.2 Labeling ~~and identification.~~ ~~Packages~~
Plastic composite deck boards and ~~containers of plastic composites used in exterior applications~~stair treads, or their packaging, shall bear a *label* ~~showing~~ that indicates compliance to ASTM D7032 and includes the ~~manufacturer's name, product identification~~allowable load and ~~information sufficient~~maximum allowable span determined in accordance with ASTM D7032. Plastic composite handrails and guards, or their packaging, shall bear a label that indicates compliance to ~~determine that~~ASTM D7032 and includes the ~~end use will comply~~maximum allowable span determined in accordance with ~~code requirements.~~ASTM D7032.

Delete without substitution:

~~**2612.2.1 Performance levels.** The label for plastic composites used in exterior applications as deck boards, stair treads, handrails and guards shall indicate the required performance levels and demonstrate compliance with the provisions of ASTM D 7032.~~

~~**2612.2.2 Loading.** The label for plastic composites used in exterior applications as deck boards, stair treads, handrails and guards shall indicate the type and magnitude of the load determined in accordance with ASTM D 7032.~~

Revise as follows:

2612.3 Flame spread index. Plastic ~~composites~~composite deck boards, stair treads, handrails and guards shall exhibit a flame spread index not exceeding 200 when tested in accordance with ASTM E 84 or UL 723 with the test specimen remaining in place during the test.

Exception: Materials determined to be noncombustible in accordance with Section 703.5.

2612.4 Termite and decay resistance. ~~Plastic composites~~
Where required by Section 2304.12 plastic composite deck boards, stair treads, handrails and guards containing wood, cellulosic or any other biodegradable materials shall be termite and decay resistant as determined in accordance with ASTM D 7032.

2612.6 Plastic composite ~~decking~~deck boards, stair treads, handrails and guards. Plastic composite ~~decking~~deck boards, stair treads, handrails and guards shall be installed in accordance with this code and the manufacturer's instructions.

Reason: This proposal is intended to be clarifications and simplification of the requirements for plastic composites identified in this section.
The 2015 IBC included, for the first time, specific requirements for plastic composite deck boards, stair treads, and guard systems. The existing language was developed and finalized during the 2012 code development cycle for the IBC. The following year, the requirements in the IRC for these same products were revised, but the result is there are some differences between the IBC and the IRC. This code change proposal is an effort to move the language of the IBC to be in close alignment with the language of the IRC.

Cost Impact: Will not increase the cost of construction
No cost implications. No technical changes to the code requirements.

FS 183-15 : 1410.1-WOESTMAN5570

2015 GROUP A – PROPOSED CHANGES TO THE INTERNATIONAL BUILDING CODE – GENERAL

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Brea, CA

TENTATIVE ORDER OF DISCUSSION
2015 PROPOSED CHANGES TO THE INTERNATIONAL BUILDING CODE (GENERAL)

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

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

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202

Proponent: Victor Cuevas, representing City of Los Angeles

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

AREA, BUILDING. The area included within surrounding *exterior walls* (or *exterior walls* and *fire walls*) exclusive of vent *shafts* and *courts*. Areas of the building not provided with surrounding walls shall be included in the building area if such ~~areas are included within the~~area has horizontal projection of the roof or floor above. Areas underneath any horizontal projections of five feet or more of roofs, balconies or architectural features shall also be included in the building area.

Reason: Since the code does not specify how much of a projection (12", 3', or 5') becomes floor area, establishing a threshold becomes necessary.

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction.

G 1-15 : 202-AREA, BUILDING-CUEVAS4536

G 2-15

202

Proponent: Stephen Thomas, Colorado Code Consulting, LLC, representing Colorado Chapter ICC (sthomas@coloradocode.net)

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

AREA, BUILDING. The area included within surrounding *exterior walls* (or *exterior walls* and *fire walls*) exclusive of vent *shafts* and *courts*. Areas of the building not provided with surrounding walls shall be included in the building area if such areas are included within the horizontal projection of the roof or floor above, and the space is usable by the building occupants.

Reason: The strict letter of the definition of building area would say that the area under a roof eave extending beyond the exterior wall 18-24 inches would need to be included in the building area. Therefore, this change is intended to clarify the intent of the definition by adding language to say that the area under the projecting floor or roof needs to be usable area. Areas within the building are usable by the occupants and would be the same condition.

Cost Impact: Will not increase the cost of construction
This change is a clarification of the code language. There is no impact on construction costs.

G 2-15 : 202-AREA, BUILDING-THOMAS4445

G 3-15

202

Proponent: Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com)

2015 International Building Code

SECTION 202 DEFINITIONS

ATRIUM. An opening connecting two or more *stories* other than enclosed *stairways*, elevators, hoistways, escalators, plumbing, electrical, air-conditioning or other equipment, which is closed at the top and not defined as a mall. *Stories*, as used in this definition, do not include balconies within assembly groups or *mezzanines* that comply with Section 505. Openings that comply with Section 712.1.9 and 1019.3, Condition 1, shall not be considered an atrium.

Reason: One can look at the two Sections; 712.1.9 and 1019.3 (Condition 1) and conclude that those kinds of openings will constitute atrium under the definition of atrium. This has never been the intent of the code. So by adding this sentence, the clarification is made.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction.

G 3-15 : 202-ATRIUM-MAIEL4572

G 4-15

202 (New)

Proponent: Marcelo Hirschler, representing GBH International (gbhint@aol.com)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

<u>**CHILDREN'S PLAY STRUCTURE.**</u> <u>A structure composed of one or more components, where the user enters a play environment that utilizes combustible materials.</u>

Reason: Sections 402.6.3 and 424 of the IBC contain requirements regarding children's play structures. However, no definition exists and there have been discussions that there is some ambiguity about what is meant by the term. The concept incorporated into this definition is that a children's play structure is one that: (a) is constructed of combustible materials, (b) is a structure into which the user (typically a child) enters and (c) has at least one structural component.
A separate definition is being proposed for "soft contained play equipment structure", which is mentioned in items 3,6 and 7 of 424.2.

Cost Impact: Will not increase the cost of construction
This proposal simply adds a definition.

G 4-15 : 202-CHILDREN'S PLAY STRUCTURE (New)-HIRSCHLER3568

G 5-15

202 (New),

Proponent: Theresa Weston, DuPont Building Innovations, representing DuPont Building Innovations (theresa.a.weston@usa.dupont.com)

THIS PROPOSAL WILL BE HEARD BY THE FIRE SAFETY COMMITTEE. PLEASE SEE THE TENTATIVE HEARING ORDER FOR THE FS COMMITTEE.

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

COMBUSTIBLE Any material not defined as noncombustible.

NONCOMBUSTIBLE Elementary or composite materials that are not capable of undergoing combustion under specified conditions.

Reason: This proposal adds two needed definitions to the code. There is significant confusion in the industry on how to define combustible and noncombustible materials. The proposed language was developed by considering the testing requirements in Section 703.5 and the definition in *ASTM E176 Terminology of Fire Standards.*

Cost Impact: Will not increase the cost of construction
The proposal adds clarity through definitions only, and does not change code requirements.

G 5-15 : 202-COMBUSTIBLE (New)-WESTON5608

G 6-15

202

Proponent: Gerald Anderson, City of Overland Park, kansas, representing self (Jerry.Anderson@opkansas.org)

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

CUSTODIAL CARE. Assistance with day-to-day living tasks; such as assistance with cooking, taking medication, bathing, using toilet facilities and other tasks of daily living. Custodial care includes persons receiving care who have ~~the ability to respond to emergency situations and evacuate at a slower rate and/or who have~~ mental and psychiatric complications.

Reason: With this definition we are trying to define or expand upon what exactly "Custodial Care" entails. A persons ability to respond to emergency situations has no connection with the type of care that is provided. It lends nothing to the goal of defining a type of care one receives.
In addition, having a definition that speaks to a persons ability to evacuate in emergency situations, leads to confusion when applying IBC sections 308.3.1 and 308.3.2 as well as sections 310.6.1 and 310.6.2. In applying those sections for I-1 and R-4 occupancies we have two different conditions that specifically address one's capacity to respond to an emergency situation in occupancies that provide for "custodial care". Having a definition, that speaks to a person's ability to respond to an emergency leads to confusion when applying the code.

Cost Impact: Will not increase the cost of construction
changing a definition will have no cost impace

G 6-15 : 202-CUSTODIAL CARE-ANDERSON5694

G 7-15

202

Proponent: Michael Anthony, University of Michigan, representing University of Michigan (maanthon@umich.edu)

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

DORMITORY~~.~~ (STUDENT RESIDENCE FACILITY) A space in a building where group sleeping and cooking accommodations are provided in one room, or in a series of closely associated rooms, for persons not members of the same family group, under joint occupancy and single management, as in college dormitories (student residence facilities) or fraternity houses.

Reason: This proposal is intended to correlate with related proposals:
a) Section 310.2 for Residential Group - R, where the word dormitory appears

b) A proposal submitted separately, but coordinated with Brian Fitzgerald, Associate Director of Housing at the University of Michigan and an active member of ACUHO-1, the trade association for campus housing and student residence life professionals.

The term DORMITORY is used in both NFPA 101 and IBC. The common understanding of the term should not only be harmonized between both documents, but the term "dormitory" should be dropped from the vocabulary of the IBC entirely as it applies to the education facilities industry. This proposal is written with parenthetic clarification with the hope that after 2 or 3 revisions of the IBC, the term dormitory will be used in the context of prison, detention or military facilities.

1. The term "dormitory" is used less frequently as the reference material from ACUHO-i indicates. This pattern -- away from the word dormitory (which carries with it the association of detention, correctional, and military facilities) is likely to be seen in the plan review of building departments where the IBC is use. At the time the word "dormitory" came into use the education industry was smaller, did not have the requirement for in-residence instruction, and the financing of (frequently lavish) student living centers by student housing property trusts.

2. The word "dormitory" is used also in NFPA 101 in connection with detention and correctional facilities

3. Part of the year, these facilities are used by permanent residences to live and learn without having to leave student living center to another building on campus; thus the cooking facilities.

4. During the summer months these student living centers are used by transient "campers" -- frequently below 12-grade.

Another term -- STUDENT HOUSING -- may be acceptable to the commitee. A correlating proposal will be submitted to NFPA 101. A task group should be set up to develop a crosswalk between the IBC and NFPA 101. There can be significant out of step conditions between NFPA 101 and the IBC because many states will not adopt the latest version. For the convenience of the committee, selected passages from the 2015 NFPA are shown below. Admittedly, some consideration should be informed by loss history as to whether modification of the definition to reflect a new epoch in the education facilities industry would change the egress, sprinkler, fire separation, hazard classification, and other life safety canons.

Getting two standards to reflect a common understanding of the occupancy and use classification and terminology is no small feat. It may take 3 - 6 years to harmonized them. We have to start somewhere. We prefer not to have to continue struggling with these definitions 6 years from now.

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2015 NFPA 101 Reference Material - *Selected* Passages to provide the committee insight into the current status of the Life Safety Code

3.3.64* Dormitory. A building or a space in a building in which group sleeping accommodations are provided for more than 16 persons who are not members of the same family in one room, or a series of closely associated rooms, under joint occupancy and single management, with or without meals, but without individual cooking facilities. (SAF-RES)

A.3.3.64 Dormitory. Rooms within dormitories intended for the use of individuals for combined living and sleeping purposes are guest rooms or guest suites. Examples of dormitories are college dormitories, fraternity and sorority houses, and military barracks.

6.1.8.1.4* Definition — Dormitory. A building or a space in a building in which group sleeping accommodations are provided for more than 16 persons who are not members of the same family in one room, or a series of closely associated rooms, under joint occupancy and single management, with or without meals, but without individual cooking facilities.

Chapter 14 New Educational Occupancies

14.1.3.4 Dormitory and Classrooms.

14.1.3.4.1 Any building used for both classroom and dormitory purposes shall comply with the applicable provisions of Chapter 28 in addition to complying with Chapter 14.

14.1.3.4.2 Where classroom and dormitory sections are not subject to simultaneous occupancy, the same egress capacity shall be permitted to serve both sections

15.1.3.4 Dormitory and Classrooms.

15.1.3.4.1 Any building used for both classroom and dormitory purposes shall comply with the applicable provisions of Chapter 29 in addition to complying with Chapter 15.

15.1.3.4.2 Where classroom and dormitory sections are not subject to simultaneous occupancy, the same egress capacity shall be permitted to serve both sections.

Chapter 22 New Detention and Correctional Occupancies

22.3.4.4.3* Smoke detectors shall not be required in Use Condition II open dormitories where staff is present within the dormitory whenever the dormitory is occupied.

A.22.3.4.4.3 An open dormitory is a dormitory that is arranged to allow staff to observe the entire dormitory area at one time

22.2.6.7 The maximum travel distance limitation of 22.2.6.6 shall be permitted to be increased to 100 ft (30 m) in open dormitories, provided that both of the following criteria are met:

(1) The enclosing walls of the dormitory space shall be of smoke-tight construction.

(2) Not less than two exit access doors remotely located from each other shall be provided where travel distance to the exit access door from any point within the dormitory exceeds 50 ft (15 m).

Chapter 28 New Hotels and Dormitories

28.1 General Requirements.
28.1.1 Application.
28.1.1.1 The requirements of this chapter shall apply to new buildings or portions thereof used as hotel or dormitory occupancies. (See 1.3.1.)
28.1.1.2 Administration. The provisions of Chapter 1, Administration, shall apply.

28.1.1.3 General. The provisions of Chapter 4, General, shall apply.

28.1.1.4 Any dormitory divided into suites of rooms, with one or more bedrooms opening into a living room or study that has a door opening into a common corridor serving a number
of suites, shall be classified as an apartment building.

28.1.1.5 The term hotel, wherever used in this Code, shall include a hotel, an inn, a club, a motel, a bed and breakfast, or any other structure meeting the definition of hotel

28.1.4.2 Special Definitions. A list of special terms used in this chapter follows:

(1) Dormitory. See 3.3.64.
(2) Guest Room. See 3.3.132.
(3) Guest Suite. See 3.3.273.1.
(4) Hotel. See 3.3.145.

28.2.11.2 Lockups. Lockups in hotel and dormitory occupancies shall comply with the requirements of 22.4.5

28.3.7 Subdivision of Building Spaces. Buildings shall be subdivided in accordance with 28.3.7.1 or 28.3.7.2.
28.3.7.1 In buildings not protected throughout by an approved, supervised automatic sprinkler system, each hotel guest room, including guest suites, and dormitory room shall be separated from other guest rooms or dormitory rooms by
walls and floors constructed as fire barriers having a minimum 1-hour fire resistance rating.

Bibliography: FROM THE ASSOCIATION OF COLLEGE AND UNIVERSITY HOUSING OFFICERS INTERNATIONAL WEB SITE:
http://www.acuho-i.org/blog/articleid/3976/you-were-asking-residence-halls-vs-dormitories

A member recently asked this question. I thought it was interesting, and that the answer is too. Hopefully you feel the same. Does anyone know of any articles or studies as to when/why the lingo changed from dorm to res hall (to living center, etc)? As far as I know, there aren't any articles specifically on this (please post in the comments if you know otherwise). However, this is the answer I sent. Below I pasted the definitions from the online etymology dictionary, to which I'm referring here. (I love the Online Etymology Dictionary, by the way. It is fabulous.) Basically, "dormitory" comes from the word dormir which means to sleep or to become dormant. I've included some related definitions as well; cubicle (derived from a word that meant "to lie down, to bend oneself"), was the space in which someone slept in the dormitory. The word "cemetery" was derived from words related to dormitory, as it is a "sleeping place." The references to folding oneself into cubicles and death are likely the reason "dormitory" fell out of favor. Further below, there's the historical meanings for the words "residence" and "hall" which have much grander and more home-like pedigrees than that of "dormitory." These connotations are what universities and colleges refer to when explaining why those buildings are residence halls, not dormitories. (A number of examples can be found at the link.) I think the terms "living-learning" and similar, to specifically denote the educational aspects of residence halls, were used more commonly following the publishing of the Residential Nexus, which argued for a strong educational presence in the residence halls. As this is also a way to show the benefits of housing to students, parents and the administration, housing pros emphasize the home-like and educational aspects of housing, rather than the sleeping, dormant aspect.EDIT: Kevin Guidry's comment about an article in the Talking Stick sent me on a hunt through late-80s copies of the magazine. After flipping through many pages of--it must be said--ill-advised editorial, advertisement and fashion decisions, I found the article to which he was likely referring. Here it is: TalkingStick87 ResHallsDorms From the Online Etymology Dictionary: Dormitory: mid-15c., from L. dormitorium, from dormire "to sleep" (see dormant). Dorm: 1900, colloquial shortening of dormitory. Cubicle: late 15c., from L. cubiculum "bedroom," from cubare "to lie down," originally "bend oneself," from PIE base *keu(b)- "to bend, turn." Obsolete from 16c., but revived 19c. for "dormitory sleeping compartment," sense of "any partitioned space" (such as a library carrel) is first recorded 1926. Cemetery:late 14c., from O.Fr. cimetiere "graveyard" (12c.), from L.L. coemeterium, from Gk. koimeterion "sleeping place, dormitory," from koimao "to put to sleep," keimai "I lie down," from PIE base *kei- "to lie, rest" (cf. Goth haims "village," O.E. ham "home, house, dwelling"); see home. Early Christian writers were the first to use it for "burial ground," though the Greek word also were anciently used of the sleep of death. Hall: O.E. heall "place covered by a roof, spacious roofed residence, temple," from P.Gmc. *khallo "to cover, hide" (cf. O.H.G. halla, Ger. halle, Du. hal, O.N. höll "hall;" O.E. hell, Goth. halja "hell"), from PIE base *kel- "to hide, conceal" (see cell). Sense of "entry, vestibule" evolved 17c., at a time when the doors opened onto the main room of a house. Older sense preserved in town hall, music hall, etc., and in university dormitory names. Hall of Fame first attested 1901, in ref. to Columbia College. Residence: c.1380, from M.L. residential, from L. residentem (nom. residens) "residing, dwelling," prp. of residere "reside" (see reside). Residential is attested from 1654, "serving as a residence;" meaning "having to do with housing" is from 1856.

For related information: http://standards.plantops.umich.edu/acuho-i/

Cost Impact: Will not increase the cost of construction
Greater granularity in the definition will likely reduce enforcement mis-match and mis-understanding and thereby reduce cost but it is difficult to count something that does not happen. It is safer to suggest that this change is likely to add to cost.

G 7-15 : 202-DORMITORY - ANTHONY5279

G 8-15

202

Proponent: Michael Barrett, Salt Lake County, representing Salt Lake County (mbarrett@slco.org)

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

DWELLING. A building that contains one or two *dwelling units* used, intended or designed to be used, rented, leased, let or hired out to be occupied for living purposes for any period or length of time.

Reason: Introduction -
The code provisions in the IRC and IBC do not assign lease or rental time frames to detached one and two family dwellings and townhouses. The IBC and IRC define a dwelling as; "A building that contains one or two dwelling units used, intended or designed to be used, rented, leased, let or hired out to be occupied for living purposes".
Neither Code requires that the IBC be applied to detached one and two family dwellings and townhouses simply based upon the period of time they are rented. Providing some clarifying and defining language would ensure that the appropriate code is applied.

Justification -

Many detached one and two family dwellings and townhouses are "second homes". Often they are used, rented, leased, let or hired out to be occupied for living purposes, as a single family unit, for periods of time ranging anywhere from one day to years. Whereas they are occupied as a single family unit, and fall within the scope of the IRC, it would be appropriate that they be regulated under the IRC. This clarification is important as it eliminates confusion and a tendency to use the IBC to regulate detached one and two family dwellings and townhouses in this particular situation when the home is within the scope of the IRC and is occupied as a single family unit for less than thirty days. A large number of these homes are located within resort communities and rented for short periods of time. These dwellings may also be used as a housing resource, post disaster, for long or short term housing during the community's disaster recovery process. Applying the IBC would introduce a myriad of challenges. Moreover, the associated costs to comply with IBC requirements would be significant. Using Teton County Wyoming as a model, a cost benefit analysis was performed by Crystal Springs Ranch, Inc., A prominent developer in Teton County Wyoming.

Summary –

Detached one and two family dwellings and townhouses occupied as a single-family unit that fall within the scope of the IRC, should be governed under those provisions regardless of the length of time they are occupied. The proposed language inserted into the referenced code sections is consistent with language used elsewhere in the code and provides much needed clarification as to the proper application of the correct code.

Cost Impact: Will increase the cost of construction
Twelve Standalone Townhouse Units in Teton Village, Wyoming (Approximately 3800 Sq. Ft.)

Item	Description	IBC Cost Increases Per Unit
1	General Conditions - increased construction duration	$ 4,635
2	Fire Sprinklers	$ 15,162
3	Fire Resistance Requirements or Exterior Walls based on Fire Separation Distance	$ 2,575
4	Floor Elevations at the Required Egress Doors	$ -
5	Stairways	$ -
6	Stairway Landings	$ -
7	Accessibility	$ -
8	Handrails	$ -
9	Wiring Methods	$ 22,660
Total	--	**$ 45,032**

Four Standalone Townhouse Units in Teton Village, Wyoming (Approximately 3800 Sq. Ft.)

Total All Items **$ 47,028**

-

Twelve Standalone Townhouse Units in Teton Village, Wyoming (Approximately 4,000 - 5,300 Sq. Ft.)

Total All Items **$ 60,174**

A large number of these homes are located within resort communities and rented for short periods of time. These dwellings may also be used as a housing resource post disaster for long or short term housing during the community's disaster recovery process. Applying the IBC would introduce a myriad of challenges. Moreover, the associated costs to comply with IBC requirements would be significant. Using Teton County Wyoming as a model, a cost benefit analysis was performed by Crystal Springs Ranch, Inc., A prominent developer in Teton County Wyoming.

G 8-15 : 202-DWELLING-BARRETT5238

G 9-15

202

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org); Adolf Zubia, Chair, Fire Code Action Committee (fcac@iccsafe.org); Edward Kulik, Chair, Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

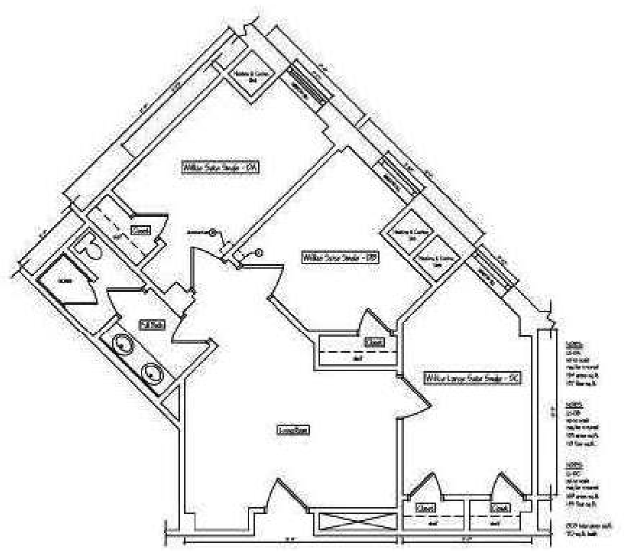
SECTION 202 DEFINITIONS

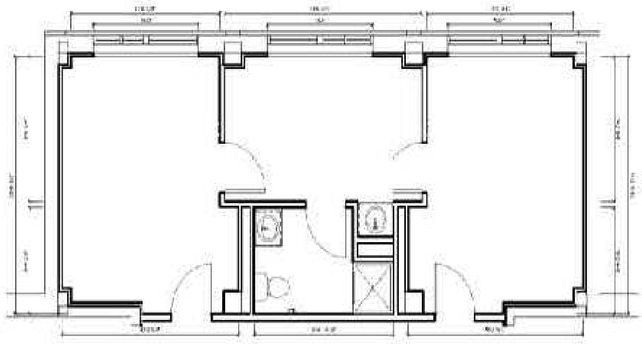
DWELLING UNIT. A single unit providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

SLEEPING UNIT. A ~~room~~single unit providing rooms or ~~space in which people sleep, which~~spaces for one or more persons,which can also include permanent provisions for living, eating, sleeping, and either sanitation or kitchen facilities but not both. Such rooms and spaces that are also part of a *dwelling unit* are not sleeping units.

Reason: Some hotel rooms, assisted living and dormitories are designed as suites. In a hotel or assisted living space, common designs are one or two bedrooms a living space and private bath. In a dorm, common designs are two rooms with a private bath between; or three or four bedrooms with a living space and private bathrooms. These units act as a group similar to an apartment. Currently the definition for sleeping unit could be interpreted to be just a bedroom. When these bedrooms are combined into suites, they should be considered as one sleeping unit.

Figures for CTC Care proposal to to Section 420 (6B)





This is part of a group of proposals to address this style of design and group homes within single family residences. Changes are proposed for the definition for sleeping units, the Group classifications in Section 310.4 and 310.5, separation requirements in Section 420, and coordination with accessibility requirements in Section 1107. Proposals will be put forward as part of Group B for fire and smoke alarm systems. The proposals could work separately.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx

This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 10 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc

The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This will increase design options and is a clarification.

G 9-15 : 202-DWELLING UNIT-BALDASSARRA4294

G 10-15

202 (New)

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

THIS PROPOSAL WILL BE HEARD BY THE MEANS OF EGRESS COMMITTEE. PLEASE SEE THE TENTATIVE HEARING ORDER FOR THE MOE COMMITTEE.

2015 International Building Code

Add new text as follows:

SECTION 202 DEFINITIONS

EGRESS SIDE The side of the door first encountered when attempting to leave a room, a story or a building.

Reason: "Egress side" is used in multiple places in the I-Codes but not defined or described. In many uses of "egress side", the context provides an understanding of what is meant by the term. However, in some uses of the term "egress side", the context may be ambiguous as to which side of the door the term refers to. To ensure consistent interpretation and application of requirements pertaining to the egress side of the door, we are proposing this definition.

Cost Impact: Will not increase the cost of construction
No technical revisions.

G 10-15 : 202-EGRESS SIDE (New)-WOESTMAN5499

G 11-15

202

Proponent: Victor Cuevas, representing City of Los Angeles (victor.cuevas@lacity.org)

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

FOOD COURT. A ~~public~~ seating area located in the *mall* that serves adjacent food preparation tenant spaces.

Reason: If the word "public" is deleted, compliance requirements can also be applied to private clubs, resorts and hotels.

Cost Impact: Will not increase the cost of construction
The code change proposal claifries application of the section of the code and will not increase the cost of construction.

G 11-15 : 202-FOOD COURT-CUEVAS4691

G 12-15

202

Proponent: Victor Cuevas, representing City of Los Angeles (victor.cuevas@lacity.org)

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

GRADE PLANE. A reference plane representing the average of finished ground level adjoining the building at *exterior walls*.~~ Where the finished ground level slopes away from the *exterior walls*, the~~ The reference plane ~~shall be~~is established by averaging the highest and the lowest ~~points~~ elevation within the area between the exterior wall of the building or structure and the *lot line* or, where the *lot line* is more than 6 feet (1829 mm) from the building, between the building and a point 6 feet (1829 mm) from the building.

Reason: The current definition is confusing, not clear and lengthy.

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction.

G 12-15 : 202-GRADE PLANE-CUEVAS4577

G 13-15

202 (New)

Proponent: Vickie Lovell, InterCode Incorporated, representing National Greenhouse Manufacturers Association (vickie@intercodeinc.com)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

<u>**GREENHOUSE.** A structure or thermally isolated area of a building that maintains a specialized sunlit environment exclusively used for, and essential to, the cultivation, protection or maintenance of plants.</u>

Reason: Greenhouses are a type of special structure intended to create and maintain a unique sunlit environment used exclusively for, and essential to, the cultivation and protection or maintenance of plants. This definition intends to clarify that it is the unique ENVIRONMENT of the structure, not the structure itself or the presence of plants that makes such a structure a greenhouse.
Buildings made for human habitation maintain specific lighting, ventilation, heating and cooling that is suitable for the health and welfare of humans and their property, even though plants can co-exist in such environments. The main distinguishing feature between a greenhouse and other structures is that the environment in a greenhouse is designed and maintained exclusively for, and is essential for the aggressive propagation of plants used by commercial growers for plant production. However, other activities can be conducted in a greenhouse such as retail business, research by schools and universities, conservation, education, display by botanical institutions holding documented collections of specialty plants, and similar activities. Most importantly, the unique environment must be carefully controlled for the environment specific to the plants in the greenhouse; otherwise, the plants will not survive.

For that reason, this proposed definition ONLY addresses greenhouse structures, and NOT other spaces such as sunrooms, solariums, glass enclosed walkways, atria or other types of interior spaces that permit ample sunlight and ventilation so as to prominently feature plants for aesthetic purposes.

Although there are numerous requirements for greenhouses in the IBC, there is currently no definition of "greenhouse" in the IBC. The definition makes a distinction between structures as mentioned above. Making this distinction between greenhouses and other sunny interior spaces and structures with plants and/or planted areas will help code enforcers apply the appropriate code requirement for such spaces.

This proposal for a definition for greenhouses was approved for the 2015 International Energy Conservation Code.

Cost Impact: Will not increase the cost of construction
There is no cost impact related to this proposal because this code change only adds a new definition to the code.

G 13-15 : 202-GREENHOUSE (New)-LOVELL4393

G 14-15

202 (New)

Proponent: Adolf Zubia, representing Fire Code Action Committee (fcac@iccsafe.org)

THIS PROPOSAL WILL BE HEARD BY THE FIRE SAFETY COMMITTEE. PLEASE SEE THE TENTATIVE HEARING ORDER FOR THE FS COMMITTEE.

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

OPENING PROTECTIVE. A *fire door assembly*, fire shutter assembly, *fire window assembly* or glass-block assembly in a fire-resistance-rated wall or partition.

Reason: This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. The Fire-CAC has held 10 open meetings and numerous Regional Work Group and Task Group meetings and conference calls for the current code development cycle which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at:http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc
This term is used extensively in the code, including the title of Section 716, but is not always understood by code users. This definition provides clarity.

The FCAC opening protective work group included interested industry and testing lab representatives working together to make this section more user friendly. The work group unanimously agreed on a number of proposed changes to IBC Section 716, including this one.

Cost Impact: Will not increase the cost of construction
This code change proposal only adds a definition of this term.

G 14-15 : 202-OPENING PROTECTIVE (New)-ZUBIA4201

G 15-15

202

Proponent: John Woestman, Kellen Company, representing Composite Lumber Manufacturers Association (CLMA) (jwoestman@kellencompany.com)

THIS PROPOSAL WILL BE HEARD BY THE FIRE SAFETY COMMITTEE. PLEASE SEE THE TENTATIVE HEARING ORDER FOR THE FS COMMITTEE.

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

PLASTIC COMPOSITE. A generic designation that refers to wood/plastic composites ~~and~~, plastic lumber, and similar materials.

Delete without substitution:

~~**PLASTIC LUMBER.** A manufactured product made primarily of plastic materials (filled or unfilled) which is generally rectangular in cross section.~~

~~**WOOD/PLASTIC COMPOSITE.** A composite material made primarily from wood or cellulose-based materials and plastic.~~

Reason: This proposal is intended to be clarifications and simplification of the requirements for plastic composites identified in this section.
The 2015 IBC included, for the first time, specific requirements for plastic composite deck boards, stair treads, and guard systems. The existing language was developed and finalized during the 2012 code development cycle for the IBC. The following year, the requirements in the IRC for these same products were revised, but the result is there are some differences between the IBC and the IRC. This code change proposal is an effort to move the language of the IBC to be in close alignment with the language of the IRC. The revised definition would address plastic composite deck boards, stair treads, and guard systems made with such recycled material as carper fiber or material such as mineral-filled PVC.
The two definitions proposed for deletion are also not included / deleted in the IRC. The two deleted definitions are not needed as the terms are self-explanatory.

Cost Impact: Will not increase the cost of construction
No cost implications. No technical changes to the code requirements.

G 15-15 : 202-PLASTIC COMPOSITE-WOESTMAN5568

G 16-15

202

Proponent: Mike Fischer, Kellen Company, representing the Plastic Glazing Coalition of the American Chemistry Council (mfischer@kellencompany.com)

THIS PROPOSAL WILL BE HEARD BY THE FIRE SAFETY COMMITTEE. PLEASE SEE THE TENTATIVE HEARING ORDER FOR THE FS COMMITTEE.

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

PLASTIC GLAZING. Plastic materials that are glazed or set in frame or sash ~~and not held by mechanical fasteners that pass through the glazing material~~.

Reason: The current definition of Plastic Glazing includes a restriction on attachment that is arbitrary and unnecessary. Many plastic glazing elements include penetrations as well as attachment hardware that passes through the glazing material. This restriction should not be in a definition; all other structural, fire, and safety provisions in the IBC apply.

Cost Impact: Will not increase the cost of construction
The proposal adds no new requirements.

G 16-15 : 202-PLASTIC GLAZING-FISCHER5340

G 17-15

202

Proponent: Marcelo Hirschler, GBH International, representing GBH International (gbhint@aol.com)

THIS PROPOSAL WILL BE HEARD BY THE FIRE SAFETY COMMITTEE. PLEASE SEE THE TENTATIVE HEARING ORDER FOR THE FS COMMITTEE.

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

LIGHT TRANSMITTING PLASTIC, APPROVED. Any light transmitting thermoplastic, thermosetting or reinforced thermosetting plastic material that conforms to combustibility classifications specified in the section applicable to the application and plastic type.

Reason: The IBC discusses approved light transmitting plastics in the sections associated with such plastics within Chapter 26 of the code. The concepts included in the definition refer to the classifications of Class CC1 and Class CC2 in section 2606.4 of the code. For all other uses there is nothing different about approving a plastic material than approving a wood material or any other type of material.
Proposals are also being submitted to the relevant sections that reference "approved plastic" when they should reference "approved light transmitting plastic"

Cost Impact: Will not increase the cost of construction
This is simply a change in the definition of "plastic, approved" to "light transmitting plastic, approved" that would clarify the intent of the definition.

G 17-15 : 202-PLASTIC, APPROVED-HIRSCHLER3513

G 18-15

202

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

PRIVATE GARAGE. A building or portion of a building in which motor vehicles used by the owner or tenants of the building or buildings on the premises are stored or kept, without provisions for repairing or servicing such vehicles for profit.

Reason: Private garages can also be used by the owners of the building.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This code proposal will not increase the cost of construction. It permits additional use of the building.

G 18-15 : 202-PRIVATE GARAGE-KULIK4798

G 19-15

202 (New)

Proponent: Marcelo Hirschler, representing GBH International (gbhint@aol.com)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

SOFT CONTAINED PLAY EQUIPMENT STRUCTURE. A children's play structure containing one or more components where the user enters an enclosed play environment that utilizes pliable materials.

Reason: Section 424 discusses children's play structures and a definition is being proposed for that. Items 3, 6 and 7 of 424.2 also talks about "soft-contained play equipment structures", and a definition is being proposed for that as well, to identify that "soft-contained play equipment structures" are those that contain pliable materials and where the user is enclosed.

Cost Impact: Will not increase the cost of construction
Simply adds a definition.

G 19-15 : 202-SOFT CONTAINED PLAY EQUIPMENT STRUCTURE (New)-HIRSCHLER4582

G 20-15

202

Proponent: Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org)

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

SWIMMING POOL. Any structure intended to be used for swimming~~, recreational~~ or bathing ~~or wading~~and that ~~contains water over 24 inches (610 mm) deep~~is operated by an owner, lessee, operator, licensee or concessionaire, regardless of whether a fee is charged for use. This includes in-ground, aboveground and on-ground pools; hot tubs; spas and fixed-inplace wading pools that are designed and manufactured to be connected to a circulation system.

Reason: This definition is being amended to bring it in better alignment with the definitions and scope of the International Swimming Pool & Spa Code. A swimming pool is no longer defined with the limitation that it must contain water over 24 inches deep; rather, based on the scope of the ISPSC a key element is that they are designed and manufactured to be connected to a circulation system. Other edits were made to closely align with the definition of a Public Swimming Pool in the ISPSC. In this case allowance was made to incorporate spas, hot tubs, and other types of pools within this definition, with the limited requirements for these structures found in the IBC, but the reader can find detailed definitions of each in the ISPSC.

Bibliography: International Swimming Pool & Spa Code, 2015 edition, Sections 101.2 and 202

Cost Impact: Will not increase the cost of construction
This code change is simply aligning the verbiage with that found in another I-code, the ISPSC, due to the fact certain requirements remain in the IBC (Section 1110.4.13 for example) for swimming pools and spas. It does not make a change that would add requirements to a pool; therefore, no cost increase exists.

G 20-15 : 202-SWIMMING POOL-HATFIELD5447

G 21-15

202

Proponent: Jay Crandell, ARES Consulting, representing Foam Sheathing Committee of the American Chemistry Council

THIS PROPOSAL WILL BE HEARD BY THE FIRE SAFETY COMMITTEE. PLEASE SEE THE TENTATIVE HEARING ORDER FOR THE FS COMMITTEE.

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

VAPOR RETARDER CLASS. A measure of a material or assembly's ability to limit the amount of moisture that passes through that material or assembly. Vapor retarder class shall be defined using the desiccant method <u>with Procedure A </u>of ASTM E 96 as follows:

Class I: 0.1 perm or less.
Class II: 0.1 < perm ≤ 1.0 perm.
Class III: 1.0 < perm ≤ 10 perm.

Reason: To make IBC and IRC definitions of vapor retarder class more consistent by adding reference to Procedure A of ASTM E 96. The IRC definition also should be later adjusted to be more grammatically correct and consistent with the IBC (e.g., the IRC definition reads "A measure of a material or assembly to limit..." which misses the word "ability" included in the IBC definition).

Cost Impact: Will not increase the cost of construction
This is a definition editorial change to coordinate codes with no cost impact.

G 21-15 : 202-VAPOR RETARDER CLASS-CRANDELL4999

G 22-15

304.2, [F] 307.2, 308.2, 310.2, 402.2, 404.1.1, 406.2, 408.1.1, 410.2, 411.2, 412.2, [F] 415.2, [F] 421.2, 423.2, 502.1, 702.1, 722.1.1, 802.1, 902.1, 1002.1, 1102.1, 1202.1, 1402.1, 1502.1, 1602, 1602.1, 1609.2, 1612.2, 1613.2, 1615.2, 1702.1, 1802.1, 2102.1, 2302.1, 2402.1, 2502.1, 2602.1, 3102.2, 3105.2, 3110.2

Proponent: Sarah Rice, Preview Group, representing Preview Group

2015 International Building Code

Revise as follows:

304.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

~~**AMBULATORY CARE FACILITY.**~~
~~**CLINIC, OUTPATIENT.**~~

[F] 307.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

(***The lists of terms in this and subsequent sections would be deleted.)***

308.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

310.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

402.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

404.1.1 Definition. ~~The following term is~~ Terms are defined in Chapter 2:

406.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~
408.1.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

410.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

411.2 Definition. ~~The following term is~~ Terms are defined in Chapter 2~~:~~

412.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~.~~
[F] 415.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

[F] 421.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

423.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~
502.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

702.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

722.1.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2:

802.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

902.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

1002.1 Definitions. ~~The following terms~~Terms are defined in Chapter 2~~:~~

1102.1 Definitions. ~~The following terms~~Terms are defined in Chapter 2:
1202.1 General. ~~The following terms~~Terms are defined in Chapter 2~~:~~

1402.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~
1502.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

1602.1 Definitions~~.~~ and notations ~~The following terms~~ Terms are defined in Chapter 2. The following notations are used in this chapter:

1609.2 Definitions. ~~For the purposes of Section 1609 and as used elsewhere in this code, the following terms~~ Terms are defined in Chapter 2~~.~~
1612.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

1613.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

1615.2 Definitions. ~~The following words and terms~~ Terms are defined in Chapter 2~~:~~

1702.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

1802.1 Definitions. ~~The following words and terms~~ Terms are defined in Chapter 2~~:~~

2102.1 General. ~~The following terms~~ Terms are defined in Chapter 2. The following notations are used in the chapter:

2302.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

2402.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~
2502.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

2602.1 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

3102.2 Definitions. ~~The following terms~~ Terms are defined in Chapter 2~~:~~

3105.2 Definition. ~~The following term is~~ Terms are defined in Chapter 2~~:~~

3110.2 Definition. ~~The following term is~~ Terms are defined in Chapter 2~~:~~

Reason: The intent of this proposal is to remove the definition list sections scattered about the code and the lists of defined terms included within each such section. Starting with the 2012 edition of the IBC all of the definitions were consolidated into Chapter 2. These sections are vestigages of historic organization of the code. In general when new terms are added to Chapter 2, they rarely find themselves being added to one of these lists. Terms can be removed from Chapter 2, but don't always get removed from these lists. Most of the ICC codes simply have a Chapter 2 of definitions, there are no lists scattered about the code. It is time to remove these lists. I see this as an editorial action. The proposal was not accepted by the Code Correlation Committee because of a concern that the language in each section implied that all terms were defined. I have revised that language to provide a simple reference for defined terms.
This proposal simply amends the sections to remove the lists and send the code users directly to Chapter 2. An alternative the committee might consider is to delete all of these sections (except the two that list notations). Deletion would force renumber of the balance of the sections in these chapters.

In two sections, these lists also contain a list of scientific notations used in the chapter. Those notations are not found in Chapter 2. Thus the current text is incorrect and needs to be addressed. The proposal retains Section 1602 and 2102, but only for the listed notations.

Cost Impact: Will not increase the cost of construction
The proposal is purely editorial in nature and will have no impact on actual construction.

G 22-15 : 304.2-RICE5794

G 23-15

302.1, 508.2.4, 508.3.3

Proponent: Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

2015 International Building Code

Revise as follows:

302.1 General. Structures or portions of structures shall be classified with respect to occupancy in one or more of the groups listed in this section. A room or space that is intended to be occupied at different times for different purposes shall comply with all of the requirements that are applicable to each of the purposes for which the room or space will be occupied. <u>Occupied roof decks, other than private roof decks accessed from individual dwelling units in Group R-3 and Group R-2 occupancies, shall be classified based on the proposed use of the space.</u> Structures with multiple occupancies or uses shall comply with Section 508. Where a structure is proposed for a purpose that is not specifically provided for in this code, such structure shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard involved.

1. Assembly (see Section 303): Groups A-1, A-2, A-3, A-4 and A-5.
2. Business (see Section 304): Group B.
3. Educational (see Section 305): Group E.
4. Factory and Industrial (see Section 306): Groups F-1 and F-2.
5. High Hazard (see Section 307): Groups H-1, H-2, H-3, H-4 and H-5.
6. Institutional (see Section 308): Groups I-1, I-2, I-3 and I-4.
7. Mercantile (see Section 309): Group M.
8. Residential (see Section 310): Groups R-1, R-2, R-3 and R-4.
9. Storage (see Section 311): Groups S-1 and S-2.
10. Utility and Miscellaneous (see Section 312): Group U.

508.2.4 Separation of occupancies. No separation is required between accessory occupancies and the main occupancy.

Exceptions:

1. Group H-2, H-3, H-4 and H-5 occupancies shall be separated from all other occupancies in accordance with Section 508.4.
2. Group I-1, R-1, R-2 and R-3 *dwellingunits* and *sleeping units* shall be separated from other *dwelling* or *sleeping units* and from accessory occupancies contiguous to them in accordance with the requirements of Section 420.
3. <u>Occupied roof decks classified as Group A and located on buildings constructed with three or more stories above grade plane and constructed of Type VB, IIIB and IIB construction shall be separated from all other occupancies in accordance with Section 508.4.</u>

508.3.3 Separation. No separation is required between nonseparated occupancies.

Exceptions:

1. Group H-2, H-3, H-4 and H-5 occupancies shall be separated from all other occupancies in accordance with Section 508.4.
2. Group I-1, R-1, R-2 and R-3 *dwellingunits* and *sleeping units* shall be separated from other *dwelling* or *sleeping units* and from other occupancies contiguous to them in accordance with the requirements of Section 420.
3. <u>Occupied roof decks classified as Group A and located on buildings constructed with three or more stories above grade plane and constructed of Type VB, IIIB and IIB construction shall be separated from all other occupancies in accordance with Section 508.4.</u>

Reason: Modify Section 301 and add exception 3 to Section 508.2.4 and to Section 508.3.3 to require an occupancy separation between occupied roof decks classified as Group A and the building below.
Section 302.1 of the IBC requires that rooms or spaces be classified into one or more occupancies. In addition to determining allowable height and area requirements, as well fire protection requirements, establishing the occupancy of a space is required to determine means of egress requirements and fire alarm and occupant notification requirements. The IBC is not clear on how to address occupied roofs used for public assembly or other uses. Section 1004.5 requires compliance with the means of egress requirements of Ch 10 for certain outdoor areas that are enclosed and to and from which building occupants pass. The code is not clear what other occupancy specific requirements should be applicable due to the occupancy within the occupied roof deck.

The purpose of this code change is to require not less than one hour construction for the floor supporting occupied roof decks classified in Group A when required by Table 508.4 and when located on buildings of Type VB, IIIB, IIB construction. Table 508.4 requires at least a one hour occupancy separation for all occupancies other than F-2, S-2, U and E when adjacent to a Group A occupancy. Occupants on the occupied roof deck may not be at risk due to a fire event occurring on the roof deck, however they are unaware of the hazards in the building below which can be several stories below.

For example a Group A occupancy can be located on an occupied roof above a 74 ft high Type IIIB sprinkler protected building with two stories of type IA construction below 5 stories of Type IIIB construction. 500 occupants can be located on this occupied roof deck and are provided with two 2 hour interior exit stairways. Fire alarm activation of this non-high rise building will simultaneously cause the evacuation of all occupants in the building served by the two stairways and as a consequence queuing will occur. The occupancy separation will provide sufficient time for occupants on the roof to queue and enter the exit stairways and safely egress down the stairways.

This code changes provides balanced fire protection and does not rely only on sprinkler protection required in the building below by Section 903.2.1.6. The proposed code change only requires that the occupancy separation be required when the occupied roof deck is located above a building three or more stories above grade plane. Private roof decks associated with Group R-3 and individual units in R-2 are not classified as group A and will not be required to comply with the proposed code change.

Section 903.2.1.6 was added in the last code change cycle in code change # F121, F122, F124 -13 by Aon Fire Protection, Tennessee Code Development Committee and the ICC Fire Code Action Committee to require sprinkler protection below occupied roofs with more than 100 occupants for Group A-2 and 300 for all other Group A occupancies when not on open parking garages constructed of Type I or Type II. The substantiation for Code Change # F124 that prevailed with modifications, and that was approved under public comment # 1, stated in part that "The occupants of the Group A occupancy, whether within the building or on the roof, are unaware of the hazards in the building and need to evacuate through the building."

Cost Impact: Will increase the cost of construction
This code change will increase the cost of construction due to required additional fire resistance of the roof ceiling assembly under the occupied roof deck and supporting construction. The majority of wood framed buildings are covered with gypsum sheathing board or exterior plaster wall finish so the cost impact is not significant when compared to the overall cost of construction.

G 24-15

302.1, 503.1.4 (New)

Proponent: Stephen Thomas, representing Colorado Chapter (sthomas@coloradocode.net)

2015 International Building Code

Revise as follows:

302.1 General. Structures or portions of structures shall be classified with respect to occupancy in one or more of the groups listed in this section. A room or space that is intended to be occupied at different times for different purposes shall comply with all of the requirements that are applicable to each of the purposes for which the room or space will be occupied. Structures with multiple occupancies or uses shall comply with Section 508. Where a structure is proposed for a purpose that is not specifically provided for in this code, such structure shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard involved. Yards, patios, courts, occupied roofs and similar outdoor areas accessible to and usable by the building occupants shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard involved.

1. Assembly (see Section 303): Groups A-1, A-2, A-3, A-4 and A-5.
2. Business (see Section 304): Group B.
3. Educational (see Section 305): Group E.
4. Factory and Industrial (see Section 306): Groups F-1 and F-2.
5. High Hazard (see Section 307): Groups H-1, H-2, H-3, H-4 and H-5.
6. Institutional (see Section 308): Groups I-1, I-2, I-3 and I-4.
7. Mercantile (see Section 309): Group M.
8. Residential (see Section 310): Groups R-1, R-2, R-3 and R-4.
9. Storage (see Section 311): Groups S-1 and S-2.
10. Utility and Miscellaneous (see Section 312): Group U.

Add new text as follows:

503.1.4 Occupied roofs Occupied roofs are not subject to the building height, number of stories and building area limitations of Sections 504 and 506.

Reason: Many buildings are being built or altered to create an occupied roof. The code is not clear as to the requirements for these "spaces". Chapter 10 takes care of the means of egress requirements. But, the rest of the code does not address these issues. Some areas are used as gathering spaces, dining areas, swimming pools, etc. The question has come up as to whether these uses are an "occupancy". Some jurisdictions classify them as occupancies and others do not. We were originally going to look at writing a much larger change that would state that they are not occupancies and provide exceptions throughout the code. However, the fact is that the code is an occupancy driven document. Therefore, we decided to use similar language in Section 302.1 combined with the language in Section 1004.5. An occupied roof would be classified to an occupany that it most resembles. For example, a roof off of a private office would be classified as a Group B occupancy. However a roof above a restaurant would be classified as a Group A-2 occupancy.
We have also provided language stating that the hieght and area requirements do not apply to occupied roofs. We conducted a survey of several building departments and code consultants and found that most respondents did not require an occupied roof to comply with the height and area provisions of the code. We are also not aware of any issues with the use of a roof as an occupied space.

This proposal provides users of the code some guidance and clarification on how to apply the provisions to an occupied roof.

Cost Impact: Will not increase the cost of construction
This change is a clarification to the code. It will not affect the overall cost of construction.

G 24-15 : 302.1-THOMAS4437

G 25-15

303.1.1, 303.1.2

Proponent: Johnna Grizzard, representing Virginia Building and Code Officials Association

2015 International Building Code

Revise as follows:

303.1.1 Small buildings and tenant spaces. A building or tenant space used for assembly purposes with an *occupant load* of less than 50 persons ~~shall~~ is permitted to be classified as a Group B occupancy.

303.1.2 Small assembly spaces. The following rooms and spaces shall not be classified as Assembly occupancies:

1. A room or space used for assembly purposes with an *occupant load* of less than 50 persons and accessory to another occupancy ~~shall~~is permitted to be classified as a Group B occupancy or as part of that occupancy.
2. A room or space used for assembly purposes that is less than 750 square feet (70 m^2) in area and accessory to another occupancy ~~shall~~ is permitted to be classified as a Group B occupancy or as part of that occupancy.

Reason: The current language requires that Group A, Assembly buildings, tenant spaces, and small areas with an occupant load less than 50 be classified as a Group B occupancy. These exceptions were likely originally intended to be Exceptions--not requirements. By requiring such spaces to be classified as a B occupancy, a *change of occupancy* could be forced when the actual hazard is being decreased. When a space undergoes a change of use the accessisible route, plumbing fixture calculations, outside air calculations, etc. have to be evaluated under current code provisions. If applied literally, this current language is a significant burden on a business owners.

For example, if a small cafe had an occupant load less than 50 due to fixture layout and were to move into a space that was previously classified as an A-2, the current language would required that the space be re-classified to a Business occupancy.

Cost Impact: Will not increase the cost of construction
Clarifying the intent of these exceptions would likely reduce the cost because Assesmbly occupancies with less than 50 occupants would not be forced into a *change of occupancy*.

G 25-15 : 303.1.1-GRIZZARD5463

G 26-15

303.1.1, 303.1.2

Proponent: Gregory Keith, Professional heuristic Development, representing The Boeing Company (grkeith@mac.com)

2015 International Building Code

Revise as follows:

303.1.1 Small buildings and tenant spaces. A building or tenant space used for assembly purposes with an *occupant load* of less than 50 persons <u>that is not accessory to another occupancy</u> shall be classified as a Group B occupancy.

303.1.2 Small assembly spaces. The following rooms and spaces shall not be classified as Assembly occupancies:

1. A room or space used for assembly purposes with an *occupant load* of less than 50 persons and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.
2. A room or space used for assembly purposes that is less than 750 square feet (70 m^2) in area and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.

Reason: This proposal is intended to provide clarity to users. There is a technical relationship between Sections 303.1.1 and 303.1.2. Both deal with buildings or portions of buildings having an occupant load of less than 50 persons. The qualifying conditions for both sections are somewhat similar. However, Section 303.1.2 states that applicable spaces are accessory to another occupancy. If such is the case, such space may be classified as a Group B occupancy or the occupancy to which they are accessory. Until a person reads Section 303.1.2, the intent of Section 303.1.1 does not become readily apparent. That is, Section 303.1.1 is applicable to tenant spaces <u>not</u> accessory to another occupancy. Inclusion of this clarifying language will place Section 303.1.1 in technical context and assist code users as they attempt to classify occupancies containing assembly uses.

Cost Impact: Will not increase the cost of construction
This proposal results in no technical change.

G 26-15 : 303.1.1-KEITH5457

G 27-15

303.4

Proponent: Vickie Lovell, InterCode Incorporated, representing National Greenhouse Manufacturers Association (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

303.4 Assembly Group A-3. Group A-3 occupancy includes assembly uses intended for worship, recreation or amusement and other assembly uses not classified elsewhere in Group A including, but not limited to:
Amusement arcades
Art galleries
Bowling alleys
Community halls
Courtrooms
Dance halls (not including food or drink consumption)
Exhibition halls
Funeral parlors
<u>Greenhouses with public access for the conservation and exhibition of plants</u>
Gymnasiums (without spectator seating)
Indoor *swimming pools* (without spectator seating) Indoor tennis courts (without spectator seating)
Lecture halls
Libraries
Museums
Places of religious worship
Pool and billiard parlors
Waiting areas in transportation terminals

Reason: Buildings made for human habitation maintain specific lighting, ventilation, heating and cooling levels that are suitable for the health and welfare of humans and their property, even though plants can co-exist in such environments. The main distinguishing feature between a greenhouse and other structures is that the environment in a greenhouse is designed and maintained exclusively for, and is essential for the aggressive propagation of plants.
However, other activities can be conducted in a greenhouse, such as retail business, research by schools and universities, conservation, education, display by botanical institutions holding documented collections of specialty plants, and similar activities.

The intent of this proposal is to clarify that greenhouses, while typically determined to be Group U, are also used for public venues for the conservation and exhibition of specialty collections of plants, such as botanical gardens, private collections open to the public, and municipal parks. This proposal recognizes that trend, and helps code users and enforcers to consistently apply the requirements appropriately for greenhouses determined to be in this occupancy group.

Most importantly, even though the greenhouse is accessible by the public, it is still intended to maintain a unique environment with carefully controlled conditions specific to the plants in the greenhouse; otherwise, the plants will not survive. Greenhouses with public access for the conservation and exhibition of plants should not be confused with other sunlit interior spaces that feature plants for aesthetic purposes.

Cost Impact: Will not increase the cost of construction
There is no cost impact related to this proposal because this code change only adds greenhouses to Group A-3.

G 27-15 : 303.4-LOVELL5751

G 28-15

303.5

Proponent: Michael Anthony, University of Michigan, representing University of Michigan (maanthon@umich.edu)

2015 International Building Code

Revise as follows:

303.5 Assembly Group A-4. Group A-4 occupancy includes assembly uses intended for viewing of indoor sporting events and activities with spectator seating including, but not limited to:
Arenas
Skating rinks
Swimming pools
Tennis courts
Sports practice facilities

Reason: These large faciities are now in common use for intercollegiate football programs. Recognition here will correlate with another proposal we will submit for Section 906.

Cost Impact: Will not increase the cost of construction
This is just a proposal for refinement of an existing definition that will likely reduce variance requests. From that standpoint, this definition may actually reduce construction cost farther upstream in the design phase.

G 28-15 : 303.5-ANTHONY5460

G 29-15

304.1

Proponent: Vickie Lovell, InterCode Incorporated, representing National Greenhouse Manufacturers Association (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

304.1 Business Group B. Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following:
Airport traffic control towers
Ambulatory care facilities
Animal hospitals, kennels and pounds
Banks
Barber and beauty shops
Car wash
Civic administration
Clinic, outpatient
Dry cleaning and laundries: pick-up and delivery stations and self-service
Educational occupancies for students above the 12th grade
Electronic data processing
Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities not more than 2,500 square feet (232 m^2) in area.
Greenhouses attached to structures classified as Group B
Laboratories: testing and research
Motor vehicle showrooms
Post offices
Print shops
Professional services (architects, attorneys, dentists, physicians, engineers, etc.)
Radio and television stations
Telephone exchanges
Training and skill development not in a school or academic program (this shall include, but not be limited to, tutoring centers, martial arts studios, gymnastics and similar uses regardless of the ages served, and where not classified as a Group A occupancy).

Reason: Buildings made for human habitation maintain specific lighting, ventilation, heating and cooling levels that are suitable for the health and welfare of humans and their property, even though plants can co-exist in such environments. The main distinguishing feature between a greenhouse and other structures is that the environment in a greenhouse is designed and maintained exclusively for, and is essential for the aggressive propagation of plants by commercial growers. However, other activities can be conducted in a greenhouse, such as retail business, research by schools and universities, conservation, education, display by botanical institutions holding documented collections of specialty plants, and similar activities. Most importantly, the unique environment must be carefully controlled with conditions specific to the plants in the greenhouse; otherwise, the plants will not survive.
The intent of this proposal is to clarify that greenhouses, typically considered to be Group U, are being used for educational occupancies for students above the 12th grade such as universities and schools, laboratories for research, and other professional settings. This proposal helps code users and enforcers to apply the requirements consistently and appropriately for greenhouses that have been determined to be in this occupancy group.

Greenhouses can be free standing or attached to a university classroom or laboratory for scientific studies. Access is limited to students and faculty - Use Group B or U.

Cost Impact: Will not increase the cost of construction
There is no cost impact related to this proposal because this code change only adds greenhouses to Group B.

G 29-15 : 304.1-LOVELL4395

G 30-15

305.1.2 (New)

Proponent: Vickie Lovell, InterCode Incorporated, representing National Greenhouse Manufacturers Association (vickie@intercodeinc.com)

2015 International Building Code

Add new text as follows:

305.1.2 Greenhouses Greenhouses attached to structures classified as Group E occupancies shall be classified as Group E.

Reason: Buildings made for human habitation maintain specific lighting, ventilation, heating and cooling levels that are suitable for the health and welfare of humans and their property, even though plants can co-exist in such environments. The main distinguishing feature between a greenhouse and other structures is that the environment in a greenhouse is designed and maintained exclusively for, and is essential for the aggressive propagation of plants by commercial growers. However, other activities can be conducted in a greenhouse, such as retail business, research by schools and universities, conservation, education, display by botanical institutions holding documented collections of specialty plants, and similar activities. Most importantly, the unique environment must be carefully controlled with conditions specific to the plants in the greenhouse; otherwise, the plants will not survive.

The intent of this proposal is to clarify that greenhouses, while typically determined to be Group U, are being used for educational occupancies for students in private and public schools, laboratories, and other educational venues. This proposal helps code users and enforcers to consistently apply the requirements appropriately for greenhouses determined to be in this occupancy group.

Cost Impact: Will not increase the cost of construction
There is no cost impact related to this proposal because this code change only adds greenhouses to Group E.

G 30-15 : 305.1.2 (New)-LOVELL5092

G 31-15

306.3

Proponent: Vickie Lovell, InterCode Incorporated, representing National Greenhouse Manufacturers Association (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

306.3 Low-hazard factory industrial, Group F-2. Factory industrial uses that involve the fabrication or manufacturing of noncombustible materials that during finishing, packing or processing do not involve a significant fire hazard shall be classified as F-2 occupancies and shall include, but not be limited to, the following:
Beverages: up to and including 16-percent alcohol content
Brick and masonry
Ceramic products
Foundries
Glass products
Gypsum
Ice
Metal products (fabrication and assembly)
<u>Plants cultivated in detached production greenhouses</u>

Reason: Although greenhouses have historically been classified in the IBC as Group U occupancy group, many of today's greenhouses are actually manufacturing and process facilities intensively cultivating flowers, vegetables, fruits, and herbs for food, medicine, etc. They maintain a highly controlled interior environment for heating, cooling, watering, and the management of sunlight for maximum yield. Such facilities have a low occupant load and manufacture "products" that are not a significant fire hazard and require minimal packaging. Such facilities are technologically sophisticated and are not consistent with other low-tech Group U structures such a stables, barns, sheds and carports, and exceed the area limitations for that use group.
This proposal helps code users and enforcers to consistently apply the requirements appropriately for greenhouses determined to be in this occupancy group.

Commercial production greenhouse. Use Group F-2.

Cost Impact: Will not increase the cost of construction
There is no cost impact related to this proposal because this code change only adds plants in commercial greenhouses to Group F-2.

G 31-15 : 306.3-LOVELL5094

G 32-15

202 (New), 308.3, 310.6, 420.4

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

CRISIS CENTER. A building or part thereof housing persons, on a 24-hour basis, who due to an emergent situation need housing. The occupants are generally capable of responding to an emergency situation, but may require physical prompting from staff and may include adults or children with an adult, parent or guardian.

Revise as follows:

308.3 Institutional Group I-1. Institutional Group I-1 occupancy shall include buildings, structures or portions thereof for more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised environment and receive custodial care. Buildings of Group I-1 shall be classified as one of the occupancy conditions specified in Section 308.3.1 or 308.3.2. This group shall include, but not be limited to, the following:

Alcohol and drug centers

Assisted living facilities

Congregate care facilities

Crisis Center

Group homes

Halfway houses

Residential board and care facilities

Social rehabilitation facilities

310.6 Residential Group R-4. Residential Group R-4 occupancy shall include buildings, structures or portions thereof for more than five but not more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised residential environment and receive *custodial care*. Crisis center facilities shall be permitted to be used for the care of not more than 10 children under the age of 2-1/2 on a transient basis. Buildings of Group R-4 shall be classified as one of the occupancy conditions specified in Section 310.6.1 or 310.6.2. This group shall include, but not be limited to, the following:

Alcohol and drug centers

Assisted living facilities

Congregate care facilities

Crisis center

Group homes

Halfway houses

Residential board and care facilities

Social rehabilitation facilities

Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except as otherwise provided for in this code.

420.4 Smoke barriers in Group I-1, Condition 2. Smoke barriers shall be provided in Group I-1, Condition 2 and *crisis centers*, to subdivide every story used by persons receiving care, treatment or sleeping and to provide other stories with an occupant load of 50 or more persons, into no fewer than two smoke compartments. Such stories shall be divided into smoke compartments with an area of not more than 22,500 square feet (2092 m^2) and the distance of travel from any point in a smoke compartment to a smoke barrier door shall not exceed 200 feet (60 960 mm). The smoke barrier shall be in accordance with Section 709.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
The IBC currently would have us classify any Child Care Facility having more than 5 children less than 2 ½ years old staying there for up to three days as an I-2 Occupancy. For a two-story that would require the building be built of II-A construction even if fully protected by an NFPA 13 sprinkler system due to the I-2 classification. We feel that is excessive for a small crisis type center that provides shelter for a mother and child for a short period of time while they find a place to live. For that reason, we feel it is more reasonable to include such a use in the special occupancy section of the code.

Also, IBC Chapter 11 does not specifically address this type of care and accordingly lacks direction as to applying accessibility provisions. Currently code users and code officials can evaluate the building for accessibility using "anticipated need" and because Chapter 11 does not have provisions for a "Crisis Center" one can be led to "R-4" provisions using "anticipated need" for applying the accessibility provisions. That still leaves code officials in the awkward position of requiring the higher levels of costly construction for items like fire resistive rated noncombustible construction, shafts, dampers and exiting due to the I-2 occupancy.

For those reasons we feel it would be best to include a definition in Chapter 2, a reference to those facilities in sections 308.3 and 310.6 and the details within Section 420.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction. The cost of construction and maintenance should be reduced for these types of facilities.

G 32-15 : 308.3-KULIK3682

G 33-15

308.3.4, 308.4.2, 310.5.1, [F] 903.2.8.4 (IFC 903.2.8.4)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

308.3.4 Five or fewer persons receiving custodial care. A facility with five or fewer persons receiving custodial care shall be classified as Group R-3 ~~or shall comply with the *International Residential Code* provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or Section P2904 of the *International Residential Code*~~.

308.4.2 Five or fewer persons receiving medical care. A facility with five or fewer persons receiving medical care shall be classified as Group R-3 ~~or shall comply with the *International Residential Code* provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or Section P2904 of the *International Residential Code*~~.

310.5.1 Care facilities ~~within a dwelling~~. ~~Care facilities for~~
A dwelling with five or fewer persons receiving custodial or medical care ~~that are within a single-family dwelling are~~, shall be permitted to ~~comply~~be constructed in accordance with the *International Residential Code*~~provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or Section P2904 of the *International Residential Code*~~.

2015 International Fire Code

Revise as follows:

903.2.8.4 Care facilities. An *automatic sprinkler system* installed in accordance with Section 903.3.1.3 shall be permitted in ~~care facilities~~a dwelling with five or fewer individuals ~~in a single-family dwelling.~~providing custodial or medical care.

Reason: The intent of this proposal is to coordinate the language between sections and to let the IRC requirements determine the sprinkler regulations. The provisions for 5 or fewer persons receiving care under Group I-1 and I-2 (308.3.4, 308.4.2) is strictly a reference to the requirements in Group R-3 (310.5.1). If a care facility is not within a dwelling, it is a Group R-3. If care is provided for individuals within a home, they can follow the IRC for construction requirements.
The dwelling with 5 or fewer persons receiving care can literally be single family homes or small group home. The Group R-4 facilities were developed to be consistent with the Fair Housing Act. Over time, changes have been made to the codes that have resulted in jurisdictions being subject to discrimination lawsuits under the Fair Housing Act.

The IRC has a sprinkler requirement, so these homes should be permitted to be constructed in accordance with the IRC. Forcing a facility to drag a sprinkler system with them, just in case a jurisdiction may decide to not require single family home to sprinkler, is not good code practice.

NFPA 13D sprinkler systems are required for care facilities with 5 or fewer residents (Section 903.2.8.4) that decide to construct in the IBC. The proposed wording is for consistency in the language in Chapter 3.

The change to IFC 903.2.8.4 is strictly consistency in terminology and is not a technical change.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at:
http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
Sprinklers requirements for homes are addressed in the IRC. Working within the family of codes, this is not a change in requirements.

G 33-15 : 308.3.4-BALDASSARRA4268

G 34-15

308.3.4, 308.4.2, 310.5.1

Proponent: Gerald Anderson, representing self (Jerry.Anderson@opkansas.org)

2015 International Building Code

Revise as follows:

308.3.4 Five or fewer persons receiving custodial care. A facility with five or fewer persons receiving custodial care shall be classified as Group R-3 or shall comply with the *International Residential Code*. ~~provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or Section P2904 of the *International Residential Code*.~~

308.4.2 Five or fewer persons receiving medical care. A facility with five or fewer persons receiving medical care shall be classified as Group R-3 or shall comply with the *International Residential Code*~~provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or Section P2904 of the *International Residential Code*.~~.

310.5.1 Care facilities within a dwelling. Care facilities for five or fewer persons receiving care that are within a single-family dwelling are permitted to ~~comply~~be constructed in accordance with the *International Residential Code*. ~~provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or Section P2904 of the *International Residential Code*.~~

Reason: It is not necessary to state that an automatic fire sprinkler system is required because Section 313 of the International Residential Code (IRC) already requires that such systems be installed in all one and two family dwellings.
I would also argue that it is inappropriate for the IBC to dictate what needs to be accomplished in the IRC. Either it is or it is not okay for these types of uses to constructed in accordance with the requirements of the IRC.

We also need to be consistent in our language. I would note that IBC Section 308.6.4 of the IBC (I-4 day care facilities) makes reference to the IRC without the additional language concerning fire sprinklers. Also, in IBC Section 310.5.2 (lodging houses) if makes reference to the IRC without the additional language concerning fire sprinklers.

I also made an additional change to section 310.5.1. Instead of saying 'permitted to comply' I am suggesting that it state 'permitted to be constructed in accordance'. This language is consistant with the language in 310.5.2 for lodging houses.

Every code cycle the code increases in size. Any effort that can be made to reduce unneccessary language should be taken up immediately.

Cost Impact: Will not increase the cost of construction
This change will have no bearing on cost.

G 34-15 : 308.3.4-ANDERSON5628

G 35-15

202 (New), 308.2, 308.5, 308.5.6 (New)

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

LOCKUP FACILITY Buildings containing holding cells, rooms or areas where occupants are restrained or detained.

Revise as follows:

308.2 Definitions. The following terms are defined in Chapter 2:
24-HOUR BASIS.
CUSTODIAL CARE.
DETOXIFICATION FACILITIES.
FOSTER CARE FACILITIES.
HOSPITALS AND PSYCHIATRIC HOSPITALS.
LOCKUP FACILITY
INCAPABLE OF SELF-PRESERVATION.
MEDICAL CARE.
NURSING HOMES.

308.5 Institutional Group I-3. Institutional Group I-3 occupancy shall include all buildings and structures or portions thereof that are inhabited by ~~more than five persons~~ people who are under restraint or security. A Group I-3 facility is occupied by persons who are generally *incapable of self-preservation* due to security measures not under the occupants' control. This group shall include, but not be limited to, the following:
Correctional centers
Detention centers Jails
Lockup facility
Prerelease centers
Prisons
Reformatories
Buildings of Group I-3 shall be classified as one of the occupancy conditions specified in Sections 308.5.1 through 308.5.5 (see Section 408.1).

Add new text as follows:

308.5.6 Lockup facilities. A lockup facility for five or fewer persons shall be classified as a Group B occupancy or as part of the primary occupancy of the building. Such facilties shall comply with all of the following:

1. The area containing a lockup facility shall be separated from other rooms, spaces or areas by smoke barrier complying with Section 709.
2. The building containing a lockup facility shall be protected with an automatic fire sprinkler system complying with Section 903.
3. The area containing a lockup facility shall be provided with an automatic smoke detection system installed in accordance with Section 907.
4. There shall be not more than one lock-up facility within a building.
5. The restraint of individuals within the lock-up facility shall be for less than 24 hours.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
This code proposal adds a definition for lockup facilities that is needed in the Code that clarifies the use occupancies for buildings/spaces that contain five or less occupants under restraint or detained.

This code proposal includes the revision of Section 308.5 and the addition of Section 308.5.6. The revision removes more than five persons, and adds buildings and structures containing a room, holding cell or cellblock used to place persons under restraint or security. The new section adds lockup facilities and also clarifies that an approved smoke barrier complying with Section 709 be provided, and also fire sprinkler and smoke detectors be installed. There would be no more than one lockup facility within a building and the restraint of individuals is for less than 24 hours.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction of rooms or spaces used to restrain or detain occupants.

G 35-15 : 308.5.6 (New)-KULIK4893

G 36-15

309.1

Proponent: Vickie Lovell, InterCode Incorporated, representing National Greenhouse Manufacturers Association (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

309.1 Mercantile Group M. Mercantile Group M occupancy includes, among others, the use of a building or structure or a portion thereof for the display and sale of merchandise, and involves stocks of goods, wares or merchandise incidental to such purposes and accessible to the public. Mercantile occupancies shall include, but not be limited to, the following:
Department stores
Drug stores
<u>Greenhouses with public access that maintain plants for display and sale</u>
Markets
Motor fuel-dispensing facilities
Retail or wholesale stores
Sales rooms

Reason: Buildings made for human habitation maintain specific lighting, ventilation, heating and cooling levels that are suitable for the health and welfare of humans and their property, even though plants can co-exist in such environments. The main distinguishing feature between a greenhouse and other structures is that the environment in a greenhouse is designed and maintained exclusively for, and is essential to maintain plants for display and sale. However, other activities can be conducted in a greenhouse, such as retail business, research by schools and universities, conservation, education, display by botanical institutions holding documented collections of specialty plants, and similar activities. Most importantly, the unique environment must be carefully controlled with conditions specific to the plants in the greenhouse; otherwise, the plants will not survive.
The intent of this proposal is to clarify that greenhouses, while typically determined to be Group U, are also commonly used for retail purchases by the public. This proposal helps code users and enforcers to consistently apply the requirements appropriately for greenhouses determined to be in this occupancy group.

Greenhouse for display and retail sales of plants intended for public access - Use Group M.

Cost Impact: Will not increase the cost of construction
There is no cost impact related to this proposal because this code change only adds greenhouses to Group M.

G 36-15 : 309.1-LOVELL5096

G 37-15

310.4, 310.5

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org); Adolf Zubia, Chair, Fire Code Action Committee (fcac@iccsafe.org); Edward Kulik, Chair, Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

310.4 Residential Group R-2. Residential Group R-2 occupancies containing *sleeping units* or more than two *dwelling units* where the occupants are primarily permanent in nature, including:

Apartment houses with three or more dwelling units
~~*Boarding houses* (nontransient) with more than 16 occupants~~
Congregate *living facilities* (non-transient) with more than 16 occupants
Boarding houses (non transient)
Convents
Dormitories
Fraternities and sororities
Monasteries
Hotels (nontransient)
Live/work units
Motels (nontransient)
Vacation timeshare properties

310.5 Residential Group R-3. Residential Group R-3 occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:

Buildings that do not contain more than two *dwelling units*
~~*Boarding houses* (nontransient) with 16 or fewer occupants~~
~~*Boarding houses* (*transient*) with 10 or fewer occupants~~
Care facilities that provide accommodations for five or fewer persons receiving care
Congregate living facilities (nontransient) with 16 or fewer occupants
Boarding houses (nontransient)
Convents
Dormitories
Fraternities and sororities
Monasteries
Congregate living facilities (*transient*) with 10 or fewer occupants
Boarding houses (transient)
Lodging houses with five or fewer *guest rooms*

Reason: Currently convents, dormitories, fraternities, sororities and monasteries are only listed as Group R-2. If these facilities are small enough (i.e., 16 or fewer occupants), they should be permitted to comply with Group R-3 requirements. This would be consistent with current allowances for boarding houses and non-transient congregate residences.
This is part of a group of proposals to address this style of design and group homes within single family residences. Changes are proposed for the definition for sleeping units, the Group classifications in Section 310.4 and 310.5, separation requirements in Section 420, and coordination with accessibility requirements in Section 1107. Proposals will be put forward as part of Group B for fire and smoke alarm systems. The proposals could work separately.
The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx

This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 10 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc

The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

310.5 - congregate living facilities should not be indented

Cost Impact: Will not increase the cost of construction
This will increase design options and is a clarification.

G 37-15 : 310.4-BALDASSARRA4295

G 38-15

310.4

Proponent: Michael Anthony, University of Michigan, representing University of Michigan (maanthon@umich.edu)

2015 International Building Code

Revise as follows:

310.4 Residential Group R-2. Residential Group R-2 occupancies containing *sleeping units* or more than two *dwelling units* where the occupants are primarily permanent in nature, including:
Apartment houses
Boarding houses (nontransient) with more than 16 occupants
Congregate living facilities (nontransient) with more than 16 occupants
Convents
Dormitories <u>*(Student residence facilities)*</u>
Fraternities and sororities
Hotels (nontransient)
Live/work units
Monasteries
Motels (nontransient)
Vacation timeshare properties

Reason: Submitted to draw attention to 2 other proposals submitted by the University of Michigan -- both are conceptually similar. Whichever definition the committee accepts, the definition should be carried over to this part of the IBC for consistency.

Cost Impact: Will not increase the cost of construction
This is just a bit of wordsmithing to make sure any new defintion proposed in Section 202 gets conveyed into Section 310

G 38-15 : 310.4-ANTHONY5411

G 39-15

310.4

Proponent: Stephen DiGiovanni, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

310.4 Residential Group R-2. Residential Group R-2 occupancies containing *sleeping units* or more than two *dwelling units* where the occupants are primarily permanent in nature, including:
Apartment houses
Boarding houses (nontransient) with more than 16 occupants
<u>Condominiums (nontransient)</u>
Congregate living facilities (nontransient) with more than 16 occupants
Convents
Dormitories
Fraternities and sororities
Hotels (nontransient)
Live/work units
Monasteries
Motels (nontransient)
Vacation timeshare properties

Reason: Condominiums are not defined and could be interpreted as R-1 or R-2 occupancies depending on the use by the Owner as either a rental unit on a short term basis (less than 30 days) or as a longer term rental or permanent residence. However, in terms of actual use, Condominiums (nontransient) most closely resemble apartment houses, with an ownership component. In addition, the index references apartment houses for the term condominium. Further, condominium units always provide complete, independent living facilities, including permanent provisions for living, sleeping, eating, cooking and sanitation. As such, condominiums contain dwelling units and not just sleeping units. Since Group R-1 occupancies are limited to residential occupancies containing sleeping units where the occupants are primarily transient in nature, it is not appropriate to classify condominiums as Group R-1 occupancies. This proposal eliminates any misinterpretation by mandating that condominiums be classified as Group R-2.

Cost Impact: Will not increase the cost of construction
This proposal will not increase construction costs, as it simply clarifies that condominium are to be deemed a R-2 occupancy.

G 39-15 : 310.4-DIGIOVANNI3814

G 40-15

310.5, 310.5.2

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

310.5 Residential Group R-3. Residential Group R-3 occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:
Buildings that do not contain more than two *dwelling units*
Boarding houses (nontransient) with 16 or fewer occupants
Boarding houses (*transient*) with 10 or fewer occupants
Care facilities that provide accommodations for five or fewer persons receiving care
Congregate living facilities (nontransient) with 16 or fewer occupants
Congregate living facilities (*transient*) with 10 or fewer occupants
<u>Owner-occupied</u>*Lodging houses* <u>*(transient)*</u> with five or fewer *guest rooms* <u>and 10 or fewer occupants</u>

310.5.2 Lodging houses. Owner-occupied *lodging houses* with five or fewer *guest rooms* <u>*and* 10 or fewer occupants</u> shall be permitted to be constructed in accordance with the *International Residential Code*.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
The purpose of this code change is to provide for further clarification of the correlation between the International Residential Code and the International Building Code. During the 2009/2010 code cycle, an exemption to IRC Section R101.2 was approved allowing owner-occupied lodging houses with five or fewer guestrooms to be constructed under the IRC. However, a correlating provision was not added to the IBC, resulting in a conflict between the two codes and a potential for confusion in enforcement. Last cycle language was added to the IBC at the final action hearing to correlate the IBC with the IRC.

This proposal further refines the added language by inserting "owner occupied" which is a qualifier already in the IRC; by clarifying that the lodging use is of a "transient" nature consistent with other Group R-3 use language. It further ties in the 10 or fewer occupant load criteria which is also intended for consistency with the current Board house language, a lodging house is a form of a boarding house.

Cost Impact: Will not increase the cost of construction
This proposal will decrease the cost of construction by further clarifying that certain owner-occupied lodging houses can be constructed under the IRC rather than the IBC and by providing increased consistency of language and application.

G 40-15 : 310.5-KULIK5031

G 41-15

310.5.2

Proponent: Anthony Apfelbeck, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Building Code

Revise as follows:

310.5.2 Lodging houses. Owner-occupied *lodging houses* with five or fewer *guest rooms* shall be permitted to be constructed in accordance with the *International Residential Code* provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or Section P2904 of the *International Residential Code*.

Reason: The base requirements of the IRC and the IBC require fire sprinkler protection for all Group R occupancies and for all One-and two-family dwelling and townhomes. This code change proposal clarifies fire sprinkler protection is still required for these uses regardless of an application under the IRC or IBC. This is similar language to that used above in 310.5.1 and other sections of the code that permit a use under the IRC but require fire sprinkler protection for occupant life safety protection under the base code requirements.

Cost Impact: Will not increase the cost of construction
As the base IRC and the IBC already require fire sprinkler protection for this type of occupancy there is no cost when a jurisdiction adopts the IRC and IBC in unamended format.

G 41-15 : 310.5.2-APFELBECK3859

G 42-15

310.6

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

310.6 Residential Group R-4. Residential Group R-4 occupancy shall include buildings, structures or portions thereof for more than five but not more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised residential environment and receive *custodial care*. Buildings of Group R-4 occupancy shall be classified as one of the occupancy conditions specified in Section 310.6.1 or 310.6.2. This group shall include, but not be limited to, the following:
Alcohol and drug centers
Assisted living facilities
Congregate care facilities
Group homes
Halfway houses
Residential board and care facilities
Social rehabilitation facilities

Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except ~~as otherwise provided~~where specific requirements for Group R-4 are prescribed. Group R-4, Condition 1 occupancies shall be permitted to comply with the construction requirements in ~~this code~~the *International Residential Code*.

Reason: The Group R-4 facilities were developed to be consistent with the Fair Housing Act. Over time, changes have been made to the codes that have resulted in jurisdictions being subject to discrimination lawsuits under the Fair Housing Act. The Group R-4 occupancy, when it first was developed for the code, was permitted to comply with IRC. This allowance was taken away without technical justification.
The IRC has a sprinkler requirement, so these homes should be permitted to be constructed in accordance with the IRC. Forcing a facility to drag a sprinkler system with them, just in case a jurisdiction may decide to not require single family home to sprinkler, is not good code practice.
If facilities decide to stay in the IBC, Group R-4, Condition 1 are required to have a NFPA 13D sprinkler system (Section 903.2.8.2) and Group R-4, Condition 2 are required to have a NFPA 13R sprinkler system (Section 903.2.8.3). The proposed wording is for consistency in the language in Chapter 3. The Group R-4, Condition 2, due to the level of care provided for the residents, the Condition 2 will stay with the IBC so it gets the increased sprinkler protection and attic protection. Group R-4, Condition 1, has residents capable of self-preservation, so they can go to the IRC and the sprinkler protection there.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at:
http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
The prescriptive requirements of the IRC are generally the same or lesser cost that IBC Type 5 construction.

G 42-15 : 310.6-BALDASSARRA4269

G 43-15

311.1.1

Proponent: Stephen Thomas, Colorado Code Consulting, LLC, representing International Association of Building Officials (sthomas@coloradocode.net)

2015 International Building Code

Revise as follows:

311.1.1 Accessory storage spaces. A room or space used for storage purposes that is ~~less than 100 square feet (9.3 m²) in area and~~ accessory to another occupancy shall be classified as part of that occupancy. ~~The aggregate area of such rooms or spaces shall not exceed the allowable area limits of Section 508.2.~~

Reason: The subject of storage rooms has been discussed since the first edition of the IBC. The original code considered storage rooms as incidental uses and required them to be separated from the remainder of the building or be provided with a fire extinguishing system. The original requirement was based on health care uses, but was not introduced that way. That provision was deleted from the Incidental Use Table because it was causing problems with the design of buildings and there was no technical justification to maintain the requirement.
The 2015 IBC was revised with the above section limiting the area to 100 square feet once again. However, it does not tell the user what to do if it exceeds 100 square feet. There was also no technical justification provided to support the 100 square foot limit. This proposal deletes the square footage limit as well as deleting the last sentence that did not give any direction as to what occupancy was to be used to determine the maximum aggregate area.

Cost Impact: Will not increase the cost of construction
This change is a clarification of the code and reduction in the potential requirements. Therefore, it may be a reduction in construction cost.

G 43-15 : 311.1.1-THOMAS5290

G 44-15

311.2

Proponent: Anthony Apfelbeck, City of Altamonte Springs Building/Fire Safety Division, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Building Code

Revise as follows:

311.2 Moderate-hazard storage, Group S-1. Storage Group S-1 occupancies are buildings occupied for storage uses that are not classified as Group S-2, including, but not limited to, storage of the following:
Aerosols, Levels 2 and 3
Aircraft hangar (storage and repair)
Bags: cloth, burlap and paper
Bamboos and rattan
Baskets
Belting: canvas and leather
Books and paper in rolls or packs
Boots and shoes
Buttons, including cloth covered, pearl or bone
Cardboard and cardboard boxes
Clothing, woolen wearing apparel
Cordage
Dry boat storage (indoor)
Furniture
Furs
Glues, mucilage, pastes and size
Grains
Horns and combs, other than celluloid
Leather
Linoleum
Lumber
Motor vehicle repair garages complying with the maximum allowable quantities of hazardous materials listed in Table 307.1(1) (see Section 406.8)
Photo engravings
Resilient flooring
Self-service storage (mini-storage)
Silks
Soaps
Sugar
Tires, bulk storage of
Tobacco, cigars, cigarettes and snuff
Upholstery and mattresses
Wax candles

Reason: This proposal clarifies that "self-service storage" facilities (otherwise known as mini-storage facilities) are an S-1 occupancy. Based on variable contents of these facilities, the S-1 occupancy classification appears to the be appropriate one. By including this term within the list of 311.2, it will provide additional clarity to the code for owners, developers, designers and code officials.

Cost Impact: Will not increase the cost of construction
This proposal does not change the occupancy classification of self-storage faclities but just provides greater clarity as to the occupancy classification of S-1. Therefore, there is no cost impact.

G 44-15 : 311.2-APFELBECK3943

G 45-15

202, 202 (New), 312.1, C101.1

Proponent: Joe Scibetta, representing Self

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

AGRICULTURAL BUILDING. A structure designed and constructed to house farm implements, hay, grain~~, poultry, livestock~~ or other horticultural products. This structure shall not be a place of human habitation or a place of employment where agricultural products are processed, treated or packaged, nor shall it be a place used by the public.

Add new definition as follows:

ANIMAL HOUSING FACILITY. Area of a building or structure, including interior and adjacent exterior spaces, where humans interact with animals for the purpose of feeding, resting, working, exercising, treating, examining, or exhibiting the animals in their care. Examples of animal housing facilities include, but are not limited to, barns, kennels, coops, stables, sheds, pens, corrals, runs, vivaria, terraria, laboratories, and zoos.

Revise as follows:

312.1 General. Buildings and structures of an accessory character and miscellaneous structures not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

Agricultural buildings
Aircraft hangars, accessory to a oneor two-family residence (see Section 412.5)
Animal housing facilities
Barns
Carports
Fences more than 6 feet (1829 mm) in height
Grain silos, accessory to a residential occupancy
Greenhouses
~~Livestock shelters~~
Private garages
Retaining walls
Sheds
~~Stables~~
Tanks
Towers

C101.1 Scope. The provisions of this appendix shall apply exclusively to agricultural buildings and animal housing facilities. Such buildings shall be classified as Group U and shall include, but not be limited to, the following uses:

1. Livestock shelters or buildings, including shade structures and milking barns.
2. Poultry buildings or shelters.
3. Barns.
4. Storage of equipment and machinery used exclusively in agriculture.
5. Horticultural structures, including detached production greenhouses and crop protection shelters.
6. Sheds.
7. Grain silos.
8. Stables.

Reason: Agricultural buildings do not encompass the wide variety of animal housing facilities where humans interact with animals for the purpose of feeding, treating, exercising, working, etc. Therefore, animal housing facilities need to be incorporated into the current Group U listing. To avoid redundancies, and since animal housing facilities include but are not limited to livestock shelters and stables, those two entries have been deleted, as animal housing facilities would incorporate those structures and others fitting the definition of an animal housing facility. The current, individual listings of livestock shelters and stables do not, on their own, account for the variety of animal housing facilities that exist, whereas the term "animal housing facilities" does. The revision to the list in Section 312 is necessary to provide a better representation of structures where animals are housed and where human interaction occurs, as opposed to agricultural buildings where there is little to no human occupancy or interaction with animals. Such a refinement consolidates the separate listings of livestock shelters and stables into a broader and more encompassing heading of animal housing facilities. A corresponding definition of an animal housing facility is proposed for Chapter 2.
In keeping with those proposed changes, and since Appendix C addresses Group U structures, this proposal seeks to incorporate animal housing facilities accordingly. Since the listing in Appendix C lists some, but not all, types of animal housing facilities, the proposed language here includes the interjectory phrase "but not be limited to" so that animal housing facilities that do not fall within the categories of livestock shelter, poultry house or stable, may still be incorporated and viewed as a Group U occupancy.

Cost Impact: Will not increase the cost of construction
No cost impact as this is simply a refinement of the existing list of Group U structures and providing a differentiation in terminology between animal housing facilities and agricultural buildings to ensure that both types of structures are addressed here.

G 45-15 : 312.1-SCIBETTA3446

G 46-15

312.1

Proponent: David Kulina, representing Engel Architects (david@engelarch.com)

2015 International Building Code

Revise as follows:

312.1 General. Buildings and structures of an accessory character and miscellaneous structures not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

Agricultural buildings
Aircraft hangars, accessory to a oneor two-family residence (see Section 412.5)
Barns
Carports
Fences more than 6 feet (1829 mm) in height
Grain silos, accessory to a residential occupancy
Greenhouses
Livestock shelters
<u>Maintenance and groundskeeping storage</u>
Private garages
Retaining walls
Sheds
Stables
Tanks
Towers

Reason: Unless combined with other types of facilities, such as groundskeeping offices, these buildings are typically not occupied unless equipment and supplies are being moved. These often occur at colleges and schools, where they are considered too big to be just a shed

Cost Impact: Will not increase the cost of construction
There are no cost implications. In fact, the cost of building will be less as the requirements of other sections regards U are less stringent

G 46-15 : 312.1-KULINA4540

G 47-15

312.1

Proponent: Jeffrey Betz, AT&T, representing AT&T (jbetz@att.com)

2015 International Building Code

Revise as follows:

312.1 General. Buildings and structures of an accessory character and miscellaneous structures not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

Agricultural buildings
Aircraft hangars, accessory to a oneor two-family residence (see Section 412.5)
Barns
Carports
<u>Communication equipment structures with a *gross floor area* of less than 1,500 square feet</u>
Fences more than 6 feet (1829 mm) in height
Grain silos, accessory to a residential occupancy
Greenhouses
Livestock shelters
Private garages
Retaining walls
Sheds
Stables
Tanks
Towers

Reason: This addition identifies the placement of communication equipment structures less than 1,500 sq ft gross into Group U. The selection of 1,500 sq ft is a typical structure size that would be visited infrequently by only authorized and knowledgeable personnel. The characteristics of "Structures housing accessory equipment that is part of a utility or communications system are often classified as Group U occupancies when there is no intent that these structures be occupied except for servicing and maintaining the equipment with the structure. A pump house for a water or sewage system or equipment building at the base of a telecommunication tower is an example of such buildings". (IBC 2009 and 2012 Code and Commentary Volume 1). This proposal memorializes the communication equipment structures under the U group and continues to require conformance to basis fire and life hazard while better identifying the occupancy and activities intended for the structure. The thousands of existing and future structures of this occupancy range from a small subterranean room, on-grade equipment housing or small communications structure visited only for equipment installation and maintenance will benefit from this clarification.

Bibliography: International Building Code and Commentary 2009 pages 3-50 and 51, 2012 page 3-40.

Cost Impact: Will not increase the cost of construction
Proposal clarifies section 312 UTILITY AND MISCELLANEOUS GROUP U to specifically include Communications Equipment Structures less than 1,500 sq ft gross into the examples of Group U. This reduces the AHJ and applicants time in clarifying the correct group for this kind of structure and eliminates potential non-required construction expenses.

G 47-15 : 312.1-BETZ5454

G 48-15

312.1, 312.1.1 (New)

Proponent: Vickie Lovell, InterCode Incorporated, representing National Greenhouse Manufacturers Association (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

312.1 General. Buildings and structures of an accessory character and miscellaneous structures not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

Agricultural buildings
Aircraft hangars, accessory to a oneor two-family residence (see Section 412.5)
Barns
Carports
Fences more than 6 feet (1829 mm) in height
Grain silos, accessory to a residential occupancy
~~Greenhouses~~
Livestock shelters
Private garages
Retaining walls
Sheds
Stables
Tanks
Towers

Add new text as follows:

312.1.1 Greenhouses. Greenhouses not classified as Group A-3, B, Group E, F-2 or Group M shall be classified as Use Group U. Greenhouses that are accessory buildings to Group B, E or M occupancies, and utility or accessory greenhouses that are not classified in any specific occupancy shall be classified as Group U.

Reason: Greenhouses are a type of special structure intended to create and maintain a unique sunlit environment used exclusively for, and essential to, the commercial cultivation, protection or maintenance of plants. This proposal ONLY addresses commercial greenhouse structures and NOT other spaces such as sunrooms, solariums, glass enclosed walkways, atria or other types of interior spaces that permit ample sunlight so as to prominently feature plants for aesthetic purposes.
The majority of commercial greenhouses are truly agricultural structures that are classified as Group U.

The primary purpose of a greenhouse is for the propagation of plants. Many typical building requirements intended for human comfort, health, safety and welfare are not applicable or necessary for the construction or operation of greenhouses. However, this proposal is intended to clarify that some greenhouses can be used for other enterprises, such as retail business, research by schools and universities, conservation, education, display by botanical institutions holding documented collections of specialty plants, and similar activities. This proposal, along with the other proposals that modify the occupancies to include greenhouses, has created indicators to assist the designer and the code official to recognize when appropriate design distinctions should be made, and to help determine more consistently when a greenhouse should be classified as a use group other than Group U.

Greenhouse - Use Group U.

Cost Impact: Will not increase the cost of construction
THERE IS NO COST IMPACT RELATED TO THIS PROPOSAL BECAUSE THIS PROPOSAL MAINLY CLARIFIES EXISTING CODE LANGUAGE REGARDING GROUP U GREENHOUSES. THE PROPOSAL DOES NOT ADD REQUIREMENTS FOR GROUP B, E, OR M GREENHOUSES BEYOND WHAT THE CODE ALREADY REQUIRES FOR THOSE OCCUPANCIES.

G 49-15

402, 402.1,402.3, 402.4, [F] 402.5, 402.6, [F] 402.7, 402.8, 507.13

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete and substitute as follows:

~~SECTION 402~~
~~COVERED MALL AND OPEN MALL BUILDINGS~~

Delete without substitution:

~~**402.1 Applicability.** The provisions of this section shall apply to buildings or structures defined herein as *covered or open mall buildings* not exceeding three floor levels at any point nor more than three *stories above grade plane.* Except as specifically required by this section, *covered and open mall buildings* shall meet applicable provisions of this code.~~

~~Exceptions:~~

1. ~~Foyers and lobbies of Groups B, R-1 and R-2 are not required to comply with this section.~~
2. ~~Buildings need not comply with the provisions of this section where they totally comply with other applicable provisions of this code.~~

Revise as follows:

507.13 Covered and open mall buildings and anchor buildings. The area of *covered and open mall buildings* and *anchor buildings* not exceeding three *stories* in height ~~that~~above grade plane.

Exceptions:

1. Foyers and lobbies of Groups B, R-1 and R-2 are not required to comply with ~~Section 402 shall~~this section.
2. Buildings need not ~~be limited.~~comply with the provisions of this section where they totally comply with other applicable provisions of this code.

~~402.2~~507.13.1 Definitions.

(*The text of this section and subsequent sections would be unchanged except to update section references.)*

~~402.1.1~~507.13.2 Open space. .

~~402.1.2~~507.13.3 Open mall building perimeter line. .

~~402.3~~507.13.4 Lease plan. .

~~402.4~~507.13.5 Construction.

~~402.4.1~~507.13.5.1 Area and types of construction. .

~~402.4.1.1~~507.13.5.1.1 Covered and open mall buildings.

~~402.4.1.2~~507.13.5.1.2 Anchor buildings.

~~402.4.1.3~~507.13.5.1.3 Parking garage. .

~~402.4.2~~507.13.5.2 Fire-resistance-rated separation.

~~402.4.2.1~~507.13.5.2.1 Tenant separations.

~~402.4.2.2~~507.13.5.2.2 Anchor building separation.

~~402.4.2.2.1~~507.13.5.2.1 Openings between anchor building and mall.

~~402.4.2.3~~507.13.5.2.3 Parking garages.

~~402.4.3~~507.13.5.3 Open mall construction.

~~402.4.3.1~~507.13.5.3.1 Pedestrian walkways.

[F] ~~402.5~~507.13.6 Automatic sprinkler system.

~~402.6~~507.13.7 Interior finishes and features. .

~~402.6.1~~507.13.7.1 Interior finish.

~~402.6.2~~507.13.7.2 Kiosks.

~~402.6.3~~507.13.7.3 Children's play structures.

~~402.6.4~~507.13.7.4 Plastic signs.

~~402.6.4.1~~507.13.7.4.1 Area.

~~402.6.4.2~~507.13.7.4.2 Height and width.

~~402.6.4.3~~507.13.7.4.3 Location. .

~~402.6.4.4~~507.13.7.4.4 Plastics other than foam plastics.

~~402.6.4.4.1~~507.13.7.4.4.1 Encasement. .

~~402.6.4.5~~507.13.7.4.5 Foam plastics.

~~402.6.4.5.1~~507.13.7.4.5.1 Density.

~~402.6.4.5.2~~507.13.7.4.5.2 Thickness.

[F] ~~402.7~~507.13.8 Emergency systems.

[F] ~~402.7.1~~507.13.8.1 Standpipe system.

[F] ~~402.7.2~~507.13.8.2 Smoke control.

[F] ~~402.7.3~~507.13.8.3 Emergency power.

[F] ~~402.7.4~~507.13.8.4 Emergency voice/alarm communication system.

[F] ~~402.7.5~~507.13.8.5 Fire department access to equipment.

~~402.8~~507.13.9 Means of egress.

~~402.8.1~~507.13.9.1 Mall width.

~~402.8.1.1~~507.13.9.1.1 Minimum width.

~~402.8.2~~507.13.9.2 Determination of occupant load.

~~402.8.2.1~~507.13.9.2.1 Occupant formula.

~~402.8.2.2~~507.13.9.2.2 OLF range.

~~402.8.2.3~~507.13.9.2.3 Anchor buildings.

~~402.8.2.4~~507.13.9.2.4 Food courts.

~~402.8.3~~507.13.9.3 Number of means of egress.

~~402.8.4~~507.13.9.4 Arrangements of means of egress.

~~402.8.4.1~~507.13.9.4.1 Anchor building means of egress.

~~402.8.5~~507.13.9.5 Distance to exits.

~~402.8.6~~507.13.9.6 Access to exits.

~~402.8.6.1~~507.13.9.6.1 Exit passageways.

~~402.8.7~~507.13.9.7 Service areas fronting on exit passageways.

~~402.8.8~~507.13.9.8 Security grilles and doors.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Malls are probably one of the more interesting special use and occupancy provisions, particularly since the open mall provisions were included. While there are several very specific criteria associated with a mall (the occupant load calculation, anchor buildings, etc.), fundamentally they are exceptions to the area limits of buildings. Having these provisions hidden in Chapter 4 clouds the choices users of the code have when designing large developments. One-story and two-story unlimited area buildings are included in the exceptions for the area limts of buildings, however malls, having many of the same limitations are permitted to be three stories in height and to have almost any occupancy. When examining choices for how to configure such a development should be rather simple by looking at the list within the section on area limitations.

By moving the provisions in Chapter 4 for mall buildings into the area limits in Chapter 5, the triggers and allowances for malls will be clear and obvious choices. Correlation of references to new code locations are not included in the proposal but need to be provided by the editorial staff.

Cost Impact: Will not increase the cost of construction
There are no technical changes in the sections of the code and there should be no cost impact related to what is currently required as compared with what is proposed. In reality it may reduce the cost of construction as the option to use the allowances for malls as an unlimited area building will become more obvious.

G 49-15 : 402-COLLINS4639

G 50-15

403, 403.1, 403.2, [F] 403.3, [F] 403.4, [F] 403.4.5, [F] 403.4.6, 403.4.7, [F] 403.4.8, 403.5, 403.6

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~SECTION 403~~
~~HIGH-RISE BUILDINGS~~

Revise as follows:

~~403.1~~504.3.1 Applicability. *High-rise buildings* shall comply with Sections ~~403.2~~504.3.2 through ~~403.6~~504.3.6.

Exception: The provisions of Sections ~~403.2~~504.3.2 through ~~403.6~~504.3.6 shall not apply to the following buildings and structures:

1. Airport traffic control towers in accordance with Section 412.3.
2. *Open parking garages* in accordance with Section 406.5.
3. The portion of a building containing a Group A-5 occupancy in accordance with Section 303.6.
4. Special industrial occupancies in accordance with Section 503.1.1.
5. Buildings with:
   5.1. A Group H-1 occupancy;
   5.2. A Group H-2 occupancy in accordance with Section 415.8, 415.9.2, 415.9.3 or 426.1; or,
   5.3. A Group H-3 occupancy in accordance with Section 415.8.

~~403.2~~504.3.2 Construction.

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~403.2.1~~504.3.2.1 Reduction in fire-resistance rating.

~~403.2.1.1~~504.3.2.1.1 Type of construction.

~~403.2.1.2~~504.3.2.1.2 Shaft enclosures.

~~403.2.2~~504.3.2.2 Seismic considerations.

~~403.2.3~~504.3.2.3 Structural integrity of interior exit stairways and elevator hoistway enclosures.

~~403.2.3.1~~504.3.2.3.1 Wall assembly.

~~403.2.3.2~~504.3.2.3.2 Wall assembly materials.

~~403.2.3.3~~504.3.2.3.3 Concrete and masonry walls.

~~403.2.3.4~~504.3.2.3.4 Other wall assemblies.

TABLE ~~403.2.4~~ 504.3.2.4
MINIMUM BOND STRENGTH

~~403.2.4~~504.3.2.4 Sprayed fire-resistant materials (SFRM).

[F] ~~403.3~~504.3.3 Automatic sprinkler system.

[F] ~~403.3.1~~504.3.3.1 Number of sprinkler risers and system design.

[F] ~~403.3.1.1~~504.3.3.1.1 Riser location.

[F] ~~403.3.2~~504.3.3.2 Water supply to required fire pumps.

[F] ~~403.3.3~~504.3.3.3 Secondary water supply.

[F] ~~403.3.4~~504.3.3.4 Fire pump room.

[F] ~~403.4~~504.3.4 Emergency systems.

[F] ~~403.4.1~~504.3.4.1 Smoke detection.

[F] ~~403.4.2~~504.3.4.2 Fire alarm system.

[F] ~~403.4.3~~504.3.4.3 Standpipe system.

[F] ~~403.4.4~~504.3.4.4 Emergency voice/alarm communication system.

[F] ~~403.4.5~~504.3.4.5 Emergency responder radio coverage.

[F] ~~403.4.6~~504.3.4.6 Fire command.

~~403.4.7~~504.3.4.7 Smoke removal.

[F] ~~403.4.8~~504.3.4.8 Standby and emergency power.

[F] ~~403.4.8.1~~504.3.4.8.1 Equipment room.

[F] ~~403.4.8.2~~504.3.4.8.2 Fuel line piping protection.

[F] ~~403.4.8.3~~504.3.4.8.3 Standby power loads.

[F] ~~403.4.8.4~~504.3.4.8.4 Emergency power loads.

~~403.5~~504.3.5 Means of egress and evacuation.

~~403.5.1~~504.3.5.1 Remoteness of interior exit stairways.

~~403.5.2~~504.3.5.2 Additional interior exit stairway.

~~403.5.3~~504.3.5.3 Stairway door operation.

~~403.5.3.1~~504.3.5.3.1 Stairway communication system.

~~403.5.4~~504.3.5.4 Smokeproof enclosures.

~~403.5.5~~504.3.5.5 Luminous egress path markings.

~~403.5.6~~504.3.5.6 Emergency escape and rescue.

~~403.6~~504.3.6 Elevators.

~~403.6.1~~504.3.6.1 Fire service access elevator.

~~403.6.2~~504.3.6.2 Occupant evacuation elevators.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
High-rise buildings is a good example of the issues with the use of the IBC and tall buildings. Section 504 very speicifically limits the height of buildings but references the criteria in Section 510 for some exceptions. Nowhere in that section is high-rise buildings mentioned. Is the designer supposed to know that Chapter 4 contains provisions that simply because of the buildings preportions these additional allowances and criteria must be met? Does the code official understand when the thresholds for the specific requirements in Chapter 4 are meant to apply to buildings that Table 503 would allow to be built in excess of the 75 foot, 120 foot and 420 foot limits? Nothing in the code provides that clarity.

By moving the provisions in Chapter 4 for high-rise buildings into the height limits in Chapter 5, the triggers and requirements for high-rise will be clear and obvious. Correlation of references to new code locations are not included in the proposal but need to be provided by the editorial staff.

Cost Impact: Will not increase the cost of construction
This change simply reorganizes the code to make it clearer for code userrs to understand how the code is intended to apply. There is no cost impact for this change.

G 50-15 : 403-COLLINS4649

G 51-15

404, 404.1, 404.1.1, 712.1.7, 404.2, [F] 404.3, [F] 404.4, 404.5, 404.6, [F] 404.7, 404.8, 404.9, 404.9.1, 404.9.2, 404.9.3

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~SECTION 404~~
~~ATRIUMS~~

~~**404.1 General.** In other than Group H occupancies, and where permitted by Section 712.1.7, the provisions of Sections 404.1 through 404.10 shall apply to buildings or structures containing vertical openings defined as "Atriums."~~

~~**404.1.1 Definition.** The following term is defined in Chapter 2:~~

Revise as follows:

712.1.7 Atriums. In other than Group H occupancies, ~~atriums~~floor openings connecting three or more stories and complying with ~~Section 404~~this section shall be permitted.

Exception: As used in this section, balconies within assembly groups or mezzanines that comply with Section 505 are not considered stories.

~~404.2~~712.1.7.1 Use.

(The text of this section and subsequent sections would be unchanged except to update section references.)

[F] ~~404.3~~712.1.7.2 Automatic sprinkler protection.

[F] ~~404.4~~712.1.7.3 Fire alarm system.

~~404.5~~712.1.7.4 Smoke control.

~~404.6~~712.1.7.5 Enclosure of atriums.

[F] ~~404.7~~712.1.7.6 Standby power.

~~404.8~~712.1.7.7 Interior finish.

~~404.9~~712.1.7.8 Exit access travel distance.

~~404.9.1~~712.1.7.8.1 Egress not through the atrium.

~~404.9.2~~712.1.7.8.2 Exit access travel distance at the level of exit discharge.

~~404.9.3~~712.1.7.8.3 Exit access travel distance at other than the level of exit discharge.

~~404.10~~712.1.7.9 Interior exit stairways.

Reason: Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
The provisions for Atriums in Chapter 4 are a classic case of the confusion caused by the code. As defined an atrium includes virtually any opening between two or more floors. However, in the code there are a miriad of options for openings through two or more floors and indeed, an atrium is simply only one option for creation of openings and providing the necessary protection because of that opening as listed in section 712.1. However, because it is listed in Chapter 4 without any direction that limits its application to a choice by the designer, it is often cited as being necessary, when in fact it is not because another option has been chosen. Similarly, because of the definition other floor openings are not being permitted, which is why the definition is being deleted and the charging language in the Section 712.1 for atriums includes the appropriate limitations from the definition.

By moving the provisions for atrium design to Chapter 7 and referencing the determination of when it is to be applied, the code users will much more readily understand the intent of the code.

Cost Impact: Will not increase the cost of construction
As a needed clarification of the code, this will actually reduce the cost of construction where the unnecessary application of this section will allow for less onerous solutions the code allows.

G 51-15 : [F] 404.3-COLLINS4655

G 52-15

405, 504.4, 405.1, 405.2, [F] 405.3, 405.4, 405.4.1, 405.4.2, 405.4.3, 405.5, 405.5.1, 405.5.2, [F] 405.6, 405.7, 405.7.1, 405.7.2, [F] 405.8, [F] 405.8.1, [F] 405.8.2, [F] 405.9

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~SECTION 405~~
~~UNDERGROUND BUILDINGS~~

Revise as follows:

504.4 Number of stories above grade plane. The maximum number of stories of a building shall not exceed the limits specified in Table 504.4.

~~405.1~~504.5 ~~General~~Floors below the level of exit discharge. The provisions of Sections ~~405.2~~504.5.1 through ~~405.9~~504.5.8 apply to building spaces having a floor level used for human occupancy more than 30 feet (9144 mm) below the finished floor of the lowest *level of exit discharge.*

Exceptions: The provisions of Section ~~405~~504.5 are not applicable to the following buildings or portions of buildings**:**

1. One- and two-family *dwellings*, sprinklered in accordance with Section 903.3.1.3.
2. Parking garages provided with *automatic sprinkler systems* in compliance with Section 405.3.
3. Fixed guideway transit systems.
4. *Grandstands*, *bleachers*, stadiums, arenas and similar facilities.
5. Where the lowest *story* is the only *story* that would qualify the building as an underground building and has an area not greater than 1,500 square feet (139 m^2) and has an *occupant load* less than 10.
6. Pumping stations and other similar mechanical spaces intended only for limited periodic use by service or maintenance personnel.

~~405.2~~504.5.1 Construction requirements.

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~[F] 405.3~~504.5.2 Automatic sprinkler system.

~~405.4~~504.5.3 Compartmentation.

~~405.4.1~~504.5.3.1 Number of compartments.

~~405.4.2~~504.5.3.2 Smoke barrier penetration.

~~405.4.3~~504.5.3.3 Elevators.

~~405.5~~504.5.4 Smoke control system.

~~405.5.1~~504.5.4.1 Control system.

~~405.5.2~~504.5.4.2 Compartment smoke control system.

[F] ~~405.6~~504.5.5 Fire alarm systems.

~~405.7~~504.5.6 Means of egress.

~~405.7.1~~504.5.6.1 Number of exits.

~~405.7.2~~504.5.6.2 Smokeproof enclosure.

[F] ~~405.8~~504.5.7 Standby and emergency power.

[F] ~~405.8.1~~504.5.7.1 Standby power loads.

[F] ~~405.8.2~~504.5.7.2 Emergency power loads.

[F] ~~405.9~~504.5.8 Standpipe system.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
All criteria for the height of buildings is found in Chapter 5 of the IBC. Requirements associated with portions below grade and the distinction between basements and "underground buildings" is located in Chapter 4. These concepts and principles in the code for parts of buildings are not distinct, but are tied directly to the design and planning for the arrangement of facilities and their support areas which are often found in spaces whicn meet the underground portions of a building. Isolating these criteria from the typical height limitations does not help the code user understand the ramifications of decisions being made often very early in the design process.

By moving the provisions in Chapter 4 for underground buildings into the height limits in Chapter 5, the triggers and requirements for underground builsings will be clear and obvious. Correlation of references to new code locations are not included in the proposal but need to be provided by the editorial staff.

Cost Impact: Will not increase the cost of construction
This code change simply clarifies and connects portions of the code addressing the same subject and will nto increase the cost of construction.

G 52-15 : 405-COLLINS4797

G 53-15

406, 406.1, 406.2, 406.3, 406.3.1, 406.3.2, 406.3.3, 406.3.4, 406.3.4.1, 406.3.4.2, 406.3.4.3, 406.3.5, 406.3.5.1, 406.3.6

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION 406**~~
~~**MOTOR-VEHICLE-RELATED OCCUPANCIES**~~

~~**406.1 General.** Motor-vehicle-related occupancies shall comply with Sections 406.1 through 406.8.~~

~~**406.2 Definitions.** The following terms are defined in Chapter 2:~~
~~**MECHANICAL-ACCESS OPEN PARKING GARAGES.**~~
~~**OPEN PARKING GARAGE.**~~
~~**PRIVATE GARAGE.**~~
~~**RAMP-ACCESS OPEN PARKING GARAGES.**~~

Revise as follows:

~~406.3~~312.2 Private garages and carports.

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~406.3.1~~312.2.1 Classification.

~~406.3.2~~312.2.2 Clear height.

~~406.3.3~~312.2.3 Garage floor surfaces.

~~406.3.4~~312.2.4 Separation.

~~406.3.4.1~~312.2.4.1 Dwelling unit separation..

~~406.3.4.2~~312.2.4.2 Openings prohibited.

~~406.3.4.3~~312.2.4.3 Ducts.

~~406.3.5~~312.2.5 Carports.

~~406.3.5.1~~312.2.5.1 Carport separation.

~~406.3.6~~312.2.6 Automatic garage door openers.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Requirements for motor vehicle related occupancies are located in Chapter 4 and all the limitations for where they are parts of other occupancies is found in Chapter 5, while the classification is found in Chapter 3 with limitations for when it is classified as a Group U, but no indication as to what the classification should be if it is larger than the U limitations. Moving the provisions from Chapter 4 to Chapter 3 and adding provisions for when it is not a Group U, users will more readily understand and use the code appropriately.

Cost Impact: Will not increase the cost of construction
Because the identical language is simply being moved to a new section and clafiying language indicating the intent of the section, no increae is cost should occur as a result of this change.

G 53-15 : 406.3-COLLINS4806

G 54-15

406.4, 406.5, 406.6, 406.7, 406.8

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Revise as follows:

~~406.7~~309.3 Motor fuel-dispensing facilities.

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~406.7.1~~309.3.1 Vehicle fueling pad. .

~~406.7.2~~309.3.2 Canopies.

~~406.7.2.1~~309.3.2.1 Canopies used to support gaseous hydrogen systems.

~~406.8~~311.2.1 Repair garages.

~~406.8.1~~311.2.1.1 Mixed uses.

~~406.8.2~~311.2.1.2 Ventilation.

~~406.8.3~~311.2.1.3 Floor surface.

~~406.8.4~~311.2.1.4 Heating equipment.

[F] ~~406.8.5~~311.2.1.5 Gas detection system.

[F] ~~406.8.5.1~~311.2.1.5.1 System design.

[F] ~~406.8.5.1.1~~311.2.1.5.1.1 Gas detection system components.

[F] ~~406.8.5.2~~311.2.1.5.2 Operation.

[F] ~~406.8.5.3~~311.2.1.5.3 Failure of the gas detection system.

[F] ~~406.8.6~~311.2.1.6 Automatic sprinkler system.

~~406.4~~311.3.1 Public parking garages.

~~406.4.1~~311.3.1.1 Clear height.

~~406.4.2~~311.3.1.2 Guards.

~~406.4.3~~311.3.1.3 Vehicle barriers.

~~406.4.4~~311.3.1.4 Ramps.

~~406.4.5~~311.3.1.5 Floor surface.

~~406.4.6~~311.3.1.6 Mixed occupancy separation.

~~406.4.7~~311.3.1.7 Special hazards.

~~406.4.8~~311.3.1.8 Attached to rooms.

~~406.5~~311.3.2 Open parking garages.

~~406.5.1~~311.3.2.1 Construction.

~~406.5.2~~311.3.2.2 Openings.

~~406.5.2.1~~311.3.2.2.1 Openings below grade.

~~406.5.3~~311.3.2.3 Uses.

~~406.5.4~~311.3.2.4 Area and height.

TABLE ~~406.5.4~~ 311.3.2.4
OPEN PARKING GARAGES AREA AND HEIGHT

~~406.5.4.1~~311.3.2.4.1 Single use.

~~406.5.5~~311.3.2.5 Area and height increases.

~~406.5.6~~311.3.2.6 Fire separation distance.

~~406.5.7~~311.3.2.7 Means of egress.

[F] ~~406.5.8~~311.3.2.8 Standpipe system.

~~406.5.9~~311.3.2.9 Enclosure of vertical openings.

~~406.5.10~~311.3.2.10 Ventilation.

~~406.5.11~~311.3.2.11 Prohibitions.

~~406.6~~311.3.3 Enclosed parking garages.

~~406.6.1~~311.3.3.1 Heights and areas.

~~406.6.2~~311.3.3.2 Ventilation.

[F] ~~406.6.3~~311.3.3.3 Automatic sprinkler system.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.

By moving the provisions in Chapter 4 for mall buildings into the area limits in Chapter 5, the triggers and allowances for malls will be clear and obvious choices. Correlation of references to new code locations are not included in the proposal but need to be provided by the editorial staff.

Cost Impact: Will not increase the cost of construction
By moving the provisions from Chapter 4 to Chapter 3 will not increase the cost of construction.

G 54-15 : 406-COLLINS4934

G 55-15

407, [F] 407.6, [F] 407.7, [F] 407.8, 308.3.4.3 (New), 308.4.3.2 (New)

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~SECTION 407~~
~~GROUP I-2~~

Revise as follows:

~~407.1~~308.4.3 ~~General.~~Group I-2 occupancy requirements Occupancies in Group I-2 shall comply with the provisions of Sections ~~407.1~~308.4.3.1 through ~~407.10~~308.4.3.10 and other applicable provisions of this code.

~~407.2~~308.4.3.1 Corridors continuity and separation.

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~407.2.1~~308.4.3.1.1 Waiting and similar areas.

~~407.2.2~~308.4.3.1.2 Care providers' stations.

~~407.2.3~~308.4.3.1.3 Psychiatric treatment areas.

~~407.2.4~~308.4.3.1.4 Gift shops.

~~407.2.5~~308.4.3.1.5 Nursing home housing units.

~~407.2.6~~308.4.3.1.6 Nursing home cooking facilities.

~~407.3~~308.4.3.2 Corridor wall construction.

~~407.3.1~~308.4.3.2.1 Corridor doors.

~~407.4~~308.4.3.4 Means of egress.

~~407.4.1~~308.4.3.4.1 Direct access to a corridor.

~~407.4.1.1~~308.4.3.4.1.1 Locking devices.

~~407.4.2~~308.4.3.4.2 Distance of travel.

~~407.4.3~~308.4.3.4.3 Projections in nursing home corridors.

~~407.4.4~~308.4.3.4.4 Group I-2 care suites.

~~407.4.4.1~~308.4.3.4.4.1 Exit access through care suites.

~~407.4.4.2~~308.4.3.4.4.2 Separation.

~~407.4.4.3~~308.4.3.4.4.3 Access to corridor.

~~407.4.4.4~~308.4.3.4.4.4 Doors within care suites.

~~407.4.4.5~~308.4.3.4.4.5 Care suites containing sleeping room areas.

~~407.4.4.5.1~~308.4.3.4.4.5.1 Area.

~~407.4.4.5.2~~308.4.3.4.4.5.2 Exit access.

~~407.4.4.6~~308.4.3.4.4.6 Care suites not containing sleeping rooms.

~~407.4.4.6.1~~308.4.3.4.4.6.1 Area.

~~407.4.4.6.2~~308.4.3.4.4.6.2 Exit access.

~~407.5~~308.4.3.5 Smoke barriers.

~~407.5.1~~308.4.3.5.1 Refuge area.

~~407.5.2~~308.4.3.5.2 Independent egress.

~~407.5.3~~308.4.3.5.3 Horizontal assemblies.

[F] ~~407.6~~308.4.3.6 Automatic sprinkler system.

[F] ~~407.7~~308.4.3.7 Fire alarm system.

[F] ~~407.8~~308.4.3.8 Automatic fire detection.

~~407.9~~308.4.3.9 Secured yards.

~~407.10~~308.4.3.10 Electrical systems.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of

code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
I-2 criteria in Chapter 4 are typical of the occupancy criteria that provide a summary of various provisions from the code for one occupancy. While an I-2 is somewhat special, many of these criteria are well recognized in the code for various occupancies. To make the application of these provisions obvious to the code user, their placement in Chapter 3 along with the classification information will provide greater clarity to their necessity by the code users.

Cost Impact: Will not increase the cost of construction
By making the special provisions for an I-2 occupancy obvious, the cost of construction should be reduced.

G 55-15 : 407-COLLINS4807

G 56-15

408, 408.1, 408.2, 408.3,408.4, 408.5,408.6, 408.7, 408.8, 408.9, [F] 408.10, [F] 408.11

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~SECTION 408~~
~~GROUP I-3~~

Revise as follows:

~~408.1~~308.5.6 ~~General.~~Group I-3 occupancy requirements Occupancies in Group I-3 shall comply with the provisions of Sections ~~408.1~~308.5.6.1 through ~~408.11~~308.5.6.11 and other applicable provisions of this code ~~(see Section 308.5).~~

~~408.1.1~~308.5.6.1 Definitions.

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~408.2~~308.5.6.2 Other occupancies.

~~408.3~~308.5.6.3 Means of egress.

~~408.3.1~~308.5.6.3.1 Door width.

~~408.3.2~~308.5.6.3.2 Sliding doors.

~~408.3.3~~308.5.6.3.3 Guard tower doors.

~~408.3.4~~308.5.6.3.4 Spiral stairways.

~~408.3.5~~308.5.6.3.5 Ships ladders.

~~408.3.6~~308.5.6.3.6 Exit discharge.

~~408.3.7~~308.5.6.3.7 Sallyports.

~~408.3.8~~308.5.6.3.8 Interior exit stairway and ramp construction.

~~408.4~~308.5.6.4 Locks.

~~408.4.1~~308.5.6.4.1 Remote release.

[F] ~~408.4.2~~308.5.6.4.2 Power-operated doors and locks.

~~408.4.3~~308.5.6.4.3 Redundant operation.

~~408.4.4~~308.5.6.4.4 Relock capability.

~~408.5~~308.5.6.5 Protection of vertical openings.

~~408.5.1~~308.5.6.5.1 Floor openings.

~~408.5.2~~308.5.6.5.2 Shaft openings in communicating floor levels.

~~408.6~~308.5.6.6 Smoke barrier.

~~408.6.1~~308.5.6.6.1 Smoke compartments.

~~408.6.2~~308.5.6.6.2 Refuge area.

~~408.6.3~~308.5.6.6.3 Independent egress.

~~408.7~~308.5.6.7 Security glazing.

~~408.8~~308.5.6.8 Subdivision of resident housing areas.

~~408.8.1~~308.5.6.8.1 Occupancy Conditions 3 and 4.

~~408.8.2~~308.5.6.8.2 Occupancy Condition 5.

~~408.8.3~~308.5.6.8.3 Openings in room face.

~~408.8.4~~308.5.6.8.4 Smoke-tight doors.

~~408.9~~308.5.6.9 Windowless buildings.

[F] ~~408.10~~308.5.6.10 Fire alarm system.

[F] ~~408.11~~308.5.6.11 Automatic sprinkler system.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
I-3 criteria in Chapter 4 are typical of the occupancy criteria that provide a summary of various provisions from the code for one occupancy. While an I-3 is somewhat special,

many of these criteria are well recognized in the code for various occupancies. To make the application of these provisions obvious to the code user, their placement in Chapter 3 along with the classification information will provide greater clarity to their necessity by the code users.

Cost Impact: Will not increase the cost of construction
Clarifying how the code is to be used for particular occupancies will not increase the cost of construction.

G 56-15 : 408-COLLINS4808

G 57-15

[F] 307.1.1, 409, 409.1, 409.1.1, 409.2, 409.3, 409.3.1, 409.3.2, 409.3.3, 409.4, 409.5

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Revise as follows:

[F] 307.1.1 Uses other than Group H. An occupancy that stores, uses or handles hazardous materials as described in one or more of the following items shall not be classified as Group H, but shall be classified as the occupancy that it most nearly resembles.

1. Buildings and structures occupied for the application of flammable finishes, provided that such buildings or areas conform to the requirements of Section 416 and the *International Fire Code*.
2. Wholesale and retail sales and storage of flammable and combustible liquids in mercantile occupancies conforming to the *International Fire Code*.
3. Closed piping system containing flammable or combustible liquids or gases utilized for the operation of machinery or equipment.
4. Cleaning establishments that utilize combustible liquid solvents having a flash point of 140°F (60°C) or higher in closed systems employing equipment *listed* by an *approved* testing agency, provided that this occupancy is separated from all other areas of the building by 1-hour *fire barriers* constructed in accordance with Section 707 or 1hour *horizontal assemblies* constructed in accordance with Section 711, or both.
5. Cleaning establishments that utilize a liquid solvent having a flash point at or above 200°F (93°C).
6. Liquor stores and distributors without bulk storage.
7. Refrigeration systems.
8. The storage or utilization of materials for agricultural purposes on the premises.
9. Stationary batteries utilized for facility emergency power, uninterruptable power supply or telecommunication facilities, provided that the batteries are provided with safety venting caps and *ventilation* is provided in accordance with the *International Mechanical Code.*
10. Corrosive personal or household products in their original packaging used in retail display.
11. Commonly used corrosive building materials.
12. Buildings and structures occupied for aerosol storage shall be classified as Group S-1, provided that such buildings conform to the requirements of the *International Fire Code*.
13. Display and storage of nonflammable solid and nonflammable or noncombustible liquid hazardous materials in quantities not exceeding the maximum allowable quantity per *control area* in Group M or S occupancies complying with Section 414.2.5.
14. The storage of black powder, smokeless propellant and small arms primers in Groups M and R-3 and special industrial explosive devices in Groups B, F, M and S, provided such storage conforms to the quantity limits and requirements prescribed in the *International Fire Code*.
15. <u>Motion picture projection rooms in which ribbon-type cellulose accetate or other safety film is utilized in conjunction with electric arc, xenon or other light-cource projection equipment that develops hazrdous gases, dust or ratiation. Where cellulose nitrate film is utilized or stored, such rooms shall comply with NFPA 40. All such projection rooms, appertenant electrical equipment, such as rheostats, transformers and generators shall be enclosed in an enclosure meeting the requirements of Section 307.1.3.</u>

Delete without substitution:

~~SECTION 409~~
~~MOTION PICTURE PROJECTION ROOMS~~

Revise as follows:

~~409.1~~<u>307.1.3</u> ~~General.~~<u>Motion picture projection rooms</u> The provisions of Sections ~~409.1~~<u>307.1.3.1</u> through ~~409.5~~<u>307.1.3.5</u> shall apply to rooms in which ribbon-type cellulose acetate or other safety film is utilized in conjunction with electric arc, xenon or other light-source projection equipment that develops hazardous gases, dust or radiation. Where cellulose nitrate film is utilized or stored, such rooms shall comply with NFPA 40.

~~409.1.1~~<u>307.1.3.1</u> Projection room required.

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~409.2~~<u>307.1.3.2</u> Construction of projection rooms.

~~409.3~~<u>307.1.3.3</u> Projection room and equipment ventilation.

~~409.3.1~~<u>307.1.3.3.1</u> Supply air.

~~409.3.2~~<u>307.1.3.3.2</u> Exhaust air.

~~409.3.3~~<u>307.1.3.3.3</u> Projection machines.

~~409.4~~<u>307.1.3.4</u> Lighting control.

~~409.5~~<u>307.1.3.5</u> Miscellaneous equipment.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Motion picture projection rooms as classified by this special section are indicated as having hazardous materials or producing them. How those are treated is addressed in part in Chapters 3 and 4. This change consolidates them into one section where a great deal of information regrding the application of the codes for hazardous materails is located making it easier for the code user to understand how to treat these spaces.

Cost Impact: Will not increase the cost of construction
This correlation of provisions for motion picture rooms will not increase the cost of construction.

G 57-15 : 409-COLLINS4810

G 58-15

410, 410.1, 410.2, 410.3, 410.4, 410.5, 410.6, [F] 410.7, [F] 410.8, 602.6 (New),

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~SECTION 410~~
~~STAGES, PLATFORMS AND TECHNICAL PRODUCTION AREAS~~

.

Add new text as follows:

602.6 Stages, platforms and technical production areas The provisions of Sections 602.6.1 through 602.6.8 shall apply to all parts of buildings and structures that contain stages or platforms and similar appurtenances as herein defined.

Revise as follows:

~~410.1~~602.6.1 Applicability. The provisions of Sections ~~410.1~~602.6.1 through ~~410.8~~602.6.8 shall apply to all parts of buildings and structures that contain *stages* or *platforms* and similar appurtenances as herein defined.

~~410.2~~602.6.2 Definitions.

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~410.3~~602.6.3 Stages.

~~410.3.1~~602.6.3.1 Stage construction.

~~410.3.1.1~~602.6.3.1.1 Stage height and area.

~~410.3.2~~602.6.3.2 Technical production areas: galleries, gridirons and catwalks.

~~410.3.3~~602.6.3.3 Exterior stage doors.

~~410.3.4~~602.6.3.4 Proscenium wall.

~~410.3.5~~602.6.3.5 Proscenium curtain.

~~410.3.6~~602.6.3.6 Scenery.

~~410.3.7~~602.6.3.7 Stage ventilation.

~~410.3.7.1~~602.6.3.7.1 Roof vents.

[F] ~~410.3.7.2~~602.6.3.7.2 Smoke control.

~~410.4~~602.6.4 Platform construction.

~~410.4.1~~602.6.4.1 Temporary platforms.

~~410.5~~602.6.5 Dressing and appurtenant rooms.

~~410.5.1~~602.6.5.1 Separation from stage.

~~410.5.2~~602.6.5.2 Separation from each other.

~~410.6~~602.6.6 Means of egress.

~~410.6.1~~602.6.6.1 Arrangement.

~~410.6.2~~602.6.6.2 Stairway and ramp enclosure.

~~410.6.3~~602.6.6.3 Technical production areas. .

~~410.6.3.1~~602.6.6.3.1 Number of means of egress.

~~410.6.3.2~~602.6.6.3.2 Exit access travel distance.

~~410.6.3.3~~602.6.6.3.3 Two means of egress.

~~410.6.3.4~~602.6.6.3.4 Path of egress travel.

~~410.6.3.5~~602.6.6.3.5 Width.

[F] ~~410.7~~602.6.7 Automatic sprinkler system.

[F] ~~410.8~~602.6.8 Standpipes.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these
special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into
the design and construction of a building that includes these features.

The prrovisions in the code for stages, platforms and technical production areas in Chapter 4 includes elements of construction, wall criteria and opening protection methods required because of the hazards present. Moving these requirements to Chapter 6 to coincide with the construction requirements of buildings will make it obvious to users of the code how such features are to be integrated with the building construction limitations in the code.

Cost Impact: Will not increase the cost of construction
Moving these provisions from Chapter 4 to Chapter 6 will not change the cost of construction.

G 58-15 : 410-COLLINS4811

G 59-15

411, 411.1, 411.2, [F] 411.3, [F] 411.4, [F] 411.5, [F] 411.6, 411.7, 411.7.1, 411.8, 304.3 (New)

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~SECTION 411~~
~~SPECIAL AMUSEMENT BUILDINGS~~

Revise as follows:

~~411.1~~303.7 ~~General~~Special amusement buildings. *Special amusement buildings* having an *occupant load* of 50 or more shall comply with the requirements for the appropriate Group A occupancy and Sections ~~411.1~~303.7.1 through ~~411.8~~303.7.7.~~*Special amusement buildings* having an *occupant load* of less than 50 shall comply with the requirements for a Group B occupancy and Sections 411.1 through 411.8.~~

Exception: *Special amusement buildings* or portions thereof that are without walls or a roof and constructed to prevent the accumulation of smoke need not comply with this section.

For flammable *decorative materials*, see the *International Fire Code*.

~~411.2~~303.7.1 Definition.

(The text of this section and subsequent sections would be unchanged except to update section references.)

[F] ~~411.3~~303.7.2 Automatic fire detection.

[F] ~~411.4~~303.7.3 Automatic sprinkler system.

[F] ~~411.5~~303.7.4 Alarm.

[F] ~~411.6~~303.7.5 Emergency voice/alarm communications system.

~~411.7~~303.7.6 Exit marking.

~~411.7.1~~303.7.6.1 Photoluminescent exit signs.

~~411.8~~303.7.7 Interior finish.

Add new text as follows:

304.3 Special amusement buildings. Special amusement buildings having an occupant load of less than 50 shall comply with the requirements for a Group B occupancy and Sections 303.7.1 through 303.7.7.

Exception: Special amusement buildings or portions thereof that are without walls or a roof and constructed to prevent the accumulation of smoke need not comply with this section.

For flammable decorative materials, see the *International Fire Code.*

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.

Special amusement buildings with more than 50 occupants or more are classified in Section 411.1 as being in an A occupancy. Those that are less than 50 are part of the B occupancy. This same requirements apply to assembly spaces within an office building, but are clearly delineated in Sections 301 and 304. With this change the same clarity for special amusement facilities will be brought to the code.

Cost Impact: Will not increase the cost of construction
By moving these provisions out of Chapter 4 into Chapter 3, no change in the cost of construction will result.

G 59-15 : 411-COLLINS4813

G 60-15

412, 412.1, 412.2, 412.3.1, 412.3, 412.3.2, 412.3.3, 412.3.4, 412.3.4.1, [F] 412.3.5, 412.3.6, 412.3.7, 412.3.7.1, 412.3.8, 412.7, 412.7.1, [F] 412.6, [F] 412.6.1, 412.6.2, [F] 412.6.3, [F] 412.6.4, [F] 412.6.5, [F] 412.6.6, 412.4, 412.4.1, 412.4.2, 412.4.3, 412.4.4, 412.4.5, [F] 412.4.6, [F] 412.4.6.1, [F] 412.4.6.2, 412.5, 412.5.1, 412.5.2, [F] 412.5.3, 412.5.4, 412.5.5, [F] 412.8, [F] 412.8.1, [F] 412.8.2, [F] 412.8.3, [F] 412.8.4, [F] 412.8.5

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~SECTION 412~~
~~AIRCRAFT-RELATED OCCUPANCIES~~

~~**412.1 General**. Aircraft-related occupancies shall comply with Sections 412.1 through 412.8 and the International Fire Code.~~

~~412.2 Definitions.~~

Revise as follows:

~~412.3~~304.3.2 Airport traffic control towers.

(The text of this section and subsequent sections would be unchanged except to update section references.)

TABLE ~~412.3.1~~ 304.3.2.1
HEIGHT LIMITATIONS FOR AIRPORT TRAFFIC CONTROL TOWERS

~~412.3.1~~304.3.2.1 Type of construction. .

~~412.3.2~~304.3.2.2 Stairways.

~~412.3.3~~304.3.2.3 Exit access.

~~412.3.4~~304.3.2.4 Number of exits.

~~412.3.4.1~~304.3.2.4.1 Interior finish.

[F] ~~412.3.5~~304.3.2.5 Automatic fire detection systems.

~~412.3.6~~304.3.2.6 Automatic sprinkler system.

~~412.3.7~~304.3.2.7 Elevator protection. .

~~412.3.7.1~~304.3.2.7.1 Elevators for occupant evacuation.

~~412.3.8~~304.3.2.8 Accessibility.

TABLE ~~412.7~~306.2.1
AIRCRAFT MANUFACTURING EXIT ACCESS TRAVEL DISTANCE

~~412.7~~306.2.1 Aircraft manufacturing facilities. In buildings used for the manufacturing of aircraft, exit access travel distances indicated in Section 1017.1 shall be increased in accordance with the following:

1. The building shall be of Type I or II construction.
2. Exit access travel distance shall not exceed the distances given in Table ~~412.7~~.306.2.1.

~~412.7.1~~306.2.1.1 Ancillary areas.

[F] ~~412.6~~307.4.1 Aircraft paint hangars. Aircraft painting operations where flammable liquids are used in excess of the maximum allowable quantities per *control area* listed in Table 307.1(1) shall be conducted in an aircraft paint hangar that complies with the provisions of Sections ~~412.6.1~~307.4.1.1 through ~~412.6.6~~307.4.1.6.

[F] ~~412.6.1~~307.4.1.1 Occupancy group.

~~412.6.2~~307.4.1.2 Construction.

[F] ~~412.6.3~~307.4.1.3 Operations.

[F] ~~412.6.4~~307.4.1.4 Storage.

[F] ~~412.6.5~~307.4.1.5 Fire suppression.

[F] ~~412.6.6~~307.4.1.6 Ventilation.

~~412.4~~311.2.1 Aircraft hangars. ~~Aircraft hangars~~ All aircraft hangers shall be in accordnce with 311.2.1.1 through 311.2.1.6. In addition, aircraft painting hangers, manufacturing hangers and helipads shall be in accordance with ~~Sections 412.4.1 through 412.4.6.~~Secions 311.3, 311.4 and 311.5 respectively.

~~412.4.1~~311.2.1.1 Exterior walls.

~~412.4.2~~311.2.1.2 Basements.

~~412.4.3~~311.2.1.3 Floor surface.

~~412.4.4~~311.2.1.4 Heating equipment.

~~412.4.5~~311.2.1.5 Finishing.

[F] ~~412.4.6~~311.2.1.6 Fire suppression.

TABLE [F] 311.2.1.6
HANGAR FIRE SUPPRESSION REQUIREMENTS[a,b,c]

[F] ~~412.4.6.1~~311.2.1.6.1 Hazardous operations.

[F] ~~412.4.6.2~~311.2.1.6.2 Separation of maximum single fire areas.

~~412.5~~312.7 Residential aircraft hangars. *Residential aircraft hangars* shall comply with Sections ~~412.5.1~~312.7.1 through ~~412.5.5~~312.7.5.

~~412.5.1~~312.7.1 Fire separation.

~~412.5.2~~312.7.2 Egress.

[F] ~~412.5.3~~312.7.3 Smoke alarms.

~~412.5.4~~312.7.4 Independent systems. .

~~412.5.5~~312.7.5 Height and area limits.

[F] ~~412.8~~1510.10 Heliports and helistops. *Heliports* and *helistops* shall be permitted to be erected on buildings or other locations where they are constructed in accordance with Sections ~~412.8.1 through 412.8.5.~~510.10.1 through 510.10.5

[F] ~~412.8.1~~1510.10.1 Size. *No change to text.*

[F] ~~412.8.2~~1510.10.2 Design.

[F] ~~412.8.3~~1510.10.3 Means of egress.

[F] ~~412.8.4~~1510.10.4 Rooftop heliports and helistops.

[F] ~~412.8.5~~1510.10.5 Standpipe system.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Aircraft related occupancies involves a broad number of applications. Aircraft control towers are listed as a B occupancy and items specific to them have been move to this location. Other elements of Section 412 include hangers and manufacturing which are part of the storage occupancies, as well as heliports and helitstops that are addressed as facilities on a rooftop. Those requirements are moved to the storage parts of the code and rooftop structures which include them for clarification.

Cost Impact: Will not increase the cost of construction
These provisions are moved for clarification with no technical changes and should not affect the cost of construction.

G 60-15 : 412-COLLINS4814

G 61-15

412, 412.4, 412.4.1, 412.4.2, 412.4.3, 412.4.4, 412.4.5, [F] 412.4.6, [F] 412.4.6.1, [F] 412.4.6.2

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~SECTION 412~~
~~AIRCRAFT-RELATED OCCUPANCIES~~

Revise as follows:

~~412.4~~311.2.1 Aircraft hangars. Aircraft hangars shall be in accordance with Sections ~~412.4.1~~311.2.1.1 through ~~412.4.6~~311.2.1.6.

~~412.4.1~~311.2.1.1 Exterior walls.

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~412.4.2~~311.2.1.2 Basements.

~~412.4.3~~311.2.1.3 Floor surface.

~~412.4.4~~311.2.1.4 Heating equipment.

~~412.4.5~~311.2.1.5 Finishing.

[F] ~~412.4.6~~311.2.1.6 Fire suppression.

TABLE [F] ~~412.4.6~~ 311.2.1.6
HANGAR FIRE SUPPRESSION REQUIREMENTS[a,b,c]

[F] ~~412.4.6.1~~311.2.1.6.1 Hazardous operations.

[F] ~~412.4.6.2~~311.2.1.6.2 Separation of maximum single fire areas.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.

By moving the provisions in Chapter 4 for aircraft hangers into the area limits in Chapter 3, the triggers and allowances for malls will be clear and obvious choices. Correlation of references to new code locations are not included in the proposal but need to be provided by the editorial staff.

Cost Impact: Will not increase the cost of construction
Simply moving the technical requirements from Chapter 4 to Chapter 3 does not change their application and will not increase the cost of construction.

G 61-15 : 412-COLLINS4967

G 62-15

413, 413.1, 413.2

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~SECTION 413~~
~~COMBUSTIBLE STORAGE~~

Revise as follows:

~~413.1~~311.2.1 ~~General~~High-piled stock or rack storage. High-piled stock or rack storage in any occupancy group shall comply with the *International Fire Code*.

~~413.2~~311.2.2 Attic, under-floor and concealed spaces.

(The text of this section would be unchanged except to update section references.)

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.

Provisions of the code for high-piles stock or rack storage are being moved to the occupancy sections which include the criteria for these conditions of storage and will provide a single location for users to find the requirements for this condition.

Cost Impact: Will not increase the cost of construction
The provisions for storage are not being changed and the new location should not create any additional cost of construction.

G 62-15 : 413-COLLINS4816

G 63-15

414, [F] 414.1, [F] 414.1.1, [F] 414.1.2, [F] 414.1.2.1, [F] 414.1.3, [F] 414.2, [F] 414.2.1, [F] 414.2.2, [F] 414.2.3, [F] 414.2.4, [F] 414.2.5, [F] 414.3, [F] 414.4, [F] 414.5, [F] 414.5.1, [F] 414.5.2, [F] 414.5.2.1, [F] 414.5.2.2, [F] 414.5.3, [F] 414.6, [F] 414.6.1, [F] 414.6.1.1, [F] 414.6.1.2, [F] 414.6.1.3

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION414**~~
~~**HAZARDOUS MATERIALS**~~

Revise as follows:

[F] ~~414.1~~307.9 General. The provisions of Sections ~~414.1~~307.9.1 through ~~414.6~~307.9.6 shall apply to buildings and structures occupied for the manufacturing, processing, dispensing, use or storage of hazardous materials.

[F] ~~414.1.1~~307.9.1.1 Other provisions.

(The text of this section and subsequent sections would be unchanged except to update section references.)

[F] ~~414.1.2~~307.9.1.2 Materials.

[F] ~~414.1.2.1~~307.9.1.2.1 Aerosols.

[F] ~~414.1.3~~307.9.1.3 Information required.

[F] ~~414.2~~307.9.2 Control areas.

[F] ~~414.2.1~~307.9.2.1 Construction requirements.

TABLE [F] ~~414.2.2~~ 307.9.2.2
DESIGN AND NUMBER OF CONTROL AREAS

[F] ~~414.2.2~~307.9.2.2 Percentage of maximum allowable quantities.

[F] ~~414.2.3~~307.9.2.3 Number.

[F] ~~414.2.4~~307.9.2.4 Fire-resistance-rating requirements.

[F] ~~414.2.5~~307.9.2.5 Hazardous material in Group M display and storage areas and in Group S storage areas.

TABLE [F]~~414.2.5(1)~~ 307.9.2.5 (1)
MAXIMUM ALLOWABLE QUANTITY OF FLAMMABLE AND COMBUSTIBLE LIQUIDS IN WHOLESALE AND RETAIL SALES OCCUPANCIES PER CONTROL AREA[a]

TABLE [F] ~~414.2.5(2)~~ 307.9.2.5(2)
MAXIMUM ALLOWABLE QUANTITY PER INDOOR AND OUTDOOR CONTROL AREA IN GROUP M AND S OCCUPANCIES NONFLAMMABLE SOLIDS AND NONFLAMMABLE AND NONCOMBUSTIBLE LIQUIDS[d,e,f]

[F] ~~414.3~~307.9.3 Ventilation.

[F] ~~414.4~~307.9.4 Hazardous material systems.

[F] ~~414.5~~307.9.5 Inside storage, dispensing and use.

TABLE [F]~~414.5.1~~ 307.9.5.1
EXPLOSION CONTROL REQUIREMENTS[a, h]

[F] ~~414.5.1~~307.9.5.1 Explosion control.

[F] ~~414.5.2~~307.9.5.2 Emergency or standby power.

[F] ~~414.5.2.1~~307.9.5.2.1 Exempt applications.

[F] ~~414.5.2.2~~307.9.5.2.2 Fail-safe engineered systems.

[F] ~~414.5.3~~307.9.5.3 Spill control, drainage and containment.

[F] ~~414.6~~307.9.6 Outdoor storage, dispensing and use.

[F] ~~414.6.1~~307.9.6.1 Weather protection.

[F] ~~414.6.1.1~~307.9.6.1.1 Walls.

[F] ~~414.6.1.2~~307.9.6.1.2 Separation distance.

[F] ~~414.6.1.3~~307.9.6.1.3 Noncombustible construction.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Provisions of the code for manufacturing, processing, dispensing, use or storage are being moved to the occupancy sections which include the criteria for these conditions and will provide a single location for users to find the requirements for this condition.

Cost Impact: Will not increase the cost of construction
Because the technical provisions of the code are not being changed, but simply moved, there is no impact on the cost of construction.

G 63-15 : [F] 414-COLLINS4817

G 64-15

[F] 307.2, 307.6.1 (New), [F] 415.2, [F] 415.1, [F] 415.3, [F] 415.4, [F] 415.5, [F] 415.6, [F] 415.7, [F] 415.8, [F] 415.9, [F] 415.10, [F] 415.11

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete and substitute as follows:

~~SECTION 415~~
~~GROUPS H-1, H-2, H-3, H-4 AND H-5~~

~~[F] 415.2 Definitions. The following terms are defined in Chapter 2:~~

~~CONTINUOUS GAS DETECTION SYSTEM.~~
~~DETACHED BUILDING.~~
~~EMERGENCY CONTROL STATION.~~
~~EXHAUSTED ENCLOSURE.~~
~~FABRICATION AREA.~~
~~FLAMMABLE VAPORS OR FUMES.~~
~~GAS CABINET.~~
~~GASROOM.~~
~~HAZARDOUS PRODUCTION MATERIAL (HPM).~~
~~HPM FLAMMABLE LIQUID.~~
~~HPM ROOM.~~
~~IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH).~~
~~LIQUID.~~
~~LIQUID STORAGE ROOM.~~
~~LIQUID USE, DISPENSING AND MIXING ROOM.~~
~~LOWER FLAMMABLE LIMIT (LFL).~~
~~NORMAL TEMPERATURE AND PRESSURE (NTP).~~
~~PHYSIOLOGICAL WARNING THRESHOLD LEVEL.~~
~~SERVICE CORRIDOR.~~
~~SOLID.~~
~~STORAGE, HAZARDOUS MATERIALS.~~
~~USE (MATERIAL).~~
~~WORKSTATION.~~

Revise as follows:

[F] ~~415.1~~307.1.3 ~~Scope.~~General provisions of H-1, H-2, H-3, H-4 and H-5 occupancies The provisions of Sections ~~415.1~~307.1.3.1 through ~~415.11~~307.1.3.3 shall apply to the Group H occupancy buildings where storage and use of hazardous materials occurs in excess of the maximum allowable quantities per *control area* listed in Section 307.1. Buildings and structures with an occupancy in Group H shall also comply with the applicable provisions of Section 414 and the *International Fire Code*. Specific Group H occupancies shall comply with Sections 307.3, 307.4, 307.5, 307.6 and 307.7 as applicable.

[F] ~~415.3~~307.1.3.1 Automatic fire detection systems.

(The text of this section and subsequent sections would be unchanged except provide appropriate charging text and to update section references.)

[F] ~~415.4~~307.1.3.2 Automatic sprinkler system.

[F] ~~415.5~~307.1.3.3 Emergency alarms.

[F] ~~415.5.1~~307.1.3.3.1 Storage.

[F] ~~415.5.2~~307.1.3.3.2 Dispensing, use and handling.

[F] ~~415.5.3~~307.1.3.3.3 Supervision.

[F] ~~415.5.4~~307.1.3.3.4 Emergency alarm systems.

[F] ~~415.6~~307.1.3.4 Fire separation distance.

[F] ~~415.6.1~~307.1.3.4.1 Group H occupancy minimum fire separation distance.

[F] ~~415.6.1.1~~307.1.3.4.1.1 Group H-1.

[F] ~~415.6.1.2~~307.1.3.4.1.2 Group H-2.

[F] ~~415.6.1.3~~307.1.3.4.1.3 Groups H-2 and H-3.

[F] ~~415.6.1.4~~307.1.3.4.1.4 Explosive materials.

TABLE [F] ~~415.6.2~~ 307.1.3.4.2
DETACHED BUILDING REQUIRED

[F] ~~415.6.2~~307.1.3.4.2 Detached buildings for Group H-1, H-2 or H-3 occupancy.

[F] ~~415.6.2.1~~<u>307.1.3.4.2.1</u> Wall and opening protection.

[F] 307.2 Definitions. The following terms are defined in Chapter 2:

AEROSOL

  Level 1 aerosol products.

  Level 2 aerosol products.

  Level 3 aerosol products.

AEROSOL CONTAINER.

BALED COTTON.

BALED COTTON, DENSELY PACKED.

BARRICADE.

  Artificial barricade.

  Natural barricade.

BOILING POINT.

CLOSED SYSTEM.

COMBUSTIBLE DUST.

COMBUSTIBLE FIBERS.

COMBUSTIBLE LIQUID.

  Class II.

  Class IIIA.

  Class IIIB.

COMPRESSED GAS.

<u>CONTINUOUS GAS DETECTION SYSTEM.</u>

CONTROL AREA.

CORROSIVE.

CRYOGENIC FLUID.

DAY BOX.

DEFLAGRATION.

<u>DETACHED BUILDING.</u>

DETONATION.

DISPENSING.

<u>EMERGENCY CONTROL STATION.</u>

<u>EXHAUSTED ENCLOSURE.</u>

EXPLOSION.

EXPLOSIVE.

  High explosive.

  Low explosive.

  Mass-detonating explosives.

  UN/DOTn Class 1 explosives.

  Division 1.1.

  Division 1.2.

  Division 1.3.

  Division 1.4.

  Division 1.5.

  Division 1.6.

<u>FABRICATION AREA.</u>

FIREWORKS.

  Fireworks, 1.3G.

  Fireworks, 1.4G.

FLAMMABLE GAS.

FLAMMABLE LIQUEFIED GAS.

FLAMMABLE LIQUID.

  Class IA.

  Class IB.

  Class IC.

FLAMMABLE MATERIAL.

FLAMMABLE SOLID.

<u>FLAMMABLE VAPORS OR FUMES.</u>

FLASH POINT.

<u>GAS CABINET.</u>

<u>GASROOM.</u>

HANDLING.

HAZARDOUS MATERIALS.

<u>HAZARDOUS PRODUCTION MATERIAL (HPM).</u>

HEALTH HAZARD.

HIGHLY TOXIC.

<u>HPM FLAMMABLE LIQUID.</u>

<u>HPM ROOM.</u>

<u>IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH).</u>

INCOMPATIBLE MATERIALS.

INERT GAS.

<u>LIQUID.</u>

<u>LIQUID STORAGE ROOM.</u>

<u>LIQUID USE, DISPENSING AND MIXING ROOM.</u>

LOWER FLAMMABLE LIMIT (LFL).
NORMAL TEMPERATURE AND PRESSURE (NTP).
OPEN SYSTEM.
OPERATING BUILDING.
ORGANIC PEROXIDE.
Class I.
Class II.
Class III.
Class IV.
Class V.
Unclassified detonable.
OXIDIZER.
Class 4.
Class 3.
Class 2.
Class 1.
OXIDIZING GAS.
PHYSICAL HAZARD.
PHYSIOLOGICAL WARNING THRESHOLD LEVEL.
PYROPHORIC.
PYROTECHNIC COMPOSITION.
SERVICE CORRIDOR.
SOLID.
STORAGE, HAZARDOUS MATERIALS.
TOXIC.
UNSTABLE (REACTIVE) MATERIAL.
Class 4.
Class 3.
Class 2.
Class 1.
USE (MATERIAL).
WATER-REACTIVE MATERIAL.
Class 3.
Class 2.
Class 1.
WORKSTATION.

[F] ~~415.7~~307.3.2 Special provisions for Group H-1 occupancies.

[F] ~~415.7.1~~307.3.2.1 Floors in storage rooms.

[F] ~~415.8~~307.4.1 Special provisions for Group H-2 and H-3 occupancies.

[F] ~~415.8.1~~307.4.1.1 Multiple hazards.

[F] ~~415.8.2~~307.4.1.2 Separation of incompatible materials.

[F] ~~415.8.3~~307.4.1.3 Water reactives.

[F] ~~415.8.4~~307.4.1.4 Floors in storage rooms.

[F] ~~415.8.5~~307.4.1.5 Waterproof room.

[F] ~~415.9~~307.4.2 Group H-2 occupancy requirements.

[F] ~~415.9.1~~307.4.2.1 Flammable and combustible liquids.

[F] ~~415.9.1.1~~307.4.2.1.1 Mixed occupancies.

[F] ~~415.9.1.1.1~~307.4.2.1.1.1 Height exception.

[F] ~~415.9.1.2~~307.4.2.1.2 Tank protection.

[F] ~~415.9.1.3~~307.4.2.1.3 Tanks.

[F] ~~415.9.1.4~~307.4.2.1.4 Leakage containment.

[F] ~~415.9.1.5~~307.4.2.1.5 Leakage alarm.

[F] ~~415.9.1.6~~307.4.2.1.6 Tank vent.

[F] ~~415.9.1.7~~307.4.2.1.7 Room ventilation.

[F] ~~415.9.1.8~~307.4.2.1.8 Explosion venting.

[F] ~~415.9.1.9~~307.4.2.1.9 Tank openings other than vents.

[F] ~~415.9.2~~307.4.2.2 Liquefied petroleum gas facilities.

[F] ~~415.9.3~~307.4.2.3 Dry cleaning plants.

[F] ~~415.10~~307.5 Groups H-3 and H-4. Group H-3 occupancies shall be constructed in accordance with Section 307.4.1. Groups H-3 and H-4 shall be constructed in accordance with the applicable provisions of this ~~code~~section and the *International Fire Code*.

[F] ~~415.10.1~~307.5.1 Flammable and combustible liquids.

[F] ~~415.10.2~~307.5.2 Gas rooms.

[F] ~~415.10.3~~307.5.3 Floors in storage rooms.

[F] ~~415.10.4~~307.5.4 Separation-highly toxic solids and liquids.

Add new text as follows:

307.6.1 Provisions of H-4 occupancies Group H-4 occupancies shall be constructed in accordance with Section 308.5.1

Revise as follows:

[F] ~~415.11~~307.7.1 Group H-5. In addition to the requirements set forth elsewhere in this code, Group H-5 shall comply with the provisions of Sections ~~415.11.1~~307.7.1.1 through ~~415.11.11~~307.7.1.11 and the *International Fire Code.*

[F] ~~415.11.1~~307.7.1.1 Fabrication areas.

[F] ~~415.11.1.1~~307.7.1.1.1 Hazardous materials.

[F] ~~415.11.1.1.1~~307.7.1.1.1.1 Aggregate quantities.

TABLE [F] ~~415.11.1.1.1~~307.7.1.1.1.1
QUANTITY LIMITS FOR HAZARDOUS MATERIALS IN A SINGLE FABRICATION AREA IN GROUP H-5[a]

[F] ~~415.11.1.1.2~~307.7.1.1.1.2 Hazardous production materials.

[F] ~~415.11.1.2~~307.7.1.1.2 Separation.

[F] ~~415.11.1.3~~307.7.1.1.3 Location of occupied levels.

[F] ~~415.11.1.4~~307.7.1.1.4 Floors.

[F] ~~415.11.1.5~~307.7.1.1.5 Shafts and openings through floors.

[F] ~~415.11.1.6~~307.7.1.1.6 Ventilation.

[F] ~~415.11.1.7~~307.7.1.1.7 Transporting hazardous production materials to fabrication areas.

[F] ~~415.11.1.8~~307.7.1.1.8 Electrical.

[F] ~~415.11.1.8.1~~307.7.1.1.8.1 Workstations.

[F] ~~415.11.2~~307.7.1.2 Corridors.

[F] ~~415.11.3~~307.7.1.3 Service corridors.

[F] ~~415.11.3.1~~307.7.1.3.1 Use conditions.

[F] ~~415.11.3.2~~307.7.1.3.2 Mechanical ventilation.

[F] ~~415.11.3.3~~307.7.1.3.3 Means of egress.

[F] ~~415.11.3.4~~307.7.1.3.4 Minimum width.

[F] ~~415.11.3.5~~307.7.1.3.5 Emergency alarm system. .

[F] ~~415.11.3.5.1~~307.7.1.3.5.1 Service corridors.

[F] ~~415.11.3.5.2~~307.7.1.3.5.2 Corridors and interior exit stairways and ramps.

[F] ~~415.11.3.5.3~~307.7.1.3.5.3 Liquid storage rooms, HPM rooms and gas rooms. .

[F] ~~415.11.3.5.4~~307.7.1.3.5.4 Alarm-initiating devices.

[F] ~~415.11.3.5.5~~307.7.1.3.5.5 Alarm signals.

[F] ~~415.11.4~~307.7.1.4 Storage of hazardous production materials.

[F] ~~415.11.5~~307.7.1.5 HPM rooms, gas rooms, liquid storage room construction.

[F] ~~415.11.5.1~~307.7.1.5.1 HPM rooms and gas rooms.

[F] ~~415.11.5.2~~307.7.1.5.2 Liquid storage rooms.

[F] ~~415.11.5.3~~307.7.1.5.3 Floors.

[F] ~~415.11.5.4~~307.7.1.5.4 Location.

[F] ~~415.11.5.5~~307.7.1.5.5 Explosion control.

[F] ~~415.11.5.6~~307.7.1.5.6 Exits..

[F] ~~415.11.5.7~~307.7.1.5.7 Doors.

[F] ~~415.11.5.8~~307.7.1.5.8 Ventilation.

[F] ~~415.11.5.9~~307.7.1.5.9 Emergency alarm system.

[F] ~~415.11.6~~307.7.1.6 Piping and tubing.

[F] ~~415.11.6.1~~307.7.1.6.1 HPM having a health-hazard ranking of 3 or 4. .

[F] ~~415.11.6.2~~307.7.1.6.2 Location in service corridors.

[F] ~~415.11.6.3~~307.7.1.6.3 Excess flow control.

[F] ~~415.11.6.4~~307.7.1.6.4 Installations in corridors and above other occupancies.

[F] ~~415.11.6.5~~307.7.1.6.5 Identification.

[F] ~~415.11.7~~307.7.1.7 Continuous gas detection systems.

[F] ~~415.11.7.1~~307.7.1.7.1 Where required.

[F] ~~415.11.7.1.1~~307.7.1.7.1.1 Fabrication areas.

[F] ~~415.11.7.1.2~~307.7.1.7.1.2 HPM rooms.

[F] ~~415.11.7.1.3~~307.7.1.7.1.3 Gas cabinets, exhausted enclosures and gas rooms.

[F] ~~415.11.7.1.4~~307.7.1.7.1.4 Corridors.

[F] ~~415.11.7.2~~307.7.1.7.2 Gas detection system operation.

[F] ~~415.11.7.2.1~~307.7.1.7.2.1 Alarms.

[F] ~~415.11.7.2.2~~307.7.1.7.2.2 Shutoff of gas supply.

[F] ~~415.11.8~~307.7.1.8 Manual fire alarm system.

[F] ~~415.11.9~~307.7.1.9 Emergency control station.

[F] ~~415.11.9.1~~307.7.1.9.1 Location.

[F] ~~415.11.9.2~~307.7.1.9.2 Staffing.

[F] ~~415.11.9.3~~307.7.1.9.3 Signals.

[F] ~~415.11.10~~307.7.1.10 Emergency power system.

[F] ~~415.11.10.1~~307.7.1.10.1 Required electrical systems.

[F] ~~415.11.10.2~~307.7.1.10.2 Exhaust ventilation systems.

[F] ~~415.11.11~~307.7.1.11 Automatic sprinkler system protection in exhaust ducts for HPM.

[F] ~~415.11.11.1~~307.7.1.11.1 Metallic and noncombustible nonmetallic exhaust ducts.

[F] ~~415.11.11.2~~307.7.1.11.2 Combustible nonmetallic exhaust ducts.

[F] ~~415.11.11.3~~307.7.1.11.3 Automatic sprinkler locations.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Provisions of the code for manufacturing, processing, dispensing, use or storage are being moved to the occupancy sections which include the criteria for these conditions and will provide a single location for users to find the requirements for this condition.

Cost Impact: Will not increase the cost of construction
Because the technical provisions of the code are not being changed, but simply moved, there is no impact on the cost of construction.

G 64-15 : [F] 415.10.4-COLLINS5973

G 65-15

416, [F] 416.1, [F] 416.2, [F] 416.2.1, [F] 416.2.2, [F] 416.3, [F] 416.3.1, [F] 416.4, [F] 416.5

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~SECTION 416~~
~~APPLICATION OF FLAMMABLE FINISHES~~

Revise as follows:

[F] ~~416.1~~307.1.3 ~~General.~~Application of flammable finishes The provisions of this section shall apply to the construction, installation and use of buildings and structures, or parts thereof, for the application of flammable finishes. Such construction and equipment shall comply with the *International Fire Code*.

[F] ~~416.2~~307.1.3.1 Spray rooms.

(The text of this section and subsequent sections would be unchanged except to update section references.)

[F] ~~416.2.1~~307.1.3.1.1 Surfaces.

[F] ~~416.2.2~~307.1.3.1.2 Ventilation.

[F] ~~416.3~~307.1.3.2 Spraying spaces.

[F] ~~416.3.1~~307.1.3.2.1 Surfaces.

[F] ~~416.4~~307.1.3.3 Spray booths.

[F] ~~416.5~~307.1.3.4 Fire protection.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Flammable finishes are specifically part of the hazardous materials requirements and with this change are moved to Section 307 where all the criteria are located for identifying such materials. With this change once the code user is clear that the materials are hazardous, the requirements will be located in the same section making it clear what is necessary as a result.

Cost Impact: Will not increase the cost of construction
Because there are no changes to the technical requirements of the code for the spray applications of flammable materials, there will be no change in the cost of construction as a result of this change.

G 65-15 : [F] 416-COLLINS4818

G 66-15

417, [F] 417.1, [F] 417.2, [F] 417.3, [F] 417.4

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~SECTION 417~~
~~DRYING ROOMS~~

Revise as follows:

[F] ~~417.1~~307.6.2.1 ~~General.~~Drying rooms A drying room or dry kiln installed within a building shall be constructed entirely of *approved* noncombustible materials or assemblies of such materials regulated by the *approved* rules or as required in the general and specific sections of this chapter for special occupancies and where applicable to the general requirements of the *International Mechanical Code*.

[F] ~~417.2~~307.6.2.1.1 Piping clearance.

(The text of this section and subsequent sections would be unchanged except to update section references.)

[F] ~~417.3~~307.6.2.1.2 Insulation.

[F] ~~417.4~~307.6.2.1.3 Fire protection.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Drying rooms often involve the use of materaials with hazardous characteristics and must be addressed by their classification as such and the quantities of such materials when they exceed the exempt quantities. By moving the provisions from Chapter 4 to the hazardous materaials classifications, the code user will better understand the link with these provisions.

Cost Impact: Will not increase the cost of construction
Because there is no technical change to the code requirements, there will be no increase in the cost of construction.

G 66-15 : [F] 417-COLLINS4820

G 67-15

418, [F]307.1.3 (New), [F] 418.1, [F] 418.2, [F] 418.3, [F] 418.4, [F] 418.5, [F] 418.6

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete and substitute as follows:

~~SECTION 418~~
~~ORGANIC COATINGS~~

Add new text as follows:

[F]307.1.3 Organic coatings. Manufacturing of organic coatings shall be done only in buildings in compliance with Sections 307.1.3.1 through 307.1.3.6.

Revise as follows:

[F] ~~418.1~~307.1.3.1 Building features.

(The text of this section and subsequent sections would be unchanged except to update section references.)

[F] ~~418.2~~307.1.3.2 Location.

[F] ~~418.3~~307.1.3.3 Process mills.

[F] ~~418.4~~307.1.3.4 Tank storage.

[F] ~~418.5~~307.1.3.5 Nitrocellulose storage.

[F] ~~418.6~~307.1.3.6 Finished products.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Organic coatings are specifically part of the hazardous materials requirements and with this change are moved to Section 307 where all the criteria are located for identifying such materials. With this change once the code user is clear that the materials are hazardous, the requirements will be located in the same section making it clear what is necessary as a result.

Cost Impact: Will not increase the cost of construction
Because there are not changes to the technical requirements of the code for organic coatings, there will be no change in the cost of construction as a result of this change.

G 67-15 : 418-COLLINS5972

G 68-15

419, 419.1, 419.1.1, 419.2, 419.3, 419.3.1, 419.3.2, 419.4, [F] 419.5, 419.6, 419.7, 419.8, 419.9

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~SECTION 419~~
~~LIVE/WORK UNITS~~

Revise as follows:

~~419.1~~510.10 ~~General~~Live/Work units. A *live/work unit* shall comply with Sections ~~419.1~~510.10.1 through ~~419.9~~510.10.9.

> **Exception:** Dwelling or sleeping units that include an office that is less than 10 percent of the area of the *dwelling unit* are permitted to be classified as *dwelling units* with accessory occupancies in accordance with Section 508.2.

~~419.1.1~~510.10.1 Limitations.

(The text of this section and subsequent sections would be unchanged except to update section references.).

~~419.2~~510.10.2 Occupancies.

~~419.3~~510.10.3 Means of egress.

~~419.3.1~~510.10.3.1 Egress capacity.

~~419.3.2~~510.10.3.2 Spiral stairways.

~~419.4~~510.10.4 Vertical openings. .

[F] ~~419.5~~510.10.5 Fire protection.

~~419.6~~510.10.6 Structural.

~~419.7~~510.10.7 Accessibility. .

~~419.8~~510.10.8 Ventilation.

~~419.9~~510.10.9 Plumbing facilities.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Live/work units, which perhaps a special subclassification of residential occupancy is in fact at part of the special provisions in Chapter 5 for mixed uses that are not separated. Section 510 is titled special provisions and is where the live/work provisions should also be found.

Cost Impact: Will not increase the cost of construction
No technical changes are made to the requirements for live/work and will not change how the code applies and will cause no increase in cost of construction.

G 68-15 : 419.1-COLLINS4822

G 69-15

420, 420.1, 420.2, 420.3, 420.4, 420.4.1, [F] 420.5, [F] 420.6, 308.3.5 (New), 308.3.6 (New), 308.3.7 (New), 308.3.8 (New), 308.3.8.1 (New), 310.3 (New), 310.4 (New), 310.5 (New)

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete and substitute as follows:

~~**SECTION 420**~~
~~**GROUPS I-1, R-1, R-2, R-3 AND R-4**~~

~~**420.1 General.** Occupancies in Groups I-1, R-1, R-2, R-3 and R-4 shall comply with the provisions of Sections 420.1 through 420.6 and other applicable provisions of this code.~~

~~**420.2 Separation walls.** Walls separating *dwelling units* in the same building, walls separating *sleeping units* in the same building and walls separating *dwelling* or *sleeping units* from other occupancies contiguous to them in the same building shall be constructed as *fire partitions* in accordance with Section 708.~~

~~**420.3 Horizontal separation.** Floor assemblies separating *dwelling units* in the same buildings, floor assemblies separating *sleeping units* in the same building and floor assemblies separating *dwelling* or *sleeping units* from other occupancies contiguous to them in the same building shall be constructed as *horizontal assemblies* in accordance with Section 711.~~

~~**420.4 Smoke barriers in Group I-1, Condition 2.** Smoke barriers shall be provided in Group I-1, Condition 2, to subdivide every story used by persons receiving care, treatment or sleeping and to provide other stories with an occupant load of 50 or more persons, into no fewer than two smoke compartments~~

~~. Such stories shall be divided into smoke compartments with an area of not more than 22,500 square feet (2092 m^2) and the distance of travel from any point in a smoke compartment to a smoke barrier door shall not exceed 200 feet (60 960 mm). The smoke barrier shall be in accordance with Section 709.~~

~~**420.4.1 Refuge area.** Refuge areas shall be provided within each smoke compartment. The size of the refuge area shall accommodate the occupants and care recipients from the adjoining smoke compartment. Where a smoke compartment is adjoined by two or more smoke compartments, the minimum area of the refuge area shall accommodate the largest occupant load of the adjoining compartments. The size of the refuge area shall provide the following:~~

1. ~~Not less than 15 net square feet (1.4 m^2) for each care recipient.~~
2. ~~Not less than 6 net square feet (0.56 m^2) for other occupants.~~

~~Areas or spaces permitted to be included in the calculation of the refuge area are corridors, lounge or dining areas and other low-hazard areas.~~

~~**[F] 420.5 Automatic sprinkler system.** Group R occupancies shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.8. Group I-1 occupancies shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.6. Quickresponse or residential automatic sprinklers shall be installed in accordance with Section 903.3.2.~~

~~**[F] 420.6 Fire alarm systems and smoke alarms.** Fire alarm systems and smoke alarms shall be provided in Group I-1, R-1, R-2 and R-4 occupancies in accordance with Sections 907.2.6, 907.2.8, 907.2.9 and 907.2.10, respectively. Single- or multiple-station smoke alarms shall be provided in Groups I-1, R-2, R-3 and R-4 in accordance with Section 907.2.11.~~

Add new text as follows:

308.3.5 Separation walls and horizontal assemblies. Walls or floor assemblies separating I-1 dwelling units in the same building, walls separating I-1 sleeping units in the same building and walls separating I-1 dwelling or sleeping units from other occupancies contiguous to them in the same building shall be constructed as fire partitions in accordance with Section 708 and horizontal assemblies in accordance with Section 711.

308.3.6 Automatic sprinkler system Group I-1 occupancies shall be equipped throughout with an automatic sprinkler system in accordance with Seciton 903.2.6. Quickresponse or residential automatic sprinklers shall be installed in accordance with Section 903.3.2.

308.3.7 Fire alarm systems and smoke alarms 308.3.7 Fire alarm systems and smoke alarms. Fire alarm systems and smoke alarms shall be provided in Group I-1 occupancies in accordance with Sections 907.2.6.1. Single or multiple-station smoke alarms shall be provided in Groups I-1 in accordance with Section 907.2.11.2.

308.3.8 Smoke barriers in Group I-1, Condition 2 Smoke barriers shall be provided in Group I-1, Condition 2, to subdivide every story used by persons receiving care, treatment or sleeping and to provide other stories with an occupant load of 50 or more persons, into no fewer than two smoke compartments.

Such stories shall be divided into smoke compartments with an area of not more than 22,500 square feet (2092 m^2) and the distance of travel from any point in a smoke compartment to a smoke barrier door shall not exceed 200 feet (60 960 mm). The smoke barrier shall be in accordance with Section 709.

308.3.8.1 Refuge area Refuge areas shall be provided within each smoke compartment. The size of the refuge area shall accommodate the occupants and care recipients from the adjoining smoke compartment. Where a smoke compartment is adjoined by two or more smoke compartments, the minimum area of the refuge area shall accommodate the largest occupant load of the adjoining compartments. The size of the refuge area shall provide the following:
1. Not less than 15 net square feet (1.4 m^2) for each care recipient.
2. Not less than 6 net square feet (0.56 m^2) for other occupants.

Areas or spaces permitted to be included in the calculation of the refuge area are corrid ors, lounge or dining areas and other low-hazard areas.

310.3 **Separation walls and horizontal assemblies** Walls or floor assemblies separating R-1 dwelling units in the same building, walls separating R-1, R-2, R-3 and R-4 sleeping units in the same building and walls separating R-1, R-2, R-3 and R-4 dwelling or sleeping units from other occupancies contiguous to them in the same building shall be constructed as fire partitions in accordance with Section 708 and horizontal assemblies in accordance with Section 711.

310.4 **Automatic sprinkler system** Group R-1, R-2, R-3 and R-4 occupancies shall be equipped throughout with an automatic sprinkler system in accordance with Seciton 903.2.8. Quickresponse or residential automatic sprinklers shall be installed in accordance with Section 903.3.2.

310.5 **Fire alarm systems and smoke alarms** Fire alarm systems and smoke alarms shall be provided in Group R-1, R-2 and R-4 occupancies in accordance with Sections 907.2.8, 907.2.9 and 907.2.11 respectively. Single or multiple-station smoke alarms shall be provided in Groups R-2, R-3 and R-4 in accordance with Section 907.2.11.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
I-1, R-1, R-2, R-3 and R-4 have similarities but differences as well and putting them all in one section can be confusing. This change moves them into two parts of Chapter 3 where the I-1 Group is classified and the provisions for compartments are more appropriately identified. The R occupancies are moved into the R Group where the requirements for separation are more easily found and applied appropriately.

Cost Impact: Will not increase the cost of construction
No technical changes are made by this code, simply moving provisions from one part of the code to another, not increasing the cost of construction.

G 69-15 : 420-COLLINS4823

G 70-15

421, [F] 421.1, [F] 421.2, [F] 421.3, [F] 421.4, [F] 421.4.1, [F] 421.4.2, [F] 421.5, [F] 421.6, [F] 421.6.1, [F] 421.6.2, [F] 421.6.3, [F] 421.6.4, [F] 421.7, [F] 421.8

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION 421**~~
~~**HYDROGEN FUEL GAS ROOMS**~~

Revise as follows:

[F] ~~421.1~~509.5 ~~General~~ Hydrogen fuel gas rooms. Where required by the *International Fire Code*, hydrogen fuel gas rooms shall be designed and constructed in accordance with Sections ~~421.1~~509.5.1 through ~~421.7~~509.5.7.

[F] ~~421.2~~509.5.1 Definitions.

(The text of this section and subsequent sections would be unchanged except to update section references.)

[F] ~~421.3~~509.5.2 Location.

[F] ~~421.4~~509.5.3 Design and construction.

[F] ~~421.4.1~~509.5.3.1 Pressure control.

[F] ~~421.4.2~~509.5.3.2 Windows.

[F] ~~421.5~~509.5.4 Exhaust ventilation.

[F] ~~421.6~~509.5.5 Gas detection system.

[F] ~~421.6.1~~509.5.5.1 System design.

[F] ~~421.6.2~~509.5.5.2 Gas detection system components.

[F] ~~421.6.3~~509.5.5.3 Operation.

[F] ~~421.6.4~~509.5.5.4 Failure of the gas detection system.

[F] ~~421.7~~509.5.6 Explosion control.

[F] ~~421.8~~509.5.7 Standby power.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.

Hydrogen fuel gas rooms are listed as incidental uses in Table 509 of the IBC and the IFC when not an H occupancy. This change simply moves it from Chapter 4 and puts it into the requirements for indicental uses in Chapter 5 making the application of the code easier to understand and easier for appropriate application for the user.

Cost Impact: Will not increase the cost of construction
This change will simply clarify how these rooms, once identified as incidental must be constructed, and will not increase the cost of construction.

G 70-15 : [F] 421-COLLINS4825

G 71-15

422, 422.1, 422.2, 422.3, 422.3.1, 422.3.2, 422.3.3, [F] 422.4, [F] 422.5

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~SECTION 422~~
~~AMBULATORY CARE FACIILITIES~~

Revise as follows:

~~422.1~~304.2 ~~General~~Ambulatory care facilities. Occupancies classified as *ambulatory care facilities* shall comply with the provisions of Sections ~~422.1~~ 304.2.1 through ~~422.5~~ 304.2.4 and other applicable provisions of this code.

~~422.2~~304.2.1 Separation.

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~422.3~~304.2.2 Smoke compartments.

~~422.3.1~~304.2.2.1 Means of egress.

~~422.3.2~~304.2.2.2 Refuge area.

~~422.3.3~~304.2.2.3 Independent egress.

[F] ~~422.4~~304.2.3 Automatic sprinkler systems.

[F] ~~422.5~~304.2.4 Fire alarm systems.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
Ambulatory facilities are classified as a B occupancy. Being a relatively new occupancy having the specific requirements located in Chapter 4 with no reference to it in Chapter 3 leaves many questions in the code users mind. Moving it here will clearly identify these types of care facilities as a business and include the specific criteria for it in that same section.

By moving the provisions in Chapter 4 for ambulatory care facilities into the the occupancy classification in Chapter 3, the triggers and allowances for ambulatory care will be clear and obvious choices. Correlation of references to new code locations are not included in the proposal but need to be provided by the editorial staff.

Cost Impact: Will not increase the cost of construction
By moving the provisions for ambulatory care into the occupancy classification it will make the code simpler to understand and apply and will not increase the cost of construction.

G 71-15 : [F] 422-COLLINS4869

G 72-15

423, 423.1, 423.1.1, 423.2, 423.3, 423.4

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~SECTION 423~~
~~STORM SHELTERS~~

Revise as follows:

~~423.1~~504.5 ~~General~~Storm shelters. In addition to the requirements of this section and other applicable requirements in this code, storm shelters shall be constructed in accordance with ICC 500.

~~423.1.1~~504.5.1 Scope.

(The text of this section and subsequent sections would be unchanged except to update section references.)

~~423.2~~504.5.2 Definitions.

~~423.3~~504.5.3 Critical emergency operations.

~~423.4~~504.5.4 Group E occupancies.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.

Moving the provisions for storm shelters from Chapter 4 into Section 504 will more closely align such structures for their typical location above or below ground. With other changes for structures below ground (underground structures) this will maintain the common location of buildings, their height and their relationship with grade consistent and make it more understandable for code users.

Cost Impact: Will not increase the cost of construction
Moving the provisions for storm shelters from Chapter 4 to Chapter 5 will not affect the cost of construction.

G 72-15 : 423-COLLINS4872

G 73-15

424, 424.1, 602.6 (New), 424.2, [F] 424.3, 424.4, 424.5

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~**SECTION 424**~~
~~**CHILDREN'S PLAY STRUCTURES**~~

Delete and substitute as follows:

~~**424.1 Children's play structures.** Children's play structures installed inside all occupancies covered by this code that exceed 10 feet (3048 mm) in height and 150 square feet (14 m^2) in area shall comply with Sections 424.2 through 424.5.~~

602.6 Children's play structures

Children's play structures installed inside all occupancies covered by this code that exceed 10 feet (3048 mm) in height and 150 square feet (14 m^2) in area shall comply with Sections 602.6.1 through 602.6.4.

Revise as follows:

~~424.2~~602.6.1 Materials.

(The text of this section and subsequent sections would be unchanged except to update section references.)

[F] ~~424.3~~602.6.2 Fire protection.

~~424.4~~602.6.3 Separation.

~~424.5~~602.6.4 Area limits.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
The requirements for children's play area are based solely on the materials they are constructed of and their relationship with the structure in which they are located. Moving these requirements into Chapter 6 where other maerails performance and their relationship with the building is appropriate and more easily understood by code users.

Cost Impact: Will not increase the cost of construction
Moving these provisions with no change will not affect the cost of construction.

G 73-15 : 424-COLLINS4879

G 74-15

425, 425.1, 304.5 (New)

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete and substitute as follows:

~~SECTION 425~~
~~HYPERBARIC FACILITIES~~

Revise as follows:

~~425.1~~308.7 Hyperbaric facilities.

(The text of this section would be unchanged except to update section references.).

Add new text as follows:

304.5 Hyperbaric facilities Hyperbaric facilities shall meet the requirements contained in Chapter 14 of NFPA 99.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
By moving the provisions in Chapter 4 for hypberbaric facilities into Chapter 3, the typical applications within Group I-2 facilities and Group B outpatient facilities will be captured for understanding by the code user. This change also references the criteira for reporting in the International Fire Code.

Cost Impact: Will not increase the cost of construction
Simply moving the provisions from Chapter 4 to Chapter 3 will have no affect on the cost of construction.

G 74-15 : 425-COLLINS4882

G 75-15

[F] 426, 426.1, [F] 426.1.1, [F] 426.1.2, [F] 426.1.3, [F] 426.1.4, [F] 426.1.5, [F] 426.1.6, [F] 426.1.7

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Delete without substitution:

~~SECTION[F] 426~~
~~COMBUSTIBLE DUSTS, GRAIN PROCESSING AND STORAGE~~

Revise as follows:

~~426.1~~[F] 307.4.1 Combustible dusts, grain processing and storage. The provisions of Sections ~~426.1.1~~307.4.1.1 through ~~426.1.7~~307.4.1.7 shall apply to buildings in which materials that produce combustible dusts are stored or handled. Buildings that store or handle combustible dusts shall comply with the applicable provisions of NFPA 61, NFPA 85, NFPA 120, NFPA 484, NFPA 654, NFPA 655 and NFPA 664 and the *International Fire Code*.

[F] ~~426.1.1~~307.4.1.1 Type of construction and height exceptions.

(*The text of this section and subsequent sections would be unchanged except to update section references.)*

[F] ~~426.1.2~~307.4.1.2 Grinding rooms.

[F] ~~426.1.3~~307.4.1.3 Conveyors.

[F] ~~426.1.4~~307.4.1.4 Explosion control.

[F] ~~426.1.5~~307.4.1.5 Grain elevators.

[F] ~~426.1.6~~307.4.1.6 Coal pockets.

[F] ~~426.1.7~~307.4.1.7 Tire rebuilding.

Reason: Chapter 4 of the IBC includes a hodge-podge of various criteria for "special use and occupancy." However, these are often exceptions to specific limits or allowances from having to meet such limits, or even specific requirements for specific occupancy groups. The issue in general is that they are "gotcha's" built into the code. This series of code changes moves these special criteria into the chapters and sections where these issues are typically addressed, removing any doubt in the mind of the code user as to how these criteria are to be integrated into the design and construction of a building that includes these features.
The handling and use of combustible dusts and grains is another example of special use and occupancy that is better found in Chapter 3 where the specifics of the hazards are classified and their application within the code determined. The wholesale provisions from 426 are moved to Section 307.4 for another part of the complicated H-2 occupancy conditions.

Cost Impact: Will not increase the cost of construction
Simply moving the provisions from one section of the code to another will not change the cost of construction.

G 75-15 : 426-COLLINS4880

G 76-15

402.7.6 (New)

Proponent: Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Add new text as follows:

402.7.6 **Fire command center** For covered mall buildings exceeding 50,000 square feet (4645 m²) a *fire command center* complying with Section 911 shall be provided in a location approved by the fire department.

Reason: The IFC alludes to a fire command center for covered mall buildings in Section 408.11.1. However, the trigger requirement for a covered mall building is not apparent. Base code requirements for covered mall buildings have significant triggers occurring at 50,000 sf. These include emergency voice alarm systems, and emergency power. Section 402.7.5 has requirements for fire department access to controls for sprinklers, HVAC, and "other detection, suppression or control elements shall be identified for use by the fire department." In addition Section 402.7.2 requires smoke control in covered malls with atriums over two stories.

For larger buildings, preplanning the use of fire protection equipment such as hose stations, and the above mentioned equipment will aid in fire department response. Providing the necessary information and equipment controls in one accessible location such as a fire command center, can only aid the response. Without a fire command center there is no requirement to consolidate equipment controls to aid emergency response. This proposal will formalize the requirement alluded to in the fire code for mall buildings over 50,000 sf. and provide a single location for emergency equipment controls and responders to coordinate their efforts.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction by adding a fire command center to certain mall buildings.

G 76-15 : 402.7.6 (New)-DIGIOVANNI3816

G 77-15

402.8.6.1

Proponent: Robert Davidson, representing Myself (rjd@davidsoncodeconcepts.com)

2015 International Building Code

Revise as follows:

402.8.6.1 Exit passageways. Where *exit passageways* provide a secondary *means of egress* from a tenant space~~, doorways to~~ the *exit* ~~*passageway*~~ passageways shall be ~~protected by 1-hour *fire door assemblies* that are self- or automatic-closing by smoke detection~~constructed in accordance with Section ~~716.5.9.3~~1024.

Reason: The purpose of this proposal is to point the user to all of the code requirements for exit passageways. The 1 hour fire-resistance rating is maintained, for openings Section 1024.5 points the user to Section 716 and applying that portion of the code maintains the requirement for the 1 hour rated fire doors, (see Table 716.5), and maintains the requirement for the smoke activated closure, (see Section 716.5.9.3, Item 3).
There has been cases of confusion in that a user looks at Sections 402.8.6.1 and 402.8.7 and interprets that these are the only sections needed to be complied with for an exit passageway in this occupancy. For example, the application of Section 1024.6 for penetration limitations. With the suggest change the level of protection is unchanged and application of the exit passageway requirements are clarified.

Cost Impact: Will not increase the cost of construction
Since the modification clarifies application of the code there should be a reduction in unnecessary costs associated with correcting erros in construction.

G 77-15 : 402.8.6.1-DAVIDSON5504

G 78-15

402.8.7.1 (New)

Proponent: Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com)

2015 International Building Code

Add new text as follows:

402.8.7.1 Utility systems in exit passageways The following utility systems and equipment are permitted in mall exit passageways:

1. Electrical wiring in conduit not greater than 480 volts phase-to-phase and 277 volts phase-to-neutral.
2. Exposed low-voltage wiring.
3. Enclosed junction boxes.
4. Fire alarm equipment and wiring.
5. Noncombustible waste piping.
6. Cold/hot water piping.
7. Automatic fire sprinkler piping.
8. Storm water piping.

All penetrations of fire barriers shall be protected in accordance with Section 714.

Reason: The covered mall building provisions (Section 402.8.7) allow for building utility service rooms to open into exit passageways. However, the current text does not specificvally address the distribution of utilities within exit passageways of malls.
For maintenance reasons, utilities are typically distributed within the service corridors at the rear of the tenant space which, in most cases, also serves as the exit passagway. Section 402.8.7 permits openings from the service rooms into these exit passageways for other than means of egress but does not address the distribution of those utilities once they leave the service room.

Becase the covered mall provisions for service rooms allow for service rooms to open into exit passageways, similar low-hazard service equipment should be allowed to be distributed in the exit passageways provided that the penetration is properly protected, egress heights are maintained and egress widths are maintained. By referring to Section 714, proper penetration protection of the fire barrier will occur. Egress heights and widths are addressed elsewhere in the code and would not need to be clarified or repeated herein.

Cost Impact: Will not increase the cost of construction
Because the distribution of utilities is currently allowed in a number of cases (one of the legacy codes specifically allowed it) the proposal will not increase costs. The alternatives would requier additional costs for horizontal shaft construction and separate service rooms for utility connections.

G 78-15 : 402.8.7.1 (New)-BOECKER5456

G 79-15

403.1

Proponent: Stephen DiGiovanni, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

403.1 Applicability. *High-rise buildings* shall comply with Sections 403.2 through 403.6.

Exception: The provisions of Sections 403.2 through 403.6 shall not apply to the following buildings and structures:

1. Airport traffic control towers in accordance with Section 412.3.
2. *Open parking garages* in accordance with Section 406.5.
3. The portion of a building containing a Group A-5 occupancy in accordance with Section 303.6. <u>This exception does not apply to uses that are located on an occupied roof.</u>
4. Special industrial occupancies in accordance with Section 503.1.1.
5. Buildings with <u>primary occupancy of</u>:
   - 5.1. A Group H-1 occupancy;
   - 5.2. A Group H-2 occupancy in accordance with Section 415.8, 415.9.2, 415.9.3 or 426.1; or,
   - 5.3. A Group H-3 occupancy in accordance with Section 415.8.

Reason: There is concern about the impact of exceptions 3 and 5.

For exception 3, there are instances where a swimming pool deck is located on the roof of a high-rise building. Being outdoors, those areas could be considered an A-5 occupancy. There is concern about eliminating the high-rise provisions, such as fire alarm coverage, standpipe system coverage, etc, for these areas. In certain jurisdictions, these areas can be used for parties and nightclub uses, which bring with them a higher level of hazard that justifies the application of high-rise provisions, as applicable. This proposal attempts to ensure that the exception does not include roof top uses such as swimming pool decks.

For exception 5, there is concern about any such building that is a portion of a high-rise building. The way that exception 5 reads, if any of these occupancies are collocated with a high-rise building, then the high-rise provisions would not be applicable to the high-rise building. While there is no concern with a H-1 occupancy required to be a separate building by Section 415.7, or a Group H-2 or H-3 occupancy required to be in a detached building per Section 415.8, there is concern about the other H-2 occupancies that may be collocated with a high-rise building. Specifically, LPG facilities described in Section 415.9.2 are not defined, and may be within a high-rise building. Also, NFPA 58 allows bulk LPG facilities to be attached to other structures. The dry cleaning plants described in Section 415.9.3 could be found in larger hotels that have on-site uniform maintenance. Finally, there are larger high-rise complexes that have on-site engineering maintenance staff with the capability of producing combustible dusts in designated maintenance areas. The way exception 5 reads, having any of these H-2 occupancies within or attached to the high-rise building, would seem to say that the high-rise provisions no longer apply. By adding the phrase regarding the primary occupancy, having a minor part of a building be an H-2 occupancy would not negate the applicability to high-rise provisions for that building.

Cost Impact: Will increase the cost of construction
Depending on previous interpretations, this proposal may increase construction costs for certain buildings or portions thereof that were not previously constructed in accordance with the high-rise provisions.

G 79-15 : 403.1-DIGIOVANNI3817

G 80-15

403.2.1.1

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

403.2.1.1 Type of construction. The following reductions in the minimum *fire-resistance rating* of the building elements in Table 601 shall be permitted as follows:

1. For buildings not greater than 420 feet (128 000 mm) in *building height*, the *fire-resistance rating* of the building elements in Type IA construction shall be permitted to be reduced to the minimum *fire-resistance ratings* for the building elements in Type IB.
   Exception: The required fire-resistance rating of columns supporting floors shall not be reduced.
2. In other than Group F-1, H, M and S-1 occupancies, the *fire-resistance rating* of the building elements in Type IB construction shall be permitted to be reduced to the *fire-resistance ratings* in Type IIA.
3. The *building height* and *building area* limitations of a building containing building elements with reduced *fire-resistance ratings* shall be permitted to be the same as the building without such reductions.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
During the last code development cycle the committee approved a code change proposal that clarified the allowance for H Group uses within a high-rise buildings. During the hearing, committee members correctly questioned why Group H was not included within Section 403.2.1.1 Exception 2 when Groups of a lesser fire hazard potential were included. Since Section 403.2.1.1 was not part of the proposal before the committee, there was no way to address the issue during last cycle.

This proposal addresses the issue identified by the committee and adds Group H to Section 403.2.1.1 Exception 2 wherein Groups F-1, M, and S-1 are currently restricted from lowering their type of construction.

Cost Impact: Will increase the cost of construction
The cost of construction for a mixed occupancy high-rise containing an H Group occupancy will be increased by elimination of the ability to reduce the construction type.

G 80-15 : 403.2.1.1-KULIK4892

G 81-15

403.5.2

Proponent: Raymond Grill, Arup, representing Arup (ray.grill@arup.com)

2015 International Building Code

Revise as follows:

403.5.2 Additional interior exit stairway. For buildings other than Group R-2 and their ancillary spaces that are more than 420 feet (128 000 mm) in *building height*, one additional *interior exit stairway* meeting the requirements of Sections 1011 and 1023 shall be provided in addition to the minimum number of *exits* required by Section 1006.3. The total width of any combination of remaining *interior exit stairways* with one *interior exit stairway* removed shall be not less than the total width required by Section 1005.1. *Scissor stairways* shall not be considered the additional *interior exit stairway* required by this section.

> **Exception:** An additional *interior exit stairway* shall not be required to be installed in buildings having elevators used for occupant self-evacuation in accordance with Section 3008.

Reason: Ancillary spaces used as amenity space (e.g., rooftop terrace, pool, fitness center, clubhouse, etc.) that serve residential units are primarily used by the same occupants of the residential units, which should not drive the requirement for a redundant stair.

Cost Impact: Will not increase the cost of construction
This code proposal is intended to clarify application of the code. If anything, the cost impact of the change is that cost of construction will be reduced.

G 81-15 : 403.5.2-GRILL5342

G 82-15

403.5.2

Proponent: Raymond Grill, Arup, representing Arup (ray.grill@arup.com)

2015 International Building Code

Revise as follows:

403.5.2 Additional interior exit stairway. For buildings other than Group R-1 and R-2 that are more than 420 feet (128 000 mm) in *building height*, one additional *interior exit stairway* meeting the requirements of Sections 1011 and 1023 shall be provided in addition to the minimum number of *exits* required by Section 1006.3. The total width of any combination of remaining *interior exit stairways* with one *interior exit stairway* removed shall be not less than the total width required by Section 1005.1. *Scissor stairways* shall not be considered the additional *interior exit stairway* required by this section.

> **Exception:** An additional *interior exit stairway* shall not be required to be installed in buildings having elevators used for occupant self-evacuation in accordance with Section 3008.

Reason: The requirement for the additional stair in building over 420 was incorporated to address the perceived issue of counter flow in stairs during emergency responder response.
R-1 occupancies have the same occupant loading as R-2 occupancies (200 sf per person). R-2 occupancies should be considered the same as R-2 occupancies for the purpose of this requirement.

Cost Impact: Will not increase the cost of construction
This code change will reduce the construction cost for R-1 occupancies over 420 feet in height.

G 82-15 : 403.5.2-GRILL5345

G 83-15

403.5.2

Proponent: Jonathan Siu, City of Seattle, Department of Planning and Development, representing Washington Association of Building Officials Technical Code Development Committee (jon.siu@seattle.gov)

2015 International Building Code

Revise as follows:

403.5.2 Additional interior exit stairway. For buildings other than Group R-2 that are more than 420 feet (128 000 mm) in *building height*, one additional *interior exit stairway* meeting the requirements of Sections 1011 and 1023 shall be provided in addition to the minimum number of *exits* required by Section 1006.3. The total ~~width~~ capacity of any combination of remaining *interior exit stairways* with one *interior exit stairway* removed shall be not less than the total ~~width~~ capacity required by Section 1005.1. *Scissor stairways* shall not be considered the additional *interior exit stairway* required by this section.

> **Exception:** An additional *interior exit stairway* shall not be required to be installed in buildings having elevators used for occupant self-evacuation in accordance with Section 3008.

Reason: This proposal is a clarification to reflect what we believe was intended when this section was placed into the IBC. In the 2015 code, egress "width" and "capacity" were carefully separated in Chapter 10. "Width" refers to a minimum dimension stated in the code for a particular egress component. "Capacity" now refers to a dimension that is calculated based on an occupant load. It appears that the code change that made this separation did not address this section, and the failure to do so results in a question as to what was intended. We believe that the intent is to maintain the capacity of the remaining stairs. This is not an issue for most buildings that we have dealt with, but if the building has large assembly spaces higher up in the building, it can result in another stair being required.

Cost Impact: Will not increase the cost of construction
This proposal is a clarification of the code. If a jursidiction has been interpreting the code in a way that is consistent with this proposal, there will be no change in cost of construction. If a jurisdiction has been applying the code differently, then there may be an increase in the cost of construction.

G 83-15 : 403.5.2-SIU4266

G 84-15

403.5.2

Proponent: Stephen DiGiovanni, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

403.5.2 Additional interior exit stairway. For buildings other than Group R-2 that are more than 420 feet (128 000 mm) in *building height*, one additional *interior exit stairway* meeting the requirements of Sections 1011 and 1023 shall be provided in addition to the minimum number of *exits* required by Section 1006.3. The total width of any combination of remaining *interior exit stairways* with one *interior exit stairway* removed shall be not less than the total width required by Section 1005.1. *Scissor stairways* shall not be considered the additional *interior exit stairway* required by this section.

> **~~Exception~~Exceptions:** ~~An~~1.An additional *interior exit stairway* shall not be required to be installed in buildings having elevators used for occupant self-evacuation in accordance with Section 3008.
> 2. An additional *interior exit stairway* shall not be required for redundancy to stairways serving only those portions of the building less than 420 feet (128 000 mm) in building height.

Reason: The intent of these codes sections was to provide additional means of egress for the super high-rise structures (i.e., over 420-feet tall). It was not the intent of the code to establish the additional exit stairway provisions for connected podiums, other towers, and other portions of the same building that are less than 420 feet in building height. The code language as written could be interpreted to require the additional exit stairway for these other building areas.

For larger facilities, project designs have included multiple towers connected to a podium, which are considered a single building in building height and area. By adding new Exception No. 2 to Sections 403.5.2, the interpretation to require the additional exit stairway for other building areas or towers with building heights less than 420 feet becomes more uniform.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction, as no additional building elements or more stringent means of construction are being added to the existing code by this proposal.

G 84-15 : 403.5.2-DIGIOVANNI3819

G 85-15

403.5.3, 403.5.3.1 (New), 403.5.3.1.1 (New), 403.5.3.1

Proponent: Dave Frable, US General Services Administration, representing US General Services Administration

2015 International Building Code

Revise as follows:

403.5.3 Stairway door operation. Stairway doors other than the *exit discharge* doors shall meet one of the following conditions:

1. Re-entry from the stairway enclosure to the interior of the building shall be ~~permitted to be locked from the *stairway* side~~provided.

2. *Stairway* doors that are locked from the *stairway* side shall be capable of being unlocked simultaneously without unlatching upon a signal from the *fire command center* *to allow re-entry*.

3. Selected re-entry shall be provided in accordance with Section 403.5.3.1

Add new text as follows:

403.5.3.1 Stairway door re-entry Stairway doors shall be permitted to be equipped with hardware that prevents re-entry into the interior of the building, provided that all of the following criteria are met:

1. There shall be not less than two levels where it is possible to leave the stair enclosure to access another exit.

2. There shall be not more than four stories intervening between stories where it is possible to leave the stair enclosure to access another exit.

3. Re-entry shall be possible on the top story or next-to-top story served by the stair enclosure, and such story shall allow access to another exit.

4. Stairway doors allowing re-entry shall be identified as such on the stair side of the door leaf.

5. Stairway doors not allowing re-entry shall be provided with a sign on the stairway side indicating the location of the nearest door opening, in each direction of travel, that allows re-entry or exit.

403.5.3.1.1 Stairway re-entry signage Where the provisions of 403.5.3.1 are used, signage on the stair door leaves shall be required as follows;

1. Stairway doors allowing re-entry shall be identified as such on the stair side of the door leaf.

2. Stairway doors not allowing re-entry shall be provided with a sign on the stair side indicating the location of the nearest door opening, in each direction of travel that allows re-entry or exit.

Revise as follows:

~~403.5.3.1~~403.5.3.2 Stairway communication system. A telephone or other two-way communications system connected to an *approved constantly attended station* shall be provided at not less than every fifth floor in each *stairway* where the doors to the *stairway* are locked.

Reason: The intent of this code change is to re-arrange the subject section and provide another option for designers of high-rise buildings when considering building security and locking stairway doors from the stairway side of the enclosure. This code change proposal recognizes stairway re-entry provisions that are currently permitted in the 2015 edition of the National Fire Protection Association (NFPA), Life Safety Code.

Cost Impact: Will increase the cost of construction
The intent of this code change may increase the cost of construction due to additional signage requirements. However, the communication will not be required if this option is used.

G 85-15 : 403.5.3-FRABLE5493

G 86-15

403.5.3.1

Proponent: Dave Frable, representing US General Services Administration (dave.frable@gsa.gov)

2015 International Building Code

Delete without substitution:

~~**403.5.3.1 Stairway communication system.** A telephone or other two-way communications system connected to an *approved constantly attended station* shall be provided at not less than every fifth floor in each *stairway* where the doors to the *stairway* are locked.~~

Reason: In a companion proposal, we have proposed to is to re-arrange the provisions of stairway reentry and to provide another option for designers of high-rise buildings when considering building security and locking stairway doors from the stairway side of the enclosure. This code change proposal recognizes stairway re-entry provisions that are currently permitted in the 2015 edition of the National Fire Protection Association (NFPA), Life Safety Code. In the companion proposal Section 403.5.3.1 is retained.
This proposal is to delete Section 403.5.3.1. The intent of the communication system is to provide occupants a means to notify an attended location that the stairway prevents its continued use. However, the subject communication system has no operating instructions and it appears to provide a false sense of assurance that the stairway doors will be unlocked in a timely manner since in all likelihood the person being notified is not within the vicinity of the controls within the building to unlock the stairway doors.

Cost Impact: Will not increase the cost of construction
The intent of this code change will reduce cost of construction due to the elimination of the stairweay communication system.

G 86-15 : 403.5.3.1-FRABLE5508

G 87-15

403.6.1

Proponent: Brad Schiffer, representing self (brad@taxis-usa.com)

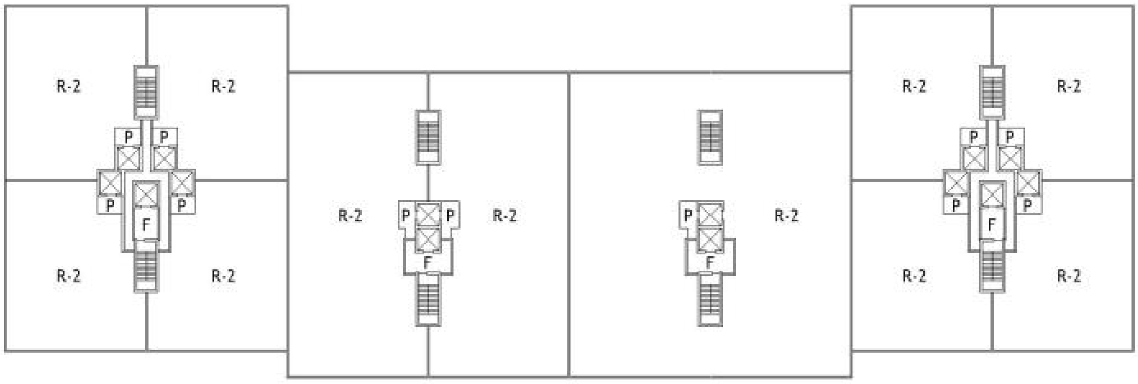
2015 International Building Code

Revise as follows:

403.6.1 Fire service access elevator. In buildings with an occupied floor more than 120 feet (36 576 mm) above the lowest level of fire department vehicle access, no fewer than two fire service access elevators, or all elevators, whichever is less, shall be provided in accordance with Section 3007. Each fire service access elevator shall have a capacity of not less than 3,500 pounds (1588 kg) and shall comply with Section 3002.4.

Exception: One fire service access elevator is required in Group R-2 occupancies with a hoistway group serving not more than six dwelling units.

Reason: Residential buildings with private elevators have multiple elevator groups serving each level. These elevator groups have the private elevators serving the units with a service elevator meeting the Fire Service Access Elevator requirements. Requiring two Fire Service Access Elevators causes at least one of the private elevators to become a Fire Service Access Elevator. This also requires that private elevator to provide Phase 1 recall.
These cores serve a small occupant load.



P=private
F=fire service

Cost Impact: Will not increase the cost of construction
Due to the removal of an additional Fire Service Access Elevator this will decrease building costs.

G 87-15 : 403.6.1-SCHIFFER4483

G 88-15

404.2

Proponent: Jeff Hugo, National Fire Sprinkler Association, representing National Fire Sprinkler Association (hugo@nfsa.org)

2015 International Building Code

Revise as follows:

404.2 Use. The floor of the *atrium* shall not be used for other than low fire hazard uses and only *approved* materials and decorations in accordance with the *International Fire Code* shall be used in the *atrium* space.

> **Exception:** The *atrium* floor area is permitted to be used for any *approved* use where the individual space, regardless of the ceiling height of the atrium, is provided with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

Reason: This proposal clarifies that the sprinkler exception in Section 404.3 cannot be used when the floor of the atrium is used for other than a low fire hazard use. While NFPA 13 does not limit the height of when sprinklers are used, the exception in 404.3 is mistakenly applied when using this section.

Cost Impact: Will not increase the cost of construction
No technical change made to code.

G 88-15 : 404.2-HUGO4517

G 89-15

404.2, [F] 404.3

Proponent: Robert Davidson, representing Myself (rjd@davidsoncodeconcepts.com)

2015 International Building Code

Revise as follows:

404.2 Use. ~~The floor of the *atrium* shall not be used for other than low fire hazard uses and only~~ Only *approved* materials and decorations in accordance with the *International Fire Code* shall be used in the *atrium* space.

> ~~**Exception:** The *atrium* floor area is permitted to be used for any *approved* use where the individual space is provided with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~

[F] 404.3 Automatic sprinkler protection. An *approved automatic sprinkler system* shall be installed throughout the entire building. The floor of the atrium shall not be used for any activities that exceed the designed capability of the automatic sprinkler system. Where a smoke control system is present the use and arrangement of the atrium floor shall be consistent with the design of the smoke control system.

Exceptions:

1. That area of a building adjacent to or above the *atrium* need not be sprinklered provided that portion of the building is separated from the *atrium* portion by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.
2. ~~Where the ceiling of the *atrium* is more than 55 feet (16 764 mm) above the floor, sprinkler~~Sprinkler protection at the ceiling of the *atrium* is not required~~.~~ provided the following criteria are met:
   2.1. The ceiling of the atrium is more than 55 feet (16764 mm) above the floor, and
   2.2. The floor of the atrium shall not be used for other than low fire hazard uses.

Reason: The purpose of this proposal is to improve the code language to obtain the intended goal of the sections involved. There is no intention of a major technical change or increase in requirements.

The existing Section 404.2 has two requirements, low fire hazard use restriction for the atrium and compliance with the fire code for materials and decorations. Then there is an exception when a sprinkler system is present, however, Section 404.3 mandates a sprinkler system to be present anytime there is an atrium. So the exception would always apply unless exception 2 in Section 404.3 is applied.

The other problem with the language in 404.2 and that the exception could be read to give exception to the fire code provisions on materials and decorations and this creates a conflict with teh fire code.

The proposed changes are to simply have Section 404.2 maintain the language setting up the relationship with the fire code for materials and decorations. The floor use of the atrium is then related directly to the designed capabilities of the sprinkler system and a smoke control system if one is present, both of which is a normal part of the design process for fire protection systems, (i.e., what is the expected fuel load of the atrium). This is done with the language proposed to be added to Section 404.3.

The final modification is to take the language restricting the use of the atrium to low fire hazard uses and attach that requirement to Section 404.3, Exception 2 where the atrium ceiling protection is eliminated.

The intent of the current language is maintained, but technical application of the requirements are clarified with this proposal.

Cost Impact: Will not increase the cost of construction
Since there is no increase in code requirements there will not be an increase in costs.

G 89-15 : 404.2-DAVIDSON5297

G 90-15

404.5

Proponent: Masoud Sabounchi, Colorado Chapter of ICC, representing masoud sabounchi (masoud@acecode.com)

2015 International Building Code

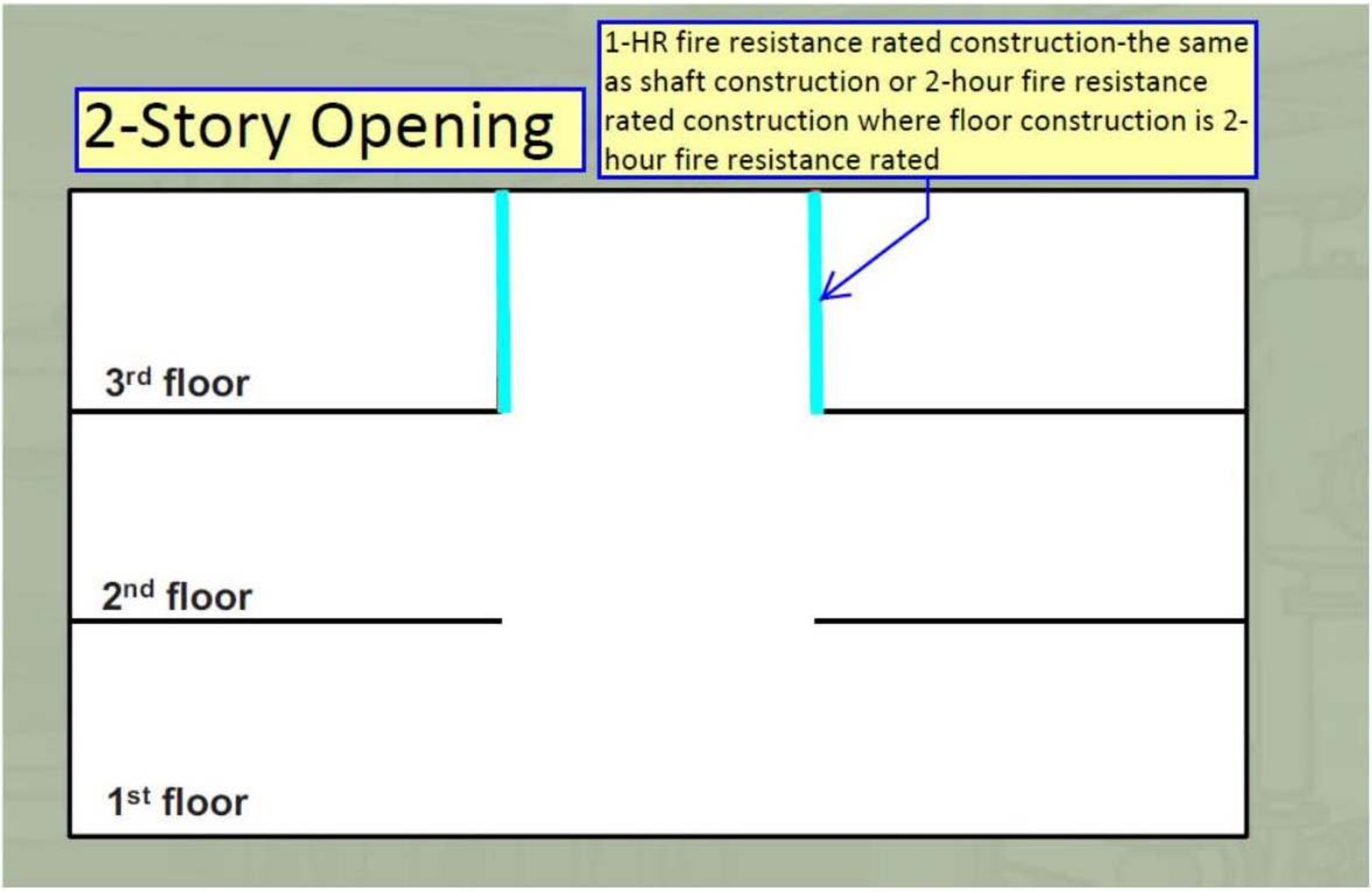
Revise as follows:

404.5 Smoke control. A smoke control system shall be installed in accordance with Section 909.

~~**Exception**~~**Exceptions:** A smoke control system is not required in the following conditions:
1. In other than Group I-2, and Group I-1, Condition 2, ~~smoke control is not required~~ for *atriums* that connect only two *stories*.
2. Where an atrium connects three stories in other than Group I-2 or Group I-1 condition 2 occupancies, smoke control is not required where:
  - 2.1. Either the second or third story is atmospherically separated from the atrium by a fire barrier; and
  - 2.2. The fire barrier is constructed as a shaft enclosure and is of not less than 1-hour fire-resistive construction or the required rating of the floor assemblies, whichever is greater.

3. Where an atrium connects two stories in a Group I-2 or Group I-1 condition 2 occupancies, smoke control is not required where:
3.1. The second story is atmospherically separated from the atrium by a fire barrier; and
3.2. The fire barrier is constructed as a shaft enclosure and is of not less than 1-hour fire-resistive construction or the required rating of the floor assemblies, whichever is greater.

Reason: To introduce natural light to the first or second floors in a multi-story building, a light-well is typically introduced. Also, often the entry lobbies to buildings have a high ceiling extending through two or three stories and atmospherically separated at the top level with fire resistance rated fire barriers. While this scheme has been approved administratively and as an alternate method with varying requirements, this proposal would bring consistency to the application. This proposal requires atmospheric separation such that not more than two stories are connected to each other and in case of I-2 occupancy groups one story with a high ceiling lobby entry area would be permitted to extend thru the second floor and be atmospherically separated from the second story. When the highest story is separated from the floor opening, it creates a larger reservoir for smoke to collect. The reason this proposal limits the separations to the upper floors (not permitted on the first story) is because if separation is provided at the first floor, three level including the interior area of the first floor separated by the fire barrier would create a 3 story opening. Please refer to the attached drawings for further clarification.
This approach is consistent with provisions of Section 712.1.9 pertaining to two story openings. Also, section 712.1.13.1 allows horizontal fire door assemblies to limit number of floor openings and this proposal provides safeguards equivalent to horizontal fire door assemblies by separating the floor openings on at least one level. Since this exception is introduced in the atrium section, the building will have sprinkler protection throughout.



Cost Impact: Will not increase the cost of construction
This proposal does not increase the cost of construction.

G 90-15 : 404.5-SABOUNCHI4603

G 91-15

404.5

Proponent: Raymond Grill, Arup, representing Arup (ray.grill@arup.com)

2015 International Building Code

Revise as follows:

404.5 Smoke control. A smoke control system shall be installed in accordance with Section 909.

~~**Exception**~~**Exceptions**:

1. In other than Group I-2, and Group I-1, Condition 2, smoke control is not required for *atriums* that connect only two *stories*.
2. In other than Group I-2 and Group I-1, Condition 2, smoke control is not required for atriums where levels above the lowest level are separated from the atrium in accordance with Section 404.6.

Reason: In the event of a fire on the lowest level of the atrium, the atrium space will provide a heat and smoke sink that would enhance the safety of occupants at the base of the atrium. Heated products of combustion will rise and will allow more time for egress. The separation of upper levels in accordance with 404.6 precludes exposure to occupants on upper levels.
Smoke removal after the event can be performed in the same manner as in any other building without an atrium. There is no greater exposure presented.

In other sections of the code, multiple interconnected levels are allowed without smoke control. Section 712.1.3.1 allows an unlimited number of levels in Group B and M occupancies to be interconnected by escalators when draft stops and sprinklers are provided around the floor opening. Section 1019.3 allows exit access stairs to interconnect an unlimited number of stories in Group B and M occupancies to be interconnected without shaft enclosures if draft stops and sprinklers are provided around the openings. The code allows escalators and exit access stairs to interconnect up to 4 stories in other occupancies without shaft enclosures provided draft stops and sprinklers are provided around the floor openings.

The proposed exception would present less of a fire safety risk than is currently allowed by the code.

Cost Impact: Will not increase the cost of construction
The proposed exception could significantly reduce the cost of construction and reduce the ongoing maintenance cost of the building since a system requiring regular testing would no longer be required.

G 91-15 : 404.5-GRILL4975

G 92-15

404.6, 709.4.2

Proponent: Stephen Thomas, representing Smoke Guard (sthomas@coloradocode.net)

2015 International Building Code

Revise as follows:

404.6 Enclosure of atriums. *Atrium* spaces shall be separated from adjacent spaces by a 1-hour ~~*fire*~~ *smoke barrier* constructed in accordance with Section ~~707 or a *horizontal assembly* constructed in accordance with Section 711, or both~~ 709.

Exceptions:

1. A ~~*fire*~~ *smoke barrier* is not required where a glass wall forming a smoke partition is provided. The glass wall shall comply with all of the following:
    1.1. Automatic sprinklers are provided along both sides of the separation wall and doors, or on the room side only if there is not a walkway on the *atrium* side. The sprinklers shall be located between 4 inches and 12 inches (102 mm and 305 mm) away from the glass and at intervals along the glass not greater than 6 feet (1829 mm). The sprinkler system shall be designed so that the entire surface of the glass is wet upon activation of the sprinkler system without obstruction;
    1.2. The glass wall shall be installed in a gasketed frame in a manner that the framing system deflects without breaking (loading) the glass before the sprinkler system operates; and
    1.3. Where glass doors are provided in the glass wall, they shall be either *self-closing* or automatic-closing.
2. A ~~*fire*~~ *smoke barrier* is not required where a glass-block wall assembly complying with Section 2110 and having a $^{3}/_{4}$-hour *fire protection rating* is provided.
3. A smoke ~~*fire*~~ *barrier* is not required between the *atrium* and the adjoining spaces of any three floors of the *atrium* provided such spaces are accounted for in the design of the smoke control system.

709.4.2 Smoke-barrier walls enclosing atriums, areas of refuge or elevator lobbies. *Smoke-barrier* walls used to enclose atriums in accordance with Section 404.6, areas of refuge in accordance with Section 1009.6.4, or to enclose elevator lobbies in accordance with Section 405.4.3, 3007.6.2, or 3008.6.2, shall form an effective membrane enclosure that terminates at a *fire barrier* wall having a level of *fire protection rating* not less than 1 hour, another *smoke barrier* wall or an outside wall. A smoke and draft control door assembly as specified in Section 716.5.3.1 shall not be required at each elevator hoistway door opening or at each exit doorway between an area of refuge and the exit enclosure.

Reason: This proposal replaces the fire barrier separation between an atrium and adjacent spaces with a smoke barrier. The purpose of the atrium separation is to assist the smoke control system in containing the smoke to just the atrium area. A fire barrier is not totally designed to contain smoke. However, a smoke barrier is designed to contain smoke. The fire-resistance rating and continuity of the assembly does not change. Only the smoke resistance requirements are added to the assembly to assist in containing the smoke within the atrium. Since smoke barriers are defined as both horizontal and vertical assemblies, the language regarding horizontal assemblies has been deleted.
A change to Section 709.4.2 has also been included to include atrium separations in the continuity requirements for smoke barriers.

Cost Impact: Will not increase the cost of construction
It is not believed that the cost of construction will not change. The walls are essentially constructed the same with the exception of smoke protection at openings and penetrations. The reduction in the opening protection between a fire barrier and smoke barrier will balance out the cost of the smoke protection.

G 92-15 : 404.6-THOMAS4458

G 93-15

404.6

Proponent: Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

404.6 Enclosure of atriums. *Atrium* spaces shall be separated from adjacent spaces by a 1-hour *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both.

Exceptions:

1. A *fire barrier* is not required where a glass wall forming a smoke partition is provided. The glass wall shall comply with all of the following:
   - 1.1. Automatic sprinklers are provided along both sides of the separation wall and doors, or on the room side only if there is not a walkway on the *atrium* side. The sprinklers shall be located between 4 inches and 12 inches (102 mm and 305 mm) away from the glass and at intervals along the glass not greater than 6 feet (1829 mm). The sprinkler system shall be designed so that the entire surface of the glass is wet upon activation of the sprinkler system without obstruction;
   - 1.2. The glass wall shall be installed in a gasketed <u>or similarly sealed</u> frame in a manner that the framing system deflects without breaking (loading) the glass before the sprinkler system operates; and
   - 1.3. Where glass doors are provided in the glass wall, they shall be either *self-closing* or automatic-closing.
2. A *fire barrier* is not required where a glass-block wall assembly complying with Section 2110 and having a $^3/_4$-hour *fire protection rating* is provided.
3. A *fire barrier* is not required between the *atrium* and the adjoining spaces of any three floors of the *atrium* provided such spaces are accounted for in the design of the smoke control system.

Reason: The term "gasket" is generally defined as "*a shaped piece or ring of rubber or other material sealing the junction between two surfaces…*". In this instance, it refers to a pre-manufactured (shaped) piece that is compressed to form a sealed junction between the glass and the frame that is meant to restrict the passage of gases between them. The word "gasketed" does not allow for structural or wet-set glazed systems to be used. However, these tested assemblies are approved for rated glass, and do not utilize gaskets.

For example, PLO/WA90-01 uses PVC tape, sealant, and angle stops. The frame is still being loaded but no gaskets are used. The current language is overly restrictive given that there are proven technologies available that produce the same outcomes. This allows the use of other materials that address unique designs or systems not currently anticipated in the code.

Additionally, traditional "gaskets" in frames have been prohibited in many Group I-3 (detention) occupancies. This is because gaskets can potentially be removed and used as weapons by the inmates.

Therefore, it is important to clarify that the use of other approved methods to affix and/or seal the glass to the frame are acceptable methods of compliance. This proposal is intended to include products based on new technology.

Cost Impact: Will not increase the cost of construction
This proposal does not increase construction costs as it only offers an option to the current requirement, without removing or changing the current requirements.

G 93-15 : 404.6-DIGIOVANNI3820

G 94-15

404.6

Proponent: John Terry, State of New Jersey- DCA, representing State of New Jersey - Department of Community Affairs- Division of Codes and Standards (jterry@dca.nj.gov)

2015 International Building Code

Revise as follows:

404.6 Enclosure of atriums.
Atrium spaces shall be separated from adjacent spaces by a 1-hour *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both.

Exceptions:

1. A *fire barrier* is not required where a glass wall forming a smoke partition is provided. The glass wall shall comply with all of the following:
   - 1.1. Automatic sprinklers are provided along both sides of the separation wall and doors, or on the room side only if there is not a walkway on the *atrium* side. The sprinklers shall be located between 4 inches and 12 inches (102 mm and 305 mm) away from the glass and at intervals along the glass not greater than 6 feet (1829 mm). The sprinkler system shall be designed so that the entire surface of the glass is wet upon activation of the sprinkler system without obstruction;
   - 1.2. The glass wall shall be installed in a gasketed frame in a manner that the framing system deflects without breaking (loading) the glass before the sprinkler system operates; and
   - 1.3. Where glass doors are provided in the glass wall, they shall be either *self-closing* or automatic-closing.
2. A *fire barrier* is not required where a glass-block wall assembly complying with Section 2110 and having a $^{3}/_{4}$-hour *fire protection rating* is provided.
3. A *fire barrier* is not required between the *atrium* and the adjoining spaces of ~~any~~ up to three floors of the *atrium* provided such spaces are accounted for in the design of the smoke control system.
4. A fire barrier is not required between the atrium and the adjoining spaces where the atrium is not required to be provided with a smoke control system.

Reason: As currently written, the code allows three floors to be open to an atrium provided the volume of the three floors is accounted for in the design of the smoke control system. Technically, the current text is silent regarding one or two floors being open to the atrium without separation. Replacing the word "and" with "up to" corrects the wording to allow one, two or three floors to be open to the atrium provided the volume of the space is accounted for in the design of the smoke control system. But what if the atrium is in a building not required to be provided with a smoke control system? It has been interpreted that a two-story atrium, in other than Group I-2 and Group I-1 Condition 2, would be allowed to have the adjacent spaces unprotected without a smoke control system. Still others have interpreted the need for a smoke control in a two-story building when the adjacent spaces are open as a result of the current exception #3. By adding exception #4, it will be made clear that the requirments for the non-separated space to be accounted for in the design of the smoke control system applies only for atriums required to be provided with smoke control systems in the first place.

Cost Impact: Will not increase the cost of construction
This code change will have no impact on the cost of construction.

G 94-15 : 404.6-TERRY3407

G 95-15

406, 406 (New), Chapter 35

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

406.1 General. ~~Motor-vehicle-related~~ All motor-vehicle-related occupancies shall comply with Section 406.1. Private garages and carports shall also comply with Section 406.3. Open public parking garages shall also comply with Sections ~~406.1 through~~ 406.4 and 406.5. Enclosed public parking garages shall also comply with Sections 406.4 and 406.6. Motor fuel-dispensing facilities shall also comply with Section 406.7. Repair garages shall also comply with Section 406.8.

Add new text as follows:

406.1.1 Automatic garage door openers and vehicular gates. Where provided, automatic garage door openers shall be listed and labeled in accordance with UL 325. Where provided, automatic vehicular gates shall comply with Section 3110.

406.1.2 Clear height The clear height of each floor level in vehicle and pedestrian traffic areas shall be not less than 7 feet (2134 mm). Canopies under which fuels are dispensed shall have a clear height in accordance with Section 406.7.2.

Exception: A lower clear height is permitted for a parking tier in mechanical-access open parking garages where approved by the building official.

406.1.3 Accessible parking spaces. Where parking is provided, accessible parking spaces shall be provided in accordance with Section 1106.

406.1.4 Floor surfaces. Floor surfaces shall be of concrete or similar approved noncombustible and nonabsorbent materials. The area of floor used for the parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway. The surface of vehicle fueling pads in motor fuel-dispensing facilities shall be in accordance with Section 406.7.1.

Exceptions:

1. Asphalt parking surfaces shall be permitted at ground level for public parking garages and private carports.
2. Floors of Group S-2 parking garages shall not be required to have a sloped surface.
3. Slip-resistant, nonabsorbent, interior floor finishes having a critical radiant flux not more than 0.45 W/cm^2, as determined by NFPA 253, shall be permitted in repair garages.

406.1.5 Sleeping rooms. Openings between a motor vehicle-related occupancy and a room used for sleeping purposes shall not be permitted.

406.1.6 Fuel dispensing. The dispensing of fuel shall only be permitted in motor fuel dispensing facilities in accordance with Section 406.7.

406.1.7 Electric vehicle charging stations. Electric vehicle charging stations shall be installed in accordance with NFPA 70. Electric vehicle charging system equipment shall be listed and labeled in accordance with UL 2202. Electric vehicle supply equipment shall be listed and labeled in accordance with UL 2594. Accessibility to electric vehicle charging stations shall be provided in accordance with Chapter 11.

406.1.8 Mixed occupancies and separation. Mixed uses shall be allowed in the same building as public parking garages and repair garages in accordance with 508.1. Mixed uses in the same building as an open parking garage are subject to Sections 402.4.2.3, 406.5.11, 508.1, 510.3, 510.4 and 510.7.

406.1.9 Equipment and appliances. Equipment and appliances shall be installed in accordance with Sections 406.1.9.1 through 406.1.9.3 and the *International Mechanical Code*, *International Fuel Gas Code* and NFPA 70.

406.1.9.1 Elevation of ignition sources. Equipment and appliances having an ignition source and located in hazardous locations and public garages, private garages, repair garages, automotive motor fuel-dispensing facilities and parking garages shall be elevated such that the source of ignition is not less than 18 inches (457 mm) above the floor surface on which the equipment or appliance rests. For the purpose of this section, rooms or spaces that are not part of the living space of a dwelling unit and that communicate directly with a private garage through openings shall be considered to be part of the private garage.

Exception: Elevation of the ignition source is not required for appliances that are listed as flammable vapor ignition resistant.

406.1.9.1.1 Parking garages. Connection of a parking garage with any room in which there is a fuel-fired appliance shall be by means of a vestibule providing a two-doorway separation, except that a single door is permitted where the sources of ignition in the appliance are elevated in accordance with Section 406.1.9.

Exception: This section shall not apply to appliance installations complying with Sections 406.1.9.2 or 406.1.9.3.

406.1.9.2 Public garages. Appliances located in public garages, motor fueling-dispensing facilities, repair garages or other areas frequented by motor vehicles, shall be installed not less than 8 feet (2438 mm) above the floor. Where motor vehicles are capable of passing under an appliance, the appliance shall be installed at the clearances required by the appliance manufacturer and not less than 1 foot (305 mm) higher than the tallest vehicle garage door opening.

Exception: The requirements of this section shall not apply where the appliances are protected from motor vehicle impact and installed in accordance with Section 406.1.9.1 and NFPA 30A.

406.1.9.3 Private garages. Appliances located in private garages and carports shall be installed with a minimum clearance of 6 feet (1829 mm) above the floor.

Exception: The requirements of this section shall not apply where the appliances are protected from motor vehicle impact and installed in accordance with Section 406.1.9.1.

Revise as follows:

406.3 Private garages and carports. Private garages and carports shall comply with Sections ~~406.3.1 through 406.3.6.~~406.1 and 406.3.

406.3.1 Classification. Private garages and carports shall be classified as Group U occupancies. Each private garage shall be not greater than 1,000 square feet (93 m^2) in area. Multiple private garages are permitted in a building where each private garage is separated from the other private garages by 1-hour *fire barriers* in accordance with Section 707, or 1-hour *horizontal assemblies* in accordance with Section 711, or both.

Delete without substitution:

~~**406.3.2 Clear height.** In private garages and carports, the clear height in vehicle and pedestrian traffic areas shall be not less than 7 feet (2134 mm). Vehicle and pedestrian areas accommodating van-accessible parking shall comply with Section 1106.5.~~

Revise as follows:

~~406.3.4~~406.3.2 Separation. For other than private garages adjacent to dwelling units, the separation of private garages from other occupancies shall comply with Section 508. Separation of private garages from *dwellingunits* shall comply with Sections ~~406.3.4.1 through 406.3.4.3.~~406.3.2.1 and 406.3.2.2.

~~406.3.4.1~~406.3.2.1 Dwelling unit separation. The private garage shall be separated from the *dwelling unit* and its *attic* area by means of gypsum board, not less than $^1/_2$ inch (12.7 mm) in thickness, applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than a $^5/_8$- inch (15.9 mm) Type X gypsum board or equivalent and $^1/_2$-inch (12.7 mm) gypsum board applied to structures supporting the separation from habitable rooms above the garage. Door openings between a private garage and the *dwelling unit* shall be equipped with either solid wood doors or solid or honeycomb core steel doors not less than $1^3/_8$ inches (34.9 mm) in thickness, or doors in compliance with Section 716.5.3 with a fire protection rating of not less than 20 minutes. Doors shall be *self-closing* and self-latching.

~~406.3.4.3~~406.3.2.2 Ducts. Ducts in a private garage and ducts penetrating the walls or ceilings separating the *dwelling unit* from the garage, including its *attic* area, shall be constructed of sheet steel of not less than 0.019 inch (0.48 mm) in thickness and shall have no openings into the garage.

~~406.3.5~~406.3.3 Carports. Carports shall be open on at least two sides. ~~Carport floor surfaces shall be of an *approved* noncombustible material.~~ Carports not open on at least two sides shall be considered a garage and shall comply with the requirements for private garages.

~~**Exception:** Asphalt surfaces shall be permitted at ground level in carports.~~

~~The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.~~

Delete without substitution:

~~**406.3.3 Garage floor surfaces.** Garage floor surfaces shall be of *approved* noncombustible material. The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.~~

Revise as follows:

~~406.3.5.1~~406.3.3.1 Carport separation. *No change to text.*

Delete without substitution:

~~**406.3.4.2 Openings prohibited.** Openings from a private garage directly into a room used for sleeping purposes shall not be permitted.~~

~~**406.3.6 Automatic garage door openers.** Automatic garage door openers, where provided, shall be *listed* in accordance with UL 325.~~

Revise as follows:

406.4 Public parking garages. Parking garages, other than *private garages*, shall be classified as public parking garages and shall comply with the provisions of ~~Sections 406.4.2 through 406.4.8~~ Section 406.1, Section 406.4 and shall be classified as either an *open parking garage* or an enclosed parking garage. *Open parking garages* shall also comply with Section 406.5. Enclosed parking garages shall also comply with Section 406.6. See Section 510 for special provisions for parking garages.

Delete without substitution:

~~**406.4.1 Clear height.** The clear height of each floor level in vehicle and pedestrian traffic areas shall be not less than 7 feet (2134 mm). Vehicle and pedestrian areas accommodating van-accessible parking shall comply with Section 1106.5.~~

Revise as follows:

~~406.4.2~~406.4.1 Guards. Guards shall be provided in accordance with Section 1015. Guards serving as *vehicle barriers* shall comply with Sections ~~406.4.3~~406.4.2 and 1015.

~~406.4.3~~406.4.2 Vehicle barriers. *Vehicle barriers* not less than 2 feet 9 inches (835 mm) in height shall be placed where the vertical distance from the floor of a drive lane or parking space to the ground or surface directly below is greater than 1 foot (305 mm). *Vehicle barriers* shall comply with the loading requirements of Section 1607.8.3.

Exception: *Vehicle barriers* are not required in vehicle storage compartments in a mechanical access parking garage.

~~406.4.4~~406.4.3 Ramps. Vehicle ramps shall not be considered as required *exits* unless pedestrian facilities are provided. Vehicle ramps that are utilized for vertical circulation as well as for parking shall not exceed a slope of 1:15 (6.67 percent).

Delete without substitution:

~~**406.4.5 Floor surface.** Parking surfaces shall be of concrete or similar noncombustible and nonabsorbent materials.~~

~~The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.~~

~~**Exceptions:**~~

~~1. Asphalt parking surfaces shall be permitted at ground level.~~
~~2. Floors of Group S-2 parking garages shall not be required to have a sloped surface.~~

~~**406.4.6 Mixed occupancy separation.** Parking garages shall be separated from other occupancies in accordance with Section 508.1.~~

~~**406.4.7 Special hazards.** Connection of a parking garage with any room in which there is a fuel-fired appliance shall be by means of a vestibule providing a two-doorway separation.~~

> ~~**Exception:** A single door shall be allowed provided the sources of ignition in the appliance are not less than 18 inches (457 mm) above the floor.~~

~~**406.4.8 Attached to rooms.** Openings from a parking garage directly into a room used for sleeping purposes shall not be permitted.~~

Revise as follows:

406.5 Open parking garages. *Open parking garages* shall comply with Sections ~~406.5.1 through 406.5.11.~~406.1, 406.4 and 406.5.

406.5.4.1 Single use. Where the *open parking garage* is used exclusively for the parking or storage of private motor vehicles, with no other uses in the building, the area and height shall be permitted to comply with Table 406.5.4, along with increases allowed by Section 406.5.5.

> **Exception:** The grade-level tier is permitted to contain an office, waiting and toilet rooms having a total combined area of not more than 1,000 square feet (93 m^2). Such area need not be separated from the *open parking garage*.

In *open parking garages* having a spiral or sloping floor, the horizontal projection of the structure at any cross section shall not exceed the allowable area per parking tier. In the case of an *open parking garage* having a continuous spiral floor, each 9 feet 6 inches (2896 mm) of height, or portion thereof, shall be considered a tier.

~~The clear height of a parking tier shall be not less than 7 feet (2134 mm), except that a lower clear height is permitted in mechanical-access *open parking garages* where *approved* by the *building official*.~~

406.6 Enclosed parking garages. Enclosed parking garages shall comply with Sections ~~406.6.1 through 406.6.3.~~406.1, 406.4 and 406.6.

406.7 Motor fuel-dispensing facilities. Motor fuel-dispensing facilities shall comply with the *International Fire Code* and Sections ~~406.7.1~~406.1 and ~~406.7.2~~406.7.

406.8 Repair garages. Repair garages shall be constructed in accordance with the *International Fire Code* and Sections ~~406.8.1 through 406.8.6~~406.1 and 406.8. This occupancy shall not include motor fuel-dispensing facilities, as regulated in Section 406.7.

Delete without substitution:

~~**406.8.1 Mixed uses.** Mixed uses shall be allowed in the same building as a repair garage subject to the provisions of Section 508.1.~~

Revise as follows:

~~406.8.2~~406.8.1 Ventilation. Repair garages shall be mechanically ventilated in accordance with the *International Mechanical Code*. The *ventilation* system shall be controlled at the entrance to the garage.

Delete without substitution:

~~**406.8.3 Floor surface.** Repair garage floors shall be of concrete or similar noncombustible and nonabsorbent materials.~~

> ~~**Exception:** Slip-resistant, nonabsorbent, *interior floor finishes* having a critical radiant flux not more than 0.45 W/cm², as determined by NFPA 253, shall be permitted.~~

~~**406.8.4 Heating equipment.** Heating equipment shall be installed in accordance with the *International Mechanical Code*.~~

Add new standard(s) as follows:

UL2202-09 (2012) - Standard for Electric Vehicle (EV) Charging System Equipment, 2013, UL LLC, 333 Pfingsten Road, Northbrook, IL 60062.

UL2594-13 - Standard for Electric Vehicle Supply Equipment, 2013, UL LLC, 333 Pfingsten Road, Northbrook, IL 60062.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

This proposal relocates all the general requirements that apply to all motor-vehicle related occupancies into the general section, Section 406.1, and also provides in the beginning of Section 406 directions as to what sections apply to private garages and carports, open and enclosed parking garages, motor fuel-dispensing facilities, and repair garages.

The general global requirements are:

1. Automatic garage door openers and vehicular gates (originally in Section 406.3.6) – This equipment is not required to be installed, but where provided in any occupancy, minimum safeguards should be provided. UL 325 is applicable for certifying products for use in both residential and commercial applications, and addresses fire, shock, and entrapment hazards. The reference to Section 3110 provides the user with direction to the use of automatic vehicular gates, where provided.

2. Clear height (originally in Sections 406.3.2, 406.4.1, and 406.5.4.1) – A minimum clear height should be provided in any occupancy for people and vehicles.

3. Accessible parking spaces – This provides a link to the requirements in Chapter 11 for accessible parking spaces, where provided.

4. Floor surface (originally in Sections 406.3.3, 406.3.5, 406.4.5, and 406.8.3) – Where vehicles are parked, the floor surface should be both noncombustible and nonabsorbent. Motor Fuel-Dispensing Facilities and Repair garages have unique floor surface requirements.

5. Sleeping rooms (originally in Sections 406.3.4.2 and 406.4.8) – In all motor vehicle related occupancies, no openings directly into a sleeping room should be permitted due to the production of carbon monoxide by the vehicles.

6. Fuel dispensing (originally in Section 406.5.11) – In all motor vehicle related occupancies, except for motor fuel dispensing facilities, the dispensing of fuel should not be permitted.

7. Electric vehicle charging stations – The installation of electric vehicle charging stations is rapidly increasing. This new provision would provide minimum requirements to provide minimum safeguards for the installation of these stations, where provided in any motor vehicle related occupancy.

8. Mixed uses (originally in Sections 406.4.6, 406.5.3, and 406.8.1) - Mixed occupancies requirements are applied to Open parking, Enclosed parking, and Repair Garages. The general requirement for open and enclosed parking garages in Section 406.4.6 references Section 508.1, whereas the requirement specifically for Open parking garages in Section 406.5.3 references several additional sections. Private Garages has its own specific mixed use equirement. Motor-Fuel dispensaries direct the user to the IFC and 407.1 and 407.2. A combined requirement clarifies the application.

9. Equipment and appliances – Sections 304.3 and 304.3.1 of the IMC provide specific requirements for the installation of equipment and appliances in any motor vehicle related occupancy. Section 304.3.1 of the IMC has additional exceptions for the installation of fuel-fired appliances in parking garages than Section 406.4.7 of the IBC. This new requirement correlates the IBC with the IMC.

10. Hydrogen-generating appliances and refueling systems - This new provision would provide minimum requirements to provide minimum safeguards for the installation of these appliances and systems, where provided in any motor vehicle related occupancy. Specific requirements, including ventilation, are provided in Chapter 7 of the IFGC for the installation of hydrogen-generating appliances and refueling systems.

Cost Impact: Will not increase the cost of construction
Cost impact. This code change proposal will not increase the cost of construction. The proposal attempts to clarify the code, but does not make any technical changes to code requirements.

Analysis: A review of the standards proposed for inclusion in the code, UL2202-09 (2012) - Standard for Electric Vehicle (EV) Charging System Equipment, 2013, and UL2594-13 - Standard for Electric Vehicle Supply Equipment, 2013, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

G 95-15 : 406-KULIK4756

G 96-15

202 (New), 406.2

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Add new text as follows:

SECTION 202 DEFINITIONS

REPAIR GARAGE A building, structure or portion thereof used for servicing or repairing motor vehicles.

406.2 Definitions. The following terms are defined in Chapter 2:
MECHANICAL-ACCESS OPEN PARKING GARAGES.
OPEN PARKING GARAGE.
PRIVATE GARAGE.
RAMP-ACCESS OPEN PARKING GARAGES.
REPAIR GARAGE

Reason: The term "repair garage" is used in the building code (primarily Section 406.8), but is not defined in the building code. Including the definition from the fire code will assist the user of the building code for these facilities.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This code proposal will not increase the cost of construction. This proposal provides clarity by defining a term already used in the building code with a definition already established in the fire code.

G 96-15 : 406.2-KULIK4796

G 97-15

406.3

Proponent: William King, City of Alexandria, representing Virginia Building Code Officials Association (william.king@alexandriava.gov)

2015 International Building Code

Revise as follows:

406.3 Private garages and carports. Private garages and carports shall comply with Sections 406.3.1 through 406.3.6.

Exception: Private garages conforming to the requirements of public parking garage in accordance with Section 406.4.

Reason: Based upon the current definition of private garage, a parking garage for an apartment building would be a private garage and subject to limitations including a size limitation of 1,000 sf unless separated with fire barriers. In highly urbanized jurisdictions, parking for apartment complexes are provided either separate parking garages or underground parking. This parking is exclusively for the use of the tenants so would qualify as a private garage. These structures are currently constructed as either open or enclosed parking garages due to the number of cars and the scale of the structures. Limiting the size of these larger parking structures appears to be an unintended consequence of this new definition and without this exception large scale parking garages used just by the building's tenants would effectively be prohibited. This exception would restore the options that were previously available and widely utilized. Given the occupants familiarity with garages that they park in every day, these private garages would provide a higher level of occupant safety than an equivalent public garage if designed to the same standard.

Cost Impact: Will not increase the cost of construction
Given that the current code would require private parking garages to be subdivided into 1,000 sf sections with fire barriers and associated opening protectives. This exception would remove all of this additional construction therefor reducing the cost of construction.

G 97-15 : 406.3-KING3250

G 98-15

406.3.1

Proponent: Jay Hyde, representing Sacramento Valley Association of Building Officials (jhyde@mognot.com)

2015 International Building Code

Revise as follows:

406.3.1 Classification. Private garages and carports shall be classified as Group U occupancies. Each private garage shall be not greater than 1,000 square feet (93 m^2) in area. Multiple private garages are permitted in a building where each private garage is separated from the other private garages by 1-hour *fire barriers* in accordance with Section 707, or 1-hour *horizontal assemblies* in accordance with Section 711, or both.

Exception: The area of a private garage that is accessory to an R-3 occupancy shall not be greater than 3,000 square feet (279 m^2).

Reason: the 2012 edition of the International Building Code reduced the allowable size of all private garages to 1,000 square feet in area. Section 406.3.1 substantially upgraded the separation requirements between a private garage and the remainder of the building, including for R-3 occupancies. Many R-3 dwellings are designed with large garages, often to house the collections of automobile collectors. It does not seem reasonable to classify these garages as an S2 enclosed parking garage with its accompanying ventilation requirements required by Section 406.2.

Cost Impact: Will not increase the cost of construction
May decrease the cost due to the elimination of a ventilation system clearly designed for a multiple occupant parking facility.

G 98-15 : 406.3.1-HYDE5262

G 99-15

406.5.1

Proponent: Maureen Traxler, Seattle Dept of Planning & Development, representing Washington Association of Building Officials Technical Code Development Committee (maureen.traxler@seattle.gov)

2015 International Building Code

Revise as follows:

406.5.1 Construction. *Open parking garages* shall be of Type I, II or IV construction. *Open parking garages* shall meet the design requirements of Chapter 16. For *vehicle barriers*, see Section 406.4.3.

> <u>**Exception**: Open parking garages are permitted to be of Type III or V construction if they comply with the allowable heights and areas specified in Sections 504 and 506 as modified by Section 507.</u>

Reason: As the code is currently written, all open parking garages are required to comply with Section 406.6, which prohibits Types III and V construction. There are two major differences in the way open and enclosed garages are treated--open parking garages are allowed increased height and area; and open parking garages are not required to provide mechanical ventilation. This proposal allows open parking garages that meet the height and area limitations of Chapter 5 to be of Type III or V construction. These garages are allowed to substitute the openness required by Section 406.5.2 for the mechanical ventilation that would otherwise be required. Section 406.6.1 tells us that parking garages that don't meet the openness requirements for open parking garages are limited to chapter 5's height and area provisions. This proposal addresses garages that meet both the openness requirements and the Chapter 5 provisions.

Cost Impact: Will not increase the cost of construction
This change will not increase the cost of construction because it will allow parking garages to be constructed of less-costly materials without mechanical ventilation systems.

G 99-15 : 406.5.1-TRAXLER4747

G 100-15

TABLE 406.5.4

Proponent: Anthony Apfelbeck, City of Altamonte Springs Building/Fire Safety Division, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Building Code

Revise as follows:

TABLE 406.5.4
OPEN PARKING GARAGES AREA AND HEIGHT

TYPE OF CONSTRUCTION	AREA PER TIER (square feet)	HEIGHT (in tiers)		
		~~Ramp access~~	~~Mechanical access~~ Automatic sprinkler system	
			No	Yes
IA	Unlimited	~~Unlimited~~	Unlimited	Unlimited
IB	Unlimited	~~12 tiers~~	12 tiers	18 tiers
IIA	50,000	~~10 tiers~~	10 tiers	15 tiers
IIB	50,000	~~8 tiers~~	8 tiers	12 tiers
IV	50,000	~~4 tiers~~	4 tiers	4 tiers

For SI: 1 square foot = 0.0929 m^2.

Reason: A review of the code commentary and the hazard presented by ramp access vs mechanical access does not appear to provide any justification for a more restrictive height limitation on Ramp Access vs Mechanical Access. Nor does evidence provide any justification as why a mechanical access system should not receive a similar credit for automatic sprinklers as a ramp access system. This proposal eliminates the distinction between ramp access and mechanical systems.

Cost Impact: Will not increase the cost of construction
Application of the mechanical access height limits to the ramp access will reduce the cost of construction in some limited applications by providing increased flexibility of design.

G 100-15 : T406.5.4-APFELBECK4057

G 101-15

TABLE 406.5.4

Proponent: Stephen Skalko, representing Precast/Prestressed Concrete Institute (svskalko@cox.net)

2015 International Building Code

Revise as follows:

TABLE 406.5.4
OPEN PARKING GARAGES AREA AND HEIGHT

TYPE OF CONSTRUCTION	AREA PER TIER (square feet)	HEIGHT (in tiers)		
		Ramp access	Mechanical access	
			Automatic sprinkler system	
			No	Yes
IA	Unlimited	Unlimited	Unlimited	Unlimited
IB	Unlimited	12 tiers	12 tiers	18 tiers
IIA	117,000 ~~50,000~~	10 tiers	10 tiers	15 tiers
IIB	78,000~~50,000~~	8 tiers	8 tiers	12 tiers
IV	50,000	4 tiers	4 tiers	4 tiers

For SI: 1 square foot = 0.0929 m^2.

Reason: During the development of the International Building Code the drafting committees commonly used the least stringent fire safety provisions from one of the legacy codes (i.e BOCA National Building Code, Standard Building Code, Uniform Building Code) in establishing the requirements. However, for open parking garages the least stringent values in the Standard Building Code (SBC) were not used. The SBC permitted open parking structures of non-combustible construction with less fire resistance (i.e. SBC Type IV construction, IBC Type II construction) to be built up to 400,000 sqft in area per tier. This area value, which was placed in the SBC in the early 1980's, was based on the use of noncombustible materials for construction of the open parking structure, the open sided features for the parking structure which reduced the risk of adverse impact from vehicle fires and the documented low fire risk vehicles pose to the stability of open parking structures[1],[2].
Additional studies of fire experience in open parking structures in the United States since those earlier ones still supports the conclusion that vehicle fires pose a low fire risk to the parking structure. The more recent analysis of parking garage structure fires (i.e NFPA[3], Parking Market Research Company [4]) by the Fire Safety

Committee of the Parking Consultants Council concluded that in about 98.7% of the fires no structural damage occurred due to the parking structure fires studied[5]. This suggests that the present values in Table 406.5.4 for Open Parking Garages of IBC Type II construction are more stringent than necessary based on the low risk of fire damage to the structural elements from vehicle fires and should be permitted to increase.

Parking garages are classified as Group S-2, Low-hazard occupancies in Section 311.3 of the IBC, whether open or enclosed. For enclosed parking garages Table 506.2 permits sprinklered multi-story garages to be 117,000 square feet in area for Type IIA construction and 78,000 square feet for Type IIB construction. Table 406.5.4 recognizes the benefit of having open sides in the parking garage to reduce the risk from fire in lieu of providing sprinkler protection. Based on the low fire risk from vehicle fires and the open sided features of these garages this proposal will permit open parking garages of Type II construction to be built to the same areas permitted for sprinklered enclosed parking garage.

Bibliography: [1] Harris, Dr. Leslie, Market Research Associates, Survey of Fire Experience in Automobile Parking Structures in the United States and Canada, January 31, 1972.
[2] Harris, Dr. Leslie, Market Research Associates, 1979 Update of the Survey of Fire Experience in Automobile Parking Structures in the United States and Canada, January 31, 1979.

[3] Ahrens, Marty, National Fire Protection Association, Structure and Vehicle Fires in General Vehicle Parking Garages, January 2006

[4] Dendra, Dale F., Parking Market Research Company, McLean, VA, Parking Garage Fires (A Statistical Analysis of Parking Garage Fires in the United States 1986-1988), April 1992

[5] Parking Consultants Council Fire Safety Committee, Parking Structure Fire Facts, December 2008

Cost Impact: Will not increase the cost of construction
Open parking garages of Type II construction that exceed 50,000 square feet must be built to requirements of at least Type IB construction. Permitting larger open parking garages of Type IIA and IIB construction will result in a reduction in cost through savings in material and construction methods required for buildings that meet Type IB construction.

G 101-15 : T406.5.4-SKALKO5478

G 102-15

406.6.2

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

406.6.2 Ventilation. A mechanical *ventilation* system and an exhaust system shall be provided in accordance with Sections 404 and 502.13 of the *International Mechanical Code*.

Reason: Section 404 of the IMC provides specific requirements for the ventilation of an enclosed parking garage. There are additional requirements for the exhaust system for enclosed parking garages in Section 502.13 of the IMC. Identifying the specific sections will assist in ensuring all mechanical requirements for parking garages are used.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This code change proposal will not increase the cost of construction. The proposal attempts to clarify the code, but does not make any technical changes to code requirements.

G 102-15 : 406.6.2-KULIK4799

G 103-15

406.6.2

Proponent: Jay Hyde, representing Sacramento Valley Association of Building Officials (jhyde@mognot.com)

2015 International Building Code

Revise as follows:

406.6.2 Ventilation. A mechanical *ventilation* system shall be provided in accordance with the *International Mechanical Code*.

<u>**Exception:** Mechanical ventilation shall not be required for enclosed parking garages that are accessory to Group R-3 occupancies.</u>

Reason: The 2015 International Building Code reduced the allowable area of a Private Garage to 1,000 sq. ft. Larger garages are frequently required by automobile collectors. These garages would not be subject to uncontrolled use by unrelated individuals. The ventilation required to remove exhaust fumes from multiple vehicles running at the same time seems excessive for a R3 residence, regardless of the size of the garage.

Cost Impact: Will not increase the cost of construction
It may reduce cost of construction by allowing unventilated garages serving R3 occupancies.

G 103-15 : 406.6.2-HYDE5789

G 104-15

407.2.1

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Building Code

Revise as follows:

407.2.1 Waiting and similar areas. Waiting areas ~~and similar~~, public-use areas, or group meeting spaces constructed as required for *corridors* shall be permitted to be open to a *corridor*, only where all of the following criteria are met:

1. The spaces are not occupied as care recipient's sleeping rooms, treatment rooms, incidental uses in accordance with Section 509, or hazardous uses.
2. The open space is protected by an automatic fire detection system installed in accordance with Section 907.
3. The *corridors* onto which the spaces open, in the same *smoke compartment*, are protected by an automatic fire detection system installed in accordance with Section 907, or the *smoke compartment* in which the spaces are located is equipped throughout with quick-response sprinklers in accordance with Section 903.3.2.
4. The space is arranged so as not to obstruct access to the required *exits*.

Reason: The terminology "similar spaces" is vague and prone to interpretation. This change will allow for clarification of the original intent of the language. By amending this terminology to "public use areas" or "group meeting spaces" it will allow spaces such as family gathering areas, child play areas in children's wards, conservatories/game room/social interaction areas in long term recovery that are constructed as required for corridors and meet all of the established requirements to be permitted to be open to a corridor. Allowing these areas to be open to the corridor will provide better over sight and security of these areas thus allowing for quicker responses by staff to issues that develop in these areas. With the ban of smoking within hospitals there is not a risk of smoking within these areas and having these areas open to the corridor will allow staff to quickly sense and respond to any smoking that does occur. Being public spaces the need for privacy is not an issue. This change mirrors what is currently permitted in a nursing home environment and provide for a more open and inviting atmosphere.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This is a clarification; therefore, there is no change in cost.

G 104-15 : 407.2.1-WILLIAMS4231

G 105-15

407.2.6

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

407.2.6 Nursing home cooking facilities. In Group I-2, Condition 1, occupancies, rooms or spaces that contain a cooking facility with domestic cooking appliances shall be permitted to be open to the corridor where all of the following criteria are met:

1. The number of care recipients housed in the smoke compartment ~~is~~shall not be greater than 30.
2. The number of care recipients served by the cooking facility ~~is~~shall not be greater than 30.
3. Only one cooking facility area ~~is~~shall be permitted in a smoke compartment.
4. The types of domestic cooking appliances permitted ~~are~~shall be limited to ovens, cooktops, ranges, warmers and microwaves.
5. The corridor ~~is~~shall be a clearly identified space delineated by construction or floor pattern, material or color.
6. The space containing the domestic cooking facility shall be arranged so as not to obstruct access to the required exit.
7. ~~A domestic~~ Domestic cooking ~~hood~~hoods installed and constructed in accordance with Section 505 of the *International Mechanical Code* ~~is~~shall be provided over ~~the cooktop or range~~cooktops and ranges.
8. ~~The domestic cooking hood provided over the cooktop or range~~Cooktops and ranges shall be ~~equipped with an automatic fire-extinguishing system of a type recognized for protection of domestic cooking equipment. Preengineered automatic extinguishing systems shall be tested~~protected in accordance with ~~UL 300A and *listed* and *labeled* for the intended application. The system shall be installed in accordance with this code, its listing and the manufacturer's instructions~~Section 904.13.
9. ~~A manual actuation device for the hood suppression system shall be installed in accordance with Sections 904.12.1 and 904.12.2.~~
10. ~~An interlock device shall be provided such that upon activation of the hood suppression system, the power or fuel supply to the cooktop or range will be turned off.~~
10. A shut-off for the fuel and electrical power supply to the cooking equipment shall be provided in a location that is accessible only to staff.
11. A timer shall be provided that automatically deactivates the cooking appliances within a period of not more than 120 minutes.
12. A portable fire extinguisher shall be ~~installed~~provided. Installation shall be in accordance with Section 906 ~~of~~and the ~~*International Fire Code*.~~extiguisher shall be located within a 30-foot (9144 mm) distance of travel from each domestic cooking appliance.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
During the 2015 code cycle requirements were added to allow domestic cooking appliances to be installed in areas of Group I-2, Condition 1 occupancies that are open to the corridor when certain conditions were met. That included protecting cooktops and ranges with UL 300A compliant extinguishing systems in the hood. This proposal accomplishes the following:

1. Introduces mandatory language into Section 407.2.6

2. Allows an option for cooktops and ranges with listed ignition resistant burners to be provided in lieu of a UL 300A extinguishing system. These types of systems are investigated to verify that pans and cooking materials do not exceed 350 degrees C (662 degrees F). Recent work by the Fire Protection Research Foundation confirms that burners meeting these specifications are highly unlikely to ignite cooking materials. See: http://www.nfpa.org/research/fire-protection-research-foundation/reports-and-proceedings/other-research-topics/analytical-modeling-of-pan-and-oil-heating-on-an-electric-coil-cooktop

There will be a Group B corresponding code change proposal to IFC Section 904.13. The ICC Fire Code Action Committee (FCAC) supports this proposal and will be submitting the Group B proposal that follows:

904.13 Domestic cooking systems in Group I-2 Condition 1. In Group I-2 Condition 1, occupancies where cooking facilities are installed in accordance with Section 407.2.6 of this code, cooktops and ranges shall be protected in accordance with one of the following. ~~the domestic cooking hood provided over the cooktop or range shall be equipped with an automatic fire-extinguishing system of a type recognized for protection of domestic cooking equipment. Preengineered automatic extinguishing systems shall be tested in accordance with UL 300A and listed and labeled for the intended application. The system shall be installed in accordance with this code, its listing and the manufacturer's instructions.~~

1. Cooktops and ranges shall include heating elements or burners that have been tested and listed to not allow cooking pan temperatures to exceed 662 degrees F (350 degrees C), or

2 . The domestic cooking hood provided over the cooktop or range shall be equipped with an automatic fire-extinguishing system complying with both of the following:

a. The automatic fire-extinguishing system shall be of a type recognized for protection of domestic cooking equipment. Preengineered automatic extinguishing systems shall be tested in accordance with UL 300A and listed and labeled for the intended application. The system shall be installed in accordance with this code, its listing and the manufacturer's instructions, and

b. Manual actuation and system interconnection for the hood suppression system shall be installed in accordance with Sections 904.12.1 and 904.12.2, respectively.

~~904.13.1 Manual system operation and interconnection. Manual actuation and system interconnection for the hood suppression system shall be installed in accordance with Sections 904.12.1 and 904.12.2, respectively.~~

~~904.13.2 Portable fire extinguishers for domestic cooking equipment in Group I-2 Condition 1. A portable fire extinguisher complying with Section 906 shall be installed within a 30-foot (9144 mm) distance of travel from domestic cooking appliances.~~

Cost Impact: Will not increase the cost of construction
This code change proposal will not increase the cost of construction. It includes editorial revisions and adds an option to the existing requirements to use ignition prevention cooktops.

G 105-15 : 407.2.6-KULIK4658

G 106-15

407.4.1.1

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

407.4.1.1 Locking devices. Locking devices that restrict access to a care recipient's room from the *corridor* and that are operable only by staff from the *corridor* side shall not restrict the *means of egress* from the care recipient's room.

Exceptions:

1. This section shall not apply to rooms in psychiatric treatment and similar care areas.
2. Locking arrangements in accordance with Section 1010.1.9.6 <u>or 1010.1.9.7</u>.

Reason: Clarifying / explicitly allowing delayed egress locking systems in this application in the unlikely event a delayed egress locking system is desirable for this application. Delayed egress locking systems are currently not precluded from this application by the "shall be permitted" language and requirements of 1010.1.9.7.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
No cost impact unless the building owner chooses to install this locking arrangement.

G 106-15 : 407.4.1.1-KULIK3664

G 107-15

407.5

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Building Code

Revise as follows:

407.5 Smoke barriers. *Smoke barriers* shall be provided to subdivide every *story* used by persons receiving care, treatment or sleeping ~~and~~, into not fewer than two smoke compartments. Smoke barriers shall be provided to ~~divide~~subdivide other *stories* with an *occupant load* of 50 or more persons, into no fewer than two *smoke compartments*. The smoke barrier shall be in accordance with Section 709.

407.5.1 Smoke compartment size. .~~Such~~ Stories shall be divided into smoke compartments with an area of not more than 22,500 square feet (2092 m^2) in Group I-2, Condition 1, and not mroe than 40,000 square feet (3716 m^2) in Group I-2, Condition 2 occupancies ~~and~~.

407.5.2 Exit access travel distance. The distance of travel from any point in a smoke compartment to a smoke barrier door shall be not greater than 200 feet (60 960 mm).

Reason: This proposal clarifies the requirements for at least two compartments on a floor by separating section into separate sentences and sections.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal is for clarification only, therefore, there are no changes to construction requirements or the cost of construction.

G 107-15 : 407.5-WILLIAMS4234

G 108-15

407.5

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

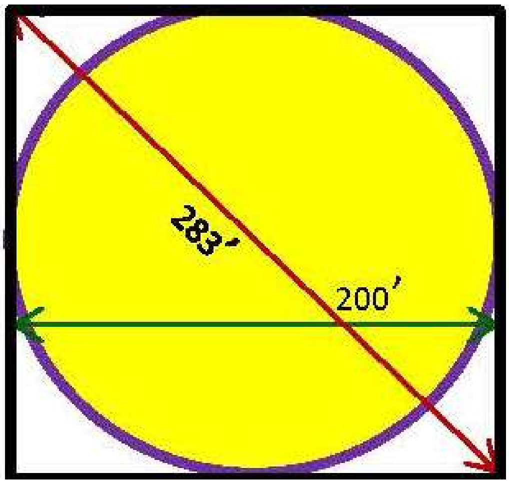
2015 International Building Code

Revise as follows:

407.5 Smoke barriers. *Smoke barriers* shall be provided to subdivide every *story* used by persons receiving care, treatment or sleeping and to divide other *stories* with an *occupant load* of 50 or more persons, into no fewer than two *smoke compartments*. Such stories shall be divided into *smoke compartments* with an area of not more than 22,500 square feet (2092 m^2) in Group I-2, Condition 1, and not more than ~~40,000~~31,400 square feet (~~3716~~2197 m^2) in Group I-2, Condition 2, and the distance of travel from any point in a *smoke compartment* to a *smoke barrier* door shall be not greater than 200 feet (60 960 mm). The *smoke barrier* shall be in accordance with Section 709.

Reason: The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

The original square footage for Group I-2, smoke compartments was based on the product of the 150 foot travel distance which equals 22,500 square feet. During the 2015 code change cycle the Ad hoc Committee on Healthcare (AHC) presented the reason statement below to justify the increase of space within the Group I-2, Condition 2 facilities to allow for additional smoke compartment sizing to accommodate for the required increase of patient care and treatment areas to 40,000 sf. This size was, like the previous size, based on the limiting factor of the travel distance being the product of a 200 foot travel distance. Over the last couple of years interested parties have called to question the rationality of the 40,000 sf since due to room and corridor configurations it is not possible to achieve a smoke compartment of 40,000 sf. To collaborate with these interested parties the AHC has attempted to achieve a more realistic smoke compartment size based on the 200 foot travel distance. Since the travel distance is the true limiting factor using this distance in a more restrictive geometrical fashion – that of the area of a circle instead of a square – will therefore provide the true restriction for the actual square footage based on the actual travel distance from a given point. The area of a circle with a diameter of 200 feet is approximately 31,416 square feet. The AHC therefore recommends that the square footage for smoke zones be changed to better reflect this more restrictive requirement of the travel distance by changing the 40,000 sf to 31,400 sf.



This graphic indicates the more restrictive nature of the circular geometric shape and although not a typical construction shape using this geometrical shape to determine the allowable square footage for a smoke compartment will more appropriately reflect the restrictive nature of the 200 foot travel distance. By providing the additional square footage over the previous 22,500 square feet this change will still meet the intent of the original request to increase the square footage and provide the additional area needed to meet the increased requirements of patient treatment areas while yet more appropriately reflecting the desired restriction of the 200 foot travel distance.

ORIGINAL REASON STATEMENT FOR 40,000 SF SMOKE ZONE:
Reason: This proposal is submitted by the ICC Ad Hoc Committee for Healthcare (AHC). The AHC was established by the ICC Board of Directors to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. The AHC is composed of building code officials, fire code officials, hospital facility engineers, and state healthcare enforcement representatives. The goals of the committee are to ensure that the ICC family of codes appropriately addresses the fire and life safety concerns of a highly specialized and rapidly evolving healthcare delivery system. This process is part of a joint effort between ICC and the American Society for Healthcare Engineering, a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Since its inception in April 2011, the AHC has held 5 open meetings and over 80 workgroup calls which included members of the AHC as well as any interested party to discuss and debate the proposed changes. All meeting materials and reports are posted on the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx
This code change addresses outdated code material. Historically, smoke compartment size has been driven by the allowable travel distance within the smoke compartment. Past code changes have increased the travel distance without a corresponding change in smoke compartment size. Secondly, the size of the functional patient areas has increased, but the occupant load has remained the same or has been reduced. Therefore, we are asking for an increase in smoke compartment size to accommodate the operational needs of the modern hospital.

A summary of the history of smoke compartment requirements is as a requirement is as follows:

- October 1984 BCMC – Maximum length and width equals 150 feet.
- 1987 BOCA – 610.5 – Maximum length and width equals 150 feet
- 1992 BOCA Supplement – 610.4 – 22,500 square feet, with maximum travel distance of 150 feet.
- Code Change No. B20-95 – 22,500 square feet, with maximum travel distance proposed to be increased to 200 feet.
- 1996 BOCA – 409.4 - 22,500 square feet, with maximum travel distance of 200 feet.
- 2000 IBC – 407.4 - 22,500 square feet, with maximum travel distance of 200 feet.

Originally, there was no limit to smoke compartment size, other what was imposed by travel distance. The 22,500 square foot requirement was based on the old travel distance requirement of 150 feet, and used it to extrapolate an area (150ft x150ft = 22,500 square feet). This proposal uses the same logic and applies the current 200 foot travel distance maximum (200ft x200ft), resulting in a 40,000 square foot smoke compartment. This proposal would maintain the existing requirement that each floor be divided into two smoke compartments. Practically the requirement for 200' travel distance within smoke compartments will still drive smaller smoke compartment sizes in some cases.
Over the past 20 years, there has been a steady increase in the size of patient treatment rooms in hospitals. The primary reason for the increase is the equipment and utilities

necessary for the treatment of a patient, such as patient monitoring, gases, and diagnostics equipment, while maintaining space for staff access to the patient. In response, the widely adopted and enforced "Guidelines for the Design and Construction of Health Care Facilities" from the FGI Institute have also increased, making these operational considerations actual code requirements. In the case of the inpatient units, the adoption of a single bed in a patient room has had the largest impact on square footage, while not significantly increasing the number of occupants on the unit.

The concept of an "individual patient space" is becoming the standard design in other types throughout the hospital. Many emergency departments are opting for private patient exam spaces with hard walls, primarily for infection control and patient privacy considerations. Similarly, radiology areas are being driven by technology and clearance issues which go beyond the required minimums, and have impacts on square footages to achieve clearances. In some units, there has also been an increase in the types of required support spaces, including ratios of equipment storage per treatment room, the increased importance of computer equipment rooms, and various staff areas. However, support spaces have remained largely the same, while the main increases have been in the size of the patient treatment areas themselves. While these spaces have been increasing in size, the smoke compartment size requirements have been left unchanged in the building codes.

When studying the contemporary sizes of functions such as emergency departments, radiology operations, and bed units, the larger size allows for greater visualization from the staff to the patient, which is a crucial aspect of planning a patient area. This operational consideration could more easily be achieved before the increase in patient areas, but the same operational considerations require an increase to the smoke zone size to match contemporary requirements, delivery of care and technologies. Attached is a study of space programs which compare the 2010 Guideline requirements with the 1996-97 Guidelines. In short, today's hospital takes more square footage to care for the same amount of patients. These programs demonstrate the need to increase to 40,000 square foot smoke compartment. See program analysis at the following link.
http://www.iccsafe.org/cs/AHC/Pages/WG-General.aspx

Cost Impact: Will increase the cost of construction
The increase will vary depending on the design and size of each facility. By reducing the size of the smoke compartment, it could increase the number of smoke barriers required.

G 108-15 : 407.5-WILLIAMS4235

G 109-15

407.5

Proponent: Vickie Lovell, InterCode Incorporated, representing Fire Safe North America (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

407.5 Smoke barriers. *Smoke barriers* shall be provided to subdivide every *story* used by persons receiving care, treatment or sleeping and to divide other *stories* with an *occupant load* of 50 or more persons, into no fewer than two *smoke compartments*. Such stories shall be divided into *smoke compartments* with an area of not more than 22,500 square feet (2092 m^2) in Group I-2~~, Condition 1, and not more than 40,000 square feet (3716 m^2) in Group I-2, Condition 2, and the~~. The distance of travel from any point in a *smoke compartment* to a *smoke barrier* door shall be not greater than 200 feet (60 960 mm). The *smoke barrier* shall be in accordance with Section 709.

Exceptions

1. A smoke compartment in Group I-2, Condition 2, is permitted to have an area of not more than 35,000 square feet (3252 m^2) provided all patient rooms within that smoke compartment are configured for one single bed per room.
2. A smoke compartment in Group I-2, Condition 2, is permitted to have an area of not more than 40,000 square feet (3716 m^2) used primarily as a radiology suite. For the purposes of this exception, a radiology suite is a dedicated space that includes the area for MRI, general radiology, PET, CT, flouroscopy, interventional radiology or gamma camera procedures and their needed support and staff areas, without any patient sleeping rooms.

Reason: The discussions of the Ad Hoc Healthcare group in the 2015 development cycle indicated that the larger smoke compartments were needed due to healthcare construction and design moving exclusively to one patient per room. In support of that, they had their spreadsheets that detailed exactly how many square feet every different room within a smoke compartment required to create a properly functioning unit, and then added up all of those square feet. Except for a radiology suite, which their spreadsheet indicated would now require the increase to 40,000 sq. ft., 35,000 sq. ft. would be sufficient for the other documented unit types (inpatient beds, emergency department with pediatrics, intensive care unit) as is recommended in this proposal.
In addition, knowing that the IBC is used in other countries as a model code, and in other countries the norm may be 2 patients (or more) per room, this would clearly indicate that the new, larger smoke compartments are only to be considered if and when a hospital goes to the 1 patient-per-room layout.

International Code Council
Ad-Hoc Committee for Healthcare
Inpatient Bed Unit - Generic Program

Item	Space Name	2010 Guideline Planning Module (SF)	Qty.	Total SF	1996-97 Guideline Planning Module (SF)	Qty.	Total SF	Actual Occupants	Comments
1									
1	Patient Area								
2	Patient Room	300	29	8,700	200	15	3000	29	2010: 1 Bed per room. 1996-97: 2 Bed per room
3	Patient Seclusion Room	not applicable			200	1	200		
4	Isolation Patient Room	350	4	1,400	120	4	480	4	
5	Specialty Treatment Room	350	1	350	120	1	120	1	
6	Work Alcove	68	2	136	68	2	136		
7									
8	Staff Areas								
9	Nurses Station 1	276	1	276	276	1	276		
10	Nurses Station 2	297	1	297	not required on smaller floor			10	Staff: Nurses Actual (max)
11	Nurses Station 3	237	2	474	237	2	474	1	Staff: Nurse Manager
12	Nurses Station 4	350	1	350	not required on smaller floor			1	Staff: Unit Secretary
13	Nurse Supervisor / Phys Charting	475	1	475	475	1	475	4	Staff: Physicians/Fellows/Residents (Transient)
14	Staff Storage / Locker Room	229	1	229	229	1	229	4	Staff: EVS/Physical Plant/Kitchen/Materials Management (Transient)
15	Documentation Area	93	5	465	93	5	465	3	Staff: Nurse Aids
16	Multipurpose Room	386	1	386	386	1	386		
17	Staff Lounge / Toilet	326	1	326	264	1	264		
18	Interdiciplinary Room	374	1	374	not required				
19	Unit Support	465	1	465	465	1	465		
20									
21	Support Spaces								
22	Environmental Services	78	2	156	78	1	78		
23	Soiled Holding / Workroom	355	1	355	355	1	355		
24	Clean Supply	202	2	404	202	2	404		
25	Medication Dispensing	259	2	518	259	2	518		
26	Equipment & Supply Storage	666	1	666	666	1	666		Includes storage for linen, emergency equipment, stretchers and wheelchairs
27	Nourishment Station	205	1	205	205	1	205		
28	Equipment Alcoves	404	1	404	300	1	300		Throughout, for equipment staging off corridor
29	Visitor Lounge / Resource Center	416	1	416	not required			18	Represents family members on unit at any given time
30	Electrical	321	1	321	80	2	160		
31	Telecomm	319	2	638	not required				
32	Stair	184	3	552	184	3	552		
33	Utility Shafts	200	4	800	200	4	800		
34	Patient Toilet Rooms	not req'd at single patient room			64	3	192		
35									
36									
37	Subtotal: Net Square Feet			20,138			11,200		
38									
39	Circulation Factor	(1.70)		14,030			7,803		Actual
40									
41	Total Design Gross Square Feet			34,168			19,003		
42									
43	Building Gross Factor 1.25 (N/A)			0			0		
44									
45	Total Building Gross Area			34,168			19,003		
46									
47	2010 Calculated Occupant Load (250 sf/occupant)							137	
48	1996-97 Calculated Occupant Load (250 sf/occupant)							76	
49	Actual Occupant Load (From Above)							75	

University of PA Health System
Substantiation for larger square footage in smoke compartments
InpatientBedUnit

International Code Council
Ad-Hoc Committee for Healthcare

planning data company Francis Cauffman

Emergency Department with Pediatrics - Generic Program

Item	Space Name	2010 Guideline Planning Module (SF)	Qty.	Total SF	1996-97 Guideline Planning Module (SF)	Qty.	Total SF	Actual Occupants	Comments
1	**Reception/Waiting**								
2	Walk-in Vestibule	120	1	120	120	1	120		
3	Ambulance Vestibule	140	1	140	140	1	140		
4	Reception/Greeter	120	1	120	not required			1	Greeter
5	Security Office	120	1	120	not required			1	Security Officer
6	Triage Exam	140	3	420	120	3	360	3	Patients
7	Triage Sub-Waiting	20	12	240	20	12	240	6	Waiting Occupants
8	Registration Stations	60	2	120	60	2	120	2	Staff
9	Registration: Clerical Work Area	120	1	120	120	1	120	2	Clerks
10	Adult Waiting	20	30	600	20	30	600	15	Waiting Occupants
11	Pediatric Waiting	20	15	300	20	15	300	8	Waiting Occupants
12	Pediatric Play	120	1	120	120	1	120	0	Service area to above
13	Toilets - Public	50	2	100	50	2	100		
14	Vending	60	1	60	60	1	60		
15	Co-Pay and Fiscal Advisor	110	1	110	not required			1	Financial Advisor
16	Consult./Bereavement Room	110	1	110	110	1	110		
17	Wheelchair Storage	5	4	20	5	4	20		
18		*Subtotal*		2,820			2,410		
19									
20	**Adult Clinical Care**								
21	*Treatment Space*								
22	Standard Exam/Treatment	155	19	2,945	80	19	1,520	19	Patients
23	Exam/Treat - Isolation	155	2	310	120	2	240	0	Accounted for in Bays
24	Bariatric Exam	220	2	440	not required			0	Accounted for in Bays

25	ENT	155	1	155	120	1	120	0	Accounted for in Bays
26	OB/Gyn Exam	155	1	155	120	1	120	0	Accounted for in Bays
27	OB/Gyn TLT	50	1	50	50	1	50	0	Accounted for in Bays
28	Swing/Psych	180	2	360	120	2	240	0	Accounted for in Bays
29	Major Trauma/Resusc	275	3	825	250	3	750	1	Patient. Staff accounted elsewhere
30	Patient Toilet	50	4	200	50	4	200		
31	*Direct Clinical Support*								
32	Clinical Workstation	400	1	400	400	1	400	6	Nurse Staff
33	Clinical Touchdown	60	4	240	60	4	240	2	Attending, Fellow
34	MD Charting	50	6	300	50	6	300	2	Visiting Physician
35	Meds	100	2	200	100	2	200		
36	Nourishment	80	2	160	80	2	160		
37	Clinical Support	160	1	160	160	1	160		
38	Clean Supply	180	1	180	180	1	180		
39	Soiled Utility	120	1	120	120	1	120		
40	Equipment Storage	160	1	160	160	1	160		
41	Clean Linen storage	20	4	80	20	4	80		
42	Crash Cart Alcoves	10	2	20	10	2	20		
43	Stat Lab	80	1	80	not required				
44	Staff Toilets on Floor	50	2	100	50	2	100		
45	HAC	50	1	50	50	1	50		
46		*Subtotal*		10,750			7,950		
47	**Dedicated Pediatric Hybrid**								
48	Family Waiting	20	6	120	20	6	120	6	Waiting Occupants
49	Family Support Lounge	150	1	150	150	1	150		
50	*Inpatient Short Stay*								
51	Patient Room	220	6	1,320	120	6	720	12	Patient and Parent
52	Patient Room/Semiprivate	240	2	480	160	2	320	5	Patient and Parent
53	Patient Toilet Room	55	8	440	55	8	440		
54	Play and Activities	120	1	120	120	1	120	0	Accounted for in Patient Space
55	*ED Exam/Treatment*								
56	Exam/Treatment Rooms	160	3	480	120	3	360	6	Patient and Parent
57	Bariatric Pediatric	220	1	220	not required			2	Patient and Parent
58	Exam/OB	160	1	160	120	1	120		
59	Patient Toilet	50	3	150	50	3	150		
60	Major Trauma/Resusc	275	1	275	250	1	250	1	Patient. Staff accounted elsewhere
61	*Clinical Support*								
62	Clinical workstation	240	1	240	240	1	240	2	Nurses
63	Clinical Touchdown	60	2	120	60	2	120	1	Pediatrician
64	MD Charting	50	2	100	50	2	100	2	Visiting Physician
65	Family Consult	110	1	110	110	1	110		
66	Meds	80	1	80	80	1	80		
67	Nourishment	80	1	80	80	1	80		
68	Clean Utility	160	1	160	160	1	160		
69	Soiled Utility	120	1	120	120	1	120		
70	Equipment Storage	80	2	160	80	2	160		
71	Peds Crash Cart	20	1	20	20	1	20		
72	*Administrative Support*								
73	MD office	120	1	120	120	1	120	1	Physician
74	Nurse Manager	120	1	120	120	1	120	1	Nurse Manager
75	Staff Lounge	140	1	140	140	1	140		
76	Conference	160	1	160	160	1	160		
77	Staff Toilets	50	2	100	50	2	100		
78	Decon Shower	100	1	100	100	1	100		
79	Housekeeping	50	1	50	50	1	50		
80		*Subtotal*		5,895			4,730		
81									
82	**Offices/Administrative Support**								
83	Nursing Offices	100	4	400	100	4	400	0	Nurses (included above)
84	MD Touchdown Office	180	1	180	180	1	180	1	Physician
85	Director's Office	120	1	120	120	1	120	1	Director
86	Squad Room	80	1	80	80	1	80	2	EMT
87	Backboard Shower	10	1	10	not required				
88	Decontam. Storage	60	1	60	not required				
89	Lounge Area - Staff	140	1	140	140	1	140	0	Accouted Above
90	Shared Staff Locker Room	8	40	320	8	40	320	0	Accouted Above
91	Conference/Continuing Education	200	1	200	200	1	200		
92	Toilet / Shower - Staff	65	1	65	65	1	65		
93	Toilet - Staff	50	3	150	50	3	150		
94	Housekeeping Closet	50	1	50	50	1	50		
95		*Subtotal*		1,775			1,705		
96									
97									
98	Subtotal: Net Square Feet			21,240			16,795		
99									
100	Circulation Factor	(1.55)		11,682			9,237		Actual
101									
102	Total Design Gross Square Feet			32,922			26,032		
103									
104									
105	Total Building Gross Area			32,922			26,032		

2010 Calculated Occupant Load (250 sf/occupant)	132
1996-97 Calculated Occupant Load (250 sf/occupant)	104
Actual Occupant Load (From Above)	112

University of PA Health System
Substantiation for larger square footage in smoke compartments
ED with Peds Hybrid

International Code Council
Ad-Hoc Committee for Healthcare

Radiology Suite - Generic Program

Item	Space Name	2010 Guideline Planning Module (SF)	Qty.	Total SF	1996-97 Guideline Planning Module (SF)	Qty.	Total SF	Actual Occupants	Comments
1	**Patient Area**								
2	Waiting	20	36	720	20	36	720	18	waiting
3	Registration	64	8	512	64	8	512	8	staff
4	Consult	110	3	330	110	3	330	0	included below
5	Public Toilets	62	3	186	62	3	186		
6	Patient Education	1	56	56	not required				
7									
8	*MRI Suite*								
9	MRI Scan Rooms (1.5T, 3T)	430	6	2,580	325	6	1,950	6	Patients
10	MRI Control	882	1	882	100	6	600	6	Staff
11	MRI Warm Zone Vestibule	280	3	840	280	3	840		
12	MRI Equipment	280	4	1,120	150	4	600		
13	MRI Prep	275	1	275	275	1	275		
14	Patient Toilets	62	2	124	50	2	100		
15	Mens Gowned Waiting / Changing	240	1	240	240	1	240	6	patients changing
16	Womens Gowned Waiting / Changing	285	1	285	285	1	285	6	patients changing
17	*General Radiology Suite*								
18	General Rad Room	260	5	1,300	180	5	900	5	patients
19	Bone Densitometry	140	3	420	140	3	420	3	patients
20	Control	475	1	475	475	1	475	3	staff
21	Mens Gowned Waiting / Changing	240	2	480	240	2	480	5	patients changing
22	Womens Gowned Waiting / Changing	240	2	480	240	2	480	5	patients changing
23	Patient Toilets	62	1	62	62	1	62		
24	*PET/CT Suite*								
25	PET/CT Scan Room	420	2	840	350	2	700	0	included in prep/injection areas
26	PET/CT Control	120	2	240	120	2	240	2	staff
27	PET/CT Equipment	48	2	96	48	2	96		
28	Hot Lab	255	1	255	255	1	255		
29	Hot Toilet	62	1	62	62	1	62		
30	Hot Injection	130	1	130	130	1	130	2	
31	Prep Room	313	1	313	313	1	313	2	prep bays
32	*CT Suite*								
33	CT Scan Room	420	3	1,260	250	3	750	3	patients
34	CT Control Room	520	1	520	360	1	360	3	staff
35	CT Prep	550	1	550	300	1	300	0	included above
36	Mens Gowned Waiting / Changing	215	1	215	215	1	215	3	patients changing
37	Womens Gowned Waiting / Changing	215	1	215	215	1	215	3	patients changing
38	Patient Toilets	62	2	124	62	2	124		
39	*Fluoroscopy Suite*								
40	Fluoroscopy Room	405	2	810	320	2	640	2	patients
41	Patient Toilets	62	2	124	62	2	124		
42	Fluoroscopy Control	325	1	325	180	1	180	2	staff
43	*Interventional Radiology Suite*								
44	IR lab	368	2	736	350	2	700	2	patients
45	Scrub	110	1	110	110	1	110		
46	IR Prep / Recovery	950	1	950	750	1	750	5	patients
47	IR Exam	220	1	220	120	1	120		
48	Patient Toilet	62	1	62	50	1	50		
49	IR Workroom	230	1	230	180	1	180	4	nurses / physician / staff working in spaces above
50	*Gamma Camera Suite*								
51	Gamma Camera Scan Room	315	2	630	300	2	600		
52	Control Room	230	1	230	180	1	180		
53									
54	**Staff Areas**								
55	Reading Room	1,950	1	1,950	800	1	800	8	workstations
56	Conference Room	675	1	675	400	1	400	0	for staff accounted in department
57	Staff Lounge	625	1	625	375	1	375	0	for staff accounted in department
58	Staff Locker	470	1	470	470	1	470	0	for staff accounted in department
59	Staff Toilet	62	1	62	62	1	62		
60	Manager Office	110	1	110	110	1	110	1	manager
61	Radiology IT Office	80	3	240	80	3	240	3	Staff
62	MD Touchdown	200	2	400	200	2	400	4	Physicians
63									
64	**Support Spaces**								
65	Clean Supply	642	1	642	400	1	400		
66	Soiled Utility	273	1	273	200	1	200		
67	Moveable Equipment Storage	500	1	500	300	1	300		
68	Linen Storage	400	1	400	200	1	200		
69	Film / Scanning Room	170	1	170	350	1	350		Active films only. Inactive stored off-site. 2010: digital storage only. no films stored on site
70									
71									
72	Subtotal: Net Square Feet			27,131			21,156		
73									
74	Circulation Factor	(1.49)		13,269			10,366		
75									
76	Total Design Gross Square Feet			40,400			31,522		
77									

77				
78	Building Gross Factor 1.25 (N/A)	0	0	
79				
80	Total Building Gross Area	40,400	31,522	

2010 Calculated Occupant Load (250 sf/occupant)	162
1996-97 Calculated Occupant Load (250 sf/occupant)	126
Actual Occupant Load (From Above)	120

University of PA Health System
Substantiation for larger square
footage in smoke compartments
Radiology

International Code Council
Ad-Hoc Committee for Healthcare

Critical Care Unit - Generic Program

Item	Space Name	2010 Guideline Planning Module (SF)	Qty.	Total SF	1996-97 Guideline Planning Module (SF)	Qty.	Total SF	Actual Occupants	Comments
1	**Patient Area**								
2	Patient Room	200	14	2,800	150	14	2,100	21	Includes toilet in room.
3	Isolation Patient Room	350	2	700	150	1	150	4	
4	Consult Room	100	2	200	not required			0	Families included in patient room count
5	Visitor Waiting Room	200	1	200	not required				
6									
7	**Staff Areas**								
8	Nurses Station 1	100	1	100	100	1	100	2	
9	Nurses Station 2	125	1	125	125	1	125	2	
10	Nurses Station 3	160	2	320	160	2	320	2	
11	Nurses Station 4	100	1	100	100	1	100	2	
12	Documentation Stations	60	9	540	60	9	540		At every two patient rooms
13	Charting Stations	23	2	46	23	2	46	2	Alcove at nurses station
14	Office	100	1	100	100	1	100		
15	Multipurpose Room	200	1	200	200	1	200		
16	Staff Storage / Locker Room	100	1	100	100	1	100		
17	Staff Toilet	64	3	192	64	3	192		
18									
19	**Support Spaces**								
20	Soiled Utility	130	1	130	130	1	130		Unit Support: Storage or Utility as required by Guidelines
21	Clean Utility	130	1	130	130	1	130		
22	Pneumatic Tube Alcove	25	1	25	25	1	25		
23	Equipment Storage	320	1	320	200	1	200		20 square feet for 16 beds (2010 requirement only)
24	Wheelchair / Stretcher Storage	100	1	100	100	1	100		
25	Environmental Services Room	80	1	80	80	1	80		
26	Lounge / Resource Center	416	1	416	416	1	416		
27	Electrical	100	1	100	100	1	100		
28	Telecomm	200	1	200	200	1	200		
29									
30									
31	Subtotal: Net Square Feet			7,224			5,454		
32									
33	Circulation Factor (	1.45)		3,251			2,454		Actual
34									
35	Total Design Gross Square Feet			10,475			7,908		
36									
37	Building Gross Factor 1.25 (N/A)			0			0		
38									
39	Total Building Gross Area			10,475			7,908		

2010 Calculated Occupant Load (250 sf/occupant)	42
1996-97 Calculated Occupant Load (250 sf/occupant)	32
Actual Occupant Load (From Above)	35

University of PA Health System
Substantiation for larger square
footage in smoke compartments
IntensiveCareUnit

Cost Impact: Will increase the cost of construction

This code change will increase the cost of construction as compared to the 2015 IBC, due to the need for some additional smoke barrier walls to create the smoke compartments smaller than the 40,000 sq. ft. smoke compartments. This code change will decrease the cost of construction as compared to the 2012 IBC, all previous editions of the IBC, all three of the legacy codes, and also as compared to the Life Safety Code (through 2015), due to the smoke compartments being larger than 22,500 sq. ft., and thus needing fewer smoke barrier walls than each of those codes could have required.

G 109-15 : 407.5-LOVELL4195

G 110-15

407.5

Proponent: Amanda Hickman, InterCode Incorporated, representing Fire Safe North America (amanda@intercodeinc.com)

2015 International Building Code

Revise as follows:

407.5 Smoke barriers. *Smoke barriers* shall be provided to subdivide every *story* used by persons receiving care, treatment or sleeping and to divide other *stories* with an *occupant load* of 50 or more persons, into no fewer than two *smoke compartments*. Such stories shall be divided into *smoke compartments* with an area of not more than 22,500 square feet (2092 m^2) in Group I-2~~, Condition 1, and not more than 40,000 square feet (3716 m^2) in Group I-2, Condition 2, and the~~. The distance of travel from any point in a *smoke compartment* to a *smoke barrier* door shall be not greater than 200 feet (60 960 mm). The *smoke barrier* shall be in accordance with Section 709.

Reason: In the event of a fire, hospitals have a population with special concerns and vulnerabilities. To maintain an effective fire and smoke management system in health care environments, multiple compartments subdivided with smoke barrier walls must be incorporated and maintained in the life safety design for hospitals.
A full evacuation is often neither practical nor in the best interest of hospital patients. Therefore, the International Building Code (IBC) and NFPA 101 Life Safety Code both require that the safety of patients in hospitals be provided through the use of a defend-in-place strategy using multiple fire safety features, including construction, compartmentation, fire detection and suppression, and a well-trained staff to assist in emergency relocation/evacuation of patients.

Smoke barriers are used to separate smoke compartments. Walls and floors designed and constructed as smoke barriers separate adjacent smoke compartments in a building. Smoke barriers are required to be constructed with a minimal fire resistance rating of 1 hour. This will ensure that they are not quickly breached in the event of a fire, especially if sprinkler operation is delayed, shielded, or prevented altogether, such as due to a water supply impairment . As the name implies, smoke barriers are also intended to restrict the movement of smoke. Ensuring the ability of smoke barriers to survive exposure to a fire and to restrict smoke movement in a fire incident is critical to the defend-in-place concept used in health care. A key part of this strategy is to use smoke compartments formed by smoke barriers to create temporary, safe areas for patients. The International Building Code requires that areas used for patients must be divided into a minimum of two smoke compartments. Patients in smoke compartments not directly involved in a fire are protected at least temporarily, and can be moved horizontally on gurneys if necessary across smoke barriers into an adjacent smoke compartment. This will buy valuable time, depending on the circumstances, to avoid the need for total evacuation.

Code changes in the 2015 Edition of the International Building Code resulted in the approval of two new code changes that changed smoke compartments in hospitals. Smoke compartments in I-2 occupancies are now less protected.

- Section 717.5.5 (new exception #2 in the 2015 IBC) permits smoke barriers in smoke compartments to eliminate smoke dampers in smoke barriers in sprinklered I-2 buildings, if the HVAC system is fully ducted; and
- Section 407.5 (2015 IBC) permits the area of smoke compartments in I-2, condition 2, to be nearly doubled in size, expanded in area from 22,500 sq. ft. to 40,000 sq. ft.

The Section 407.5 change represents two major changes to current requirements without substantial justification and without consideration of implementation of both changes to the protection of smoke compartments. Fire Safe North America (FSNA) was strongly opposed to both of the changes in the protection of smoke compartments and testified in opposition. (The Air Movement and Control Association Intl (AMCA) has submitted a code change this cycle that further clarifies when a smoke damper can be eliminated from the duct system.)

Regarding the increased size of the smoke compartment, there was no correlation to the measurement of travel distances in a 40,000 sq. ft. compartment size. While travel distances are measured along a path of travel, the compartment sizes are measured in straight line distances. This major adjustment in smoke compartment size would potentially expose a greater number of patients to a fire incident, and establish the need for staff to relocate this higher number of patients to an adjacent area of safety, imposing an unacceptable level of safety for those patients. Current text has no limitations on the number of patients or the number of associated staff who may be located in any one smoke compartment. The change was based on the assumption that the size of functional patient areas has increased with no corresponding increase in patient population, but the code does not require such a limitation.

The proposal that significantly increased the allowable area of a smoke compartment in hospitals from 22,500 sq. ft. to 40,000 sq. ft. did not adequately address numerous issues in their substantiation, and was not resolved satisfactorily. The following contains excerpts from testimony from those who were opposed to these changes, including the National Association of State Fire Marshals, Fire Safe North America, International Association of Fire Fighters, the International Firestop Council, the Air Movement and Control Association International, and others:

1. The substantiation provided for increasing smoke compartment size in hospitals from 22,500 sq. ft. to 40,000 sq. ft. was only based on a study showing that the size of functional patient areas is increasing in most hospitals (for example, to private patient rooms from semiprivate rooms) from the "Facilities Management Guidelines", and not on any technical substantiation addressing specific concerns of patient safety.
2. The new code section does not address the concerns related to increasing the travel time for egressing patients out of one smoke compartment into another one, and the fire and smoke safety impact on those patients and staff.
3. The new code section has no limitations on the maximum number of patients that may be located in any one 40,000 sq. ft. smoke compartment. Without limitations on patient or occupancy limits, a larger smoke compartment size than what was previously permitted, could expose a higher number of patients, visitors, and hospital staff to a fire incident.
4. The new code section could be interpreted to allow existing hospitals to increase smoke compartment sizes in order to reduce maintenance costs by decommissioning some of their smoke barriers without actually reducing the number of patients within their smoke compartments.

An important point of interest is that an identical proposal to increase the size of a smoke compartment to 40,000 sq. ft. was proposed to the 2015 Life Safety Code, published and distributed worldwide by the National Fire Protection Association. Although approved narrowly by the Technical Committee, it was disapproved by the NFPA membership during the NFPA Association Members Meeting in Las Vegas in June, 2014. As a result, the change to 40,000 sq. ft. that is in the 2015 IBC and is not the 2015 Life Safety Code. There remains a conflict between the two regulatory documents, which causes problems for hospitals that need to comply with CMS regulations, as they require conformance with NFPA 101, including the 22,500 sq. ft. limitation on smoke compartment size.

This proposal seeks to restore the size of the smoke compartments in hospitals to 22,500 sq. ft. which will make the Life Safety Code and the IBC consistent with one another.

Cost Impact: Will increase the cost of construction
This code change will increase the cost of construction as compared to the 2015 IBC, due to cost of constructing additional smoke barrier walls to make smoke compartments smaller than the currently required 40,000 sq. ft. smoke compartments.

G 110-15 : 407.5-HICKMAN4344

G 111-15

407.5.2

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Building Code

Revise as follows:

407.5.2 Independent egress. A *means of egress* shall be provided from each *smoke compartment* created by *smoke barriers* without having to return through the smoke compartment from which *means of egress* originated. Smoke compartments that do not contain an exit shall be provided with direct access to not less than two adjacent smoke compartments.

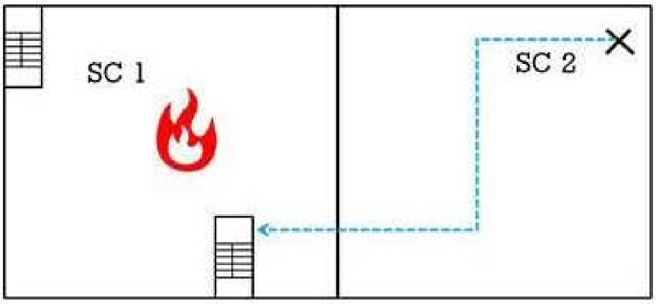
Reason: The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

This code change is intended to more appropriately handle arrangement of the means of egress in a defend in place environment (i.e. hospitals and nursing homes.) The intent is to ensure that the arrangement of smoke compartments and exits prevents a situation where you have a "dead end smoke compartment." This requirement already exists within the federal Medicare requirements. This proposes rule (and the existing section) does not require a stair in every smoke compartment.

In Example 1, an occupant in smoke compartment 2 (SC2) would be forced to travel into smoke compartment 1 to access one of the two required exits for the floor. This is compliant with the current requirement that the occupant does not "return through the smoke compartment of egress origin." The smoke compartment where the mean of egress originates is smoke compartment 2. The dashed path does not leave smoke compartment 2, then RETURN back into smoke compartment 2. While this example meets current code, it creates an unacceptable hazard by creating a "dead end smoke compartment."

The proposed language would require that one of the stairs be located in smoke compartment 2, or, that the floor plate be rearranged to create access to two adjacent smoke compartments from compartment SC2.

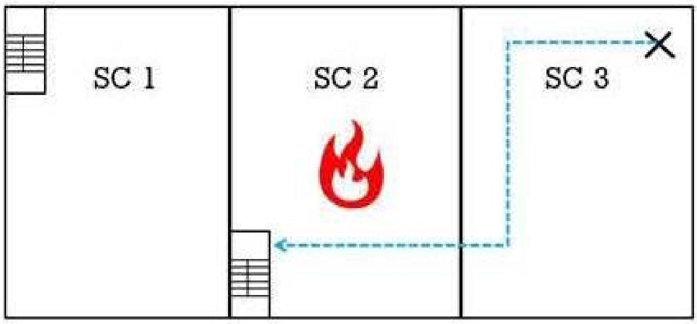
Example 1



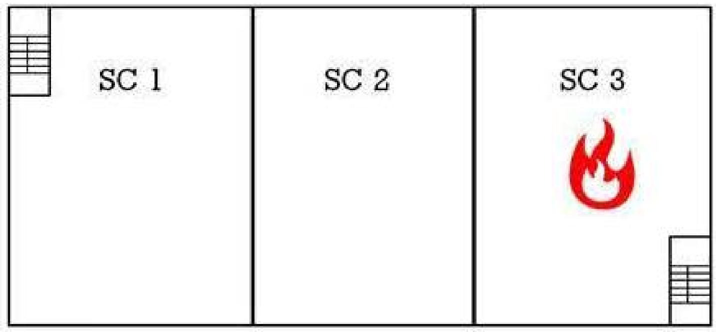
A similar condition exists in Example 2. An occupant in smoke compartment 3 would be required to travel through smoke compartment 2 to access an exit. If smoke compartment #2 has a fire, then the exiting is compromised. In this example, SC3 would be non-compliant with the proposed rule because it 1) does not have a stair, or, 2) it does not have access to two directly adjacent smoke compartments.

There is an easy fix to this problem: relocate the stair to smoke compartment #3 (see Example 3). That way, smoke compartments 1 and 3 have access directly to the stair, and smoke compartment #2 has access to at least two directly adjacent smoke compartments.

Example 2



Example 3



Cost Impact: Will not increase the cost of construction
This change will typically not increase the cost of construction, in that it does not affect how many exits are provided. It does limit the location on the floor plate, which could have cost implications. In worse case an additional smoke compartment would be required, which would definitely increase construction cost. Practically, since this is a federal requirement already there will be no perceived increase to facilities.

G 111-15 : 407.5.2-WILLIAMS4238

G 112-15

407.6 (New), 709.5.1

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Building Code

Add new text as follows:

407.6 Automatic closing doors Automatic closing doors with hold-open devices shall comply with Sections 709.5 and 716.5.

Revise as follows:

709.5.1 Group I-2 and ambulatory care facilities. In Group I-2 and ambulatory care facilities, where doors protecting openings in smoke barriers are installed across a corridor and have hold-open devices, the doors shall be automatic-closing ~~by smoke detection~~ in accordance with Section 716.5.9.3 ~~and~~. Such doors shall have a vision panel with fire-protection-rated glazing materials in fire-protection-rated frames, the area of which shall not exceed that tested.

Reason: This proposal has two main functions: The first is to provide a pointer in the I-2 specific section to the requirements for automatic closing doors in healthcare facilities. The hold open feature is one that is used quite frequently, yet the specific requirements are often missed. The pointer in Chapter 4 will remind designers to comply with BOTH sections.
The second change clarifies that not all cross corridor doors need to be provided with automatic closers. The context of this section is doors in smoke barriers, so we have added language to focus the requirement.
The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal is a clarification of requirements; therefore, there is no increase in cost.

G 112-15 : 407.6 (New)-WILLIAMS4236

G 113-15

408.9

Proponent: James Peterkin, Heery International, representing Self (jpeterki@heery.com)

2015 International Building Code

Revise as follows:

408.9 Windowless buildings~~.~~ For the purposes of this section, a windowless building or portion of a building is one with nonopenable windows, windows not readily breakable or without windows. ~~Windowless~~

To facilitate smoke removal in post-fire salvage and overhaul operations, windowless buildings shall be ~~provided~~equipped with ~~an engineered smoke control system to provide a tenable environment~~mechanical ventilation for ~~exiting from~~ the ~~*smoke compartment* in the area~~removal of ~~fire origin in accordance with Section 909~~products of combustion using mechanical air-handling equipment providing one exhaust air change every 15 minutes for each ~~windowless~~ *smoke compartment*. Return and exhaust air shall be moved directly to the outside without re-circulation to other portions of the building.

Reason: The mechanical ventilation requirements for an I-3 occupancy should be similar to that required in a high rise building. The ventilation system replaces the lack of breakable windows. Requiring a smoke control system in accordance with 909 to maintain a "tenable environment" is a problem since the only method for maintaining a tenable environment is an "Exhaust" method under Section 909.8. This section stipulates that this method is used to control smoke in large enclosed volumes such as in atriums and malls. I-3 occupancies are generally designed with inmate cells opening into a day room. These are usually a single story with a mezzanine (not a two story space). Trying to maintain a smoke interface layer 6 ft. above the highest occupied space in accordance with the design requirements of 909.8 (NFPA 92) is extremely difficult since there is no volume of space for smoke collection. In addition, the fire load within these compartments is generally very low (fire retardant furnishings) and these spaces are under constant surveillance by security personnel. The fire loss data does not indicate a need for maintaining tenable conditions in these occupancies which are required to be protected by automatic sprinkler systems.

Cost Impact: Will not increase the cost of construction
The cost of a smoke control systems that must be designed to maintain tenable conditions significantly increases the cost of prison. Dedicated smoke control systems also increase the annual maintenance and testing costs over a manually operated ventilation system

G 113-15 : 408.9-PETERKIN5235

G 114-15

410.3.4

Proponent: Stephen DiGiovanni, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

410.3.4 Proscenium wall. Where the *stage* height is greater than 50 feet (15 240 mm), all portions of the *stage* shall be completely separated from the seating area by a proscenium wall with not less than a 2-hour *fire-resistance rating* extending continuously from the foundation to the roof.

Exception: Where the *stage* is located in a building of Type I construction, *proscenium walls*:

1. Where located above a minimum 2-hour *horizontal assembly* shall be permitted to extend from the top of this *horizontal assembly*.
2. Where located beneath a minimum 2-hour *horizontal assembly* are permitted to terminate at the underside of this *horizontal assembly*.
3. Are not permitted to terminate at a *horizontal assembly*where the provisions of Item 2 of Section 403.2.1.1 have been applied.

Reason: Stages with heights of greater than 50 feet are more commonly occurring in venues throughout the country. Additionally, these venues are also increasingly designed with either/both basements (beneath) and/or additional floors above the actual theater levels.

Basements help these venues to attract popular traveling "Broadway-style" shows that utilize large floor lifts from beneath the stage as part of their productions. In many cases, these basements are enlarged to include additional uses such as; office, storage rooms, and other back-of-house spaces.

Levels above the stage are more frequently occurring due to the proliferation of these venues being incorporated into the footprint of high-rise hotel towers, beneath "green" roof gardens (occupiable), and/or beneath additional meeting room/spaces (such as those used in urban-area convention centers).

Currently, Section 410.3.4 requires 2-hour proscenium walls to be continuously constructed from the foundation to the roof of a structure containing a stage with a height greater than 50 feet. Where venues are constructed with floors above and/or below such theaters, this provision requires proscenium walls to continue entirely through those floor levels regardless of the use and/or risks associated with them. This fails to recognize that venues having large stages are no longer limited to single-story buildings.

The proposed amendment would allow the proscenium to terminate at minimum 2-hour fire-resistance-rated horizontal assemblies above and/or below the space containing the stage.

Cost Impact: Will not increase the cost of construction
This proposal does not add to the cost of construction, and the added exception allows an option to existing code, but does not limit the use of the existing code provisions.

G 114-15 : 410.3.4-DIGIOVANNI3823

G 115-15

412.3, 412.3.1 (New), 412.3.1.1, TABLE 412.3.1, 412.3.1.2 (New), 412.3.1.3 (New), 412.3.2 (New), 412.3.2, 412.3.3, 412.3.4, 412.3.4.1, 412.3.3 (New), [F] 412.3.5, 412.3.3.2 (New), 412.3.3.3 (New), 412.3.6, 412.3.4.1 (New), 412.3.7, 412.3.7.1, 412.3.8

Proponent: Christopher Moran, Jensen Hughes, representing Airport Traffic Control Tower Fire/Life Safety Technical Working Group (cmoran@haifire.com); Eric Rosenbaum, representing Airport Traffic Control Tower Fire/Life Safety Technical Working Group

2015 International Building Code

412.3 Airport traffic control towers. The provisions of Sections 412.3.1 through 412.3.8 shall apply to airport traffic control towers occupied only for the following uses:

1. Airport traffic control cab.
2. Electrical and mechanical equipment rooms.
3. Airport terminal radar and electronics rooms.
4. Office spaces incidental to the tower operation.
5. Lounges for employees, including sanitary facilities.

Add new text as follows:

<u>**412.3.1** **Construction.** The construction of airport traffic control towers shall comply with the provisions of Sections 412.3.1.1 through 412.3.1.3.</u>

TABLE 412.3.1.1
HEIGHT LIMITATIONS FOR AIRPORT TRAFFIC CONTROL TOWERS

TYPE OF CONSTRUCTION	HEIGHT[a] (feet)
IA	Unlimited
IB	240
IIA	100
IIB	85
IIIA	65

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m^2.

a. Height to be measured from grade plane to cab floor.

Revise as follows:

~~412.3.1~~<u>412.3.1.1</u> Type of construction. Airport traffic control towers shall be constructed to comply with the height limitations of Table ~~412.3.1~~<u>412.3.1.1</u>.

Add new text as follows:

<u>**412.3.1.2** **Structural integrity of interior exit stairways and elevator hoistway enclosures.** Enclosures for interior exit stairways and elevator hoistway enclosures shall comply with Section 403.2.3.</u>

<u>**412.3.1.3** **Sprayed fire-resistant materials (SFRM).** The bond strength of the SFRM installed in airport traffic control towers shall be in accordance with Section 403.2.4.</u>

<u>**412.3.2** **Means of egress and evacuation.** The means of egress in airport traffic control towers shall comply with Sections 412.3.2.1 through 412.3.2.3.</u>

Revise as follows:

~~412.3.2~~<u>412.3.2.1</u> Stairways. Stairways in airport traffic control towers shall be in accordance with Section 1011. ~~Stairways~~<u>Exit stairways</u> shall be smokeproof enclosures complying with one of the alternatives provided in Section 909.20.

> **Exception:** Stairways in airport traffic control towers are not required to comply with Section 1011.12.

~~412.3.3~~<u>412.3.2.2</u> Exit access. *No change to text.*

~~412.3.4~~<u>412.3.2.3</u> Number of exits. *No change to text.*

~~412.3.4.1~~<u>412.3.2.3.1</u> Interior finish. *No change to text.*

Add new text as follows:

<u>**412.3.3** **Emergency Systems.** The detection, alarm and emergency systems of airport traffic control towers shall comply with Sections 412.3.3.1 through 412.3.3.3.</u>

Revise as follows:

[F] ~~412.3.5~~<u>412.3.3.1</u> Automatic ~~fire~~<u>smoke</u> detection systems. Airport traffic control towers shall be provided with an automatic ~~fire~~

smoke detection system installed in accordance with Section ~~907.2~~907.2.22.

Add new text as follows:

412.3.3.2 Fire command center. The fire command center of an airport control tower shall comply with Section 911.

Exceptions:

1. Location. The fire command center is permitted to be located in the airport control tower or an adjacent contiguous building where building functions are interdependent.

2. Size. The room shall be not less than 150 square feet (14 m^2) in area with a minimum dimension of 10 feet (3048 mm).

3. Required features. The following features shall not be required in an airport traffic control tower fire command center.

3.1. Emergency voice/alarm control unit.
3.2. Public address system.
3.3. Status indicators and controls for the air distributions centers.
3.4. Generator supervision devices, manual start and transfer features.
3.5. Elevator emergency or standby power switches where emergency or standby power is provided.

412.3.3.3 Smoke removal Smoke removal in airport traffic control towers shall be provided in accordance with Section 403.4.7.

Revise as follows:

~~412.3.6~~412.3.4 Automatic sprinkler system. *No change to text.*

Add new text as follows:

412.3.4.1 Fire pump room. Fire pumps shall be located in rooms that are separated from all other areas of the building by 2-hour fire barriers constructed in accordance with Section 707 or 2-hour horizontal assemblies constructed in accordance with Section 711, or both.

Exception: Separation is not required for fire pumps physically separated in accordance with NFPA 20.

Revise as follows:

~~412.3.7~~412.3.5 ~~Elevator protection.~~Protection of elevator wiring and cables. ~~Wires or~~ Wiring and cables ~~that provide normal or standby power,~~serving elevators in airport traffic control ~~signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire detecting systems to elevators~~towers shall be protected ~~by construction having a *fire-resistance rating* of not less than 1 hour, or shall be circuit integrity cable having a fireresistance rating of not less than 1 hour.~~in accordance with Section 3007.8.1.

~~412.3.7.1~~412.3.5.1 Elevators for occupant evacuation. *No change to text.*

~~412.3.8~~412.3.6 Accessibility. Airport traffic control towers ~~need not~~shall be *accessible* except as specified in ~~the provisions of Chapter 11.~~Section 1104.4.

Reason: All of the proposed changes are the recommendation of the Air Traffic Control Tower Fire Life Safety Task Group, and reflect the current approach to fire protection and life safety in airport traffic control towers (ATCT). The fire safety criteria applicable to ATCTs are originally based on an agreement between the operator of and controllers utilizing the ATCTs. Many of the changes relate to providing extra protection for the controllers and fire service.
ATCTs create a unique hazard. ATCTs typically have a limited number of occupants. In addition, occupants must be awake and alert. The hazard associated with ATCTs is affected by the building's limited uses, height, and the potential delay in evacuation because of the handoff of flights.

The occupied levels of an ATCT are typically located at the top of the structure that typically contains support equipment and services but has limited occupancy. In addition, the area of ATCTs has been increasing, even though the number of floors located on top of the shaft is still typically limited.

Based on the previous revision to the ATCT section, all high-rise requirements were no longer applicable. The sections added are specifically chosen from a review of code requirements that are applicable to high rise buildings. The limited sections applied to ATCTs reflect the limited area of the ATCT, especially the shaft; communications protocol; power applications; construction methods; fire and ATCT shut down history; and that the typical locations of ATCT is in secluded areas.

Section 412.3.1 – The proposed revisions add a construction sub-section for ATCTs. This subsection would include the original requirement regarding construction types and also include proposed criteria for the structural integrity of interior exit stairways and elevator hoistway enclosures and sprayed fire-resistant materials in limited seismic circumstances.

Section 412.3.1.2 – The proposed revision provides additional protection for the controllers when egressing the facility. Adding structural integrity criteria to the exit enclosures provides additional protection in an occupancy where delayed evacuations may be required.

Section 412.3.1.3 – The proposed revision provides additional structural protection by increasing the minimum bond strengths for sprayed fire-resistant materials. This raises the minimum bond strength from 150 psf to 430 psf for all ATCTs, with additional increases based on the height of the ATCT. The proposed requirement provides additional protection of the structural frame where delayed evacuations may be required.

Section 412.3.2 – The proposed revisions add a means of egress subsection. This proposed subsection provides consistency in Section 412.3 by organizing the various ATCT requirements into subsections.

Section 412.3.3 – The proposed revisions add an emergency systems subsection which includes the existing automatic fire detections systems requirements. New provisions of this subsection would include fire command centers and smoke removal.

Section 412.3.3.1 – The terminology of this section was changed to match that of section 907.2.22 and IFC section 914.8.1. This section is referenced from IFC section 914.8.1.

Section 412.3.3.2 is proposed to provide a control location for fire fighter operations due to the unique aspects of fighting fires in ATCTs. It is proposed that the fire command center be located in either the tower footprint or the adjacent base building (where provided). The base building supports the tower operations and is built contiguous to the ATCT. The majority of the requirements were taken from Section 911 with a few exceptions. The emergency voice/alarm communication system and public address system controls were removed as ATCTs are not provided with these systems. The fire alarm control unit would be located in the fire command center and provide status indicators for all associated systems. Status indicators and controls for the air distribution system was also removed due to the limited HVAC system sizes provided in ATCTs. Generator supervision devices, manual start and transfer features were also removed as the fire alarm system will monitor the generator conditions. The requirement for elevator power selector switches was removed as ATCTs are typically designed with a single elevator.

Section 412.3.3.3 is proposed to provide a method to aid fire fighter and salvage operations and get the ATCT back to operational status faster. The addition of smoke removal will reduce the down time of the tower and provide a method to remove smoke in a structure that has many compartments.

Section 412.3.4.1 is proposed to provide additional protection for the fire pump and require a minimum of 2 hour fire resistance rated separations from surrounding areas. As

ATCTs are not considered a high-rise building, the 1-hour exception for fire pump room enclosures could be used. The intent of this section is to clarify that 2-hour separations should be provided for ATCTs.

Section 412.3.5 has been revised to address changes in code language to the 2015 Edition and reference appropriate criteria.

Section 412.3.6 is proposed to be revised due to confusion based on the wording of the current requirement. In some cases, the current wording has been taken to mean that accessibility requirements do not apply to ATCTs. The revision clarifies that ATCTs are required to be accessible except as exempted by Section 1104.4.

Cost Impact: Will increase the cost of construction
This code change will increase the cost of construction from the current code requirements; however, reflects building practices of ATCTs.

G 115-15 : 412.3-MORAN5043

G 116-15

412.3.4, 412.3.4.1, 412.3.4.2 (New)

Proponent: Christopher Moran, JENSEN HUGHES, representing Airport Traffic Control Tower Fire/Life Safety Technical Working Group (cmoran@haifire.com); Eric Rosenbaum, JENSEN HUGHES, representing Airport Traffic Control Tower Fire/Life Safety Technical Working Group

2015 International Building Code

412.3.4 Number of exits. Not less than one *exit stairway* shall be permitted for airport traffic control towers of any height provided that the *occupant load* per floor is not greater than 15 and the area per floor does not exceed 1,500 square feet (140 m^2).

412.3.4.1 Interior finish. Where an airport traffic control tower is provided with only one exit stairway, interior wall and ceiling finishes shall be either Class A or Class B.

Add new text as follows:

412.3.4.2 **Two exits or exit access doorways.** Where an airport traffic control tower is equipped throughout with an automatic sprinkler system in accordance with 903.3.1.1 and two exits are required, the exit separation distance required by Section 1007.1 shall be not less than one-fourth of the length of the maximum overall dimension of the area served.

Reason: The proposed change is the recommendation of the Air Traffic Control Tower Fire Life Safety Task Group. The fire safety criteria applicable to ATCTs are originally based on an agreement between the operator of and controllers utilizing the ATCTs.
ATCTs create a unique hazard. ATCTs typically have a limited number of occupants. In addition, occupants must be awake and alert. The hazard associated with ATCTs is affected by the building's limited uses, size and height.

The occupied levels of an ATCT are located at the top of the structure that typically contains support equipment and services but has limited occupancy. The lower levels of the ATCT are typically limited in size while the upper levels are larger in size. This means that towards the upper floors of the building where the structure flares out, the diagonal distance of the building increases. This flared space is used for equipment that serves air traffic control. Architectural analysis has shown that meeting the 1/3 diagonal distance separation requirement is possible by routing access to one of the two means of egress through an equipment room. It is this task group's judgment that an arrangement routing egress though an equipment room creates a larger risk than reducing the diagonal separation requirement. The limited area and layout of the normally unoccupied lower levels can make separation of the exit access by 1/3 of the diagonal of the floor plan difficult. This revision reduces the required separation distance of multiple exit ATCTs in ATCTs that are typically low in occupancy and size.

Cost Impact: Will not increase the cost of construction
This requirement does not require an additional exit but only provides greater flexibility for tower designs where space is limited.

G 116-15 : 412.3.4.2 (New)-MORAN5072

G 117-15

412.3.7, 909.20.6.1, [F] 913.2.2, (IFC 913.2.2), [F] 2702.3, 3007.8.1, 3008.8.1, Chapter 35

Proponent: Robert Davidson (rjd@davidsoncodeconcepts.com)

2015 International Building Code

Revise as follows:

412.3.7 Elevator protection. Wires or cables that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire detecting systems to elevators shall be protected by ~~construction having~~one of the following methods:

1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating* of not less than 1 hour~~, or~~.
2. Electrical circuit protective systems shall be ~~circuit integrity cable having~~tested in accordance with ASTM E 1725 and shall have a ~~fireresistance~~*fire-resistance rating* of not less than 1 hour. Electrical circuit protective systems shall be installed in accordance with their listing requirements.
3. Construction having a *fire-resistance rating* of not less than 1 hour.

909.20.6.1 Ventilation systems. Smokeproof enclosure ventilation systems shall be independent of other building ventilation systems. The equipment, control wiring, power wiring and ductwork shall comply with one of the following:

1. Equipment, control wiring, power wiring and ductwork shall be located exterior to the building and directly connected to the smokeproof enclosure or connected to the smokeproof enclosure by ductwork enclosed by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.
2. Equipment, control wiring, power wiring and ductwork shall be located within the smokeproof enclosure with intake or exhaust directly from and to the outside or through ductwork enclosed by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.
3. Equipment, control wiring, power wiring and ductwork shall be located within the building if separated from the remainder of the building, including other mechanical equipment, by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.

~~Exceptions~~Exception:

1. Control wiring and power wiring ~~utilizing~~located outside of a 2-hour ~~rated cable or cable system~~fire barrier construction shall be protected using any one of the following methods:

1.1 Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating* of not less than 2 hours.

1.2 Where encased with not less than 2 inches (51 mm) of concrete.

1.3 ~~Control wiring and power wiring protected by a listed electrical~~Electrical circuit protective ~~system~~systems tested in accordance with ASTM E 1725 and shall have a *fire-resistance rating* of not less than 2 hours. Electrical circuit protective systems shall be installed in accordance with their listing requirements.

[F] 913.2.2 Circuits supplying fire pumps. Cables used for survivability of circuits supplying fire pumps shall be protected using one of the following methods:

1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating* of not less than 1 hour.
2. Electrical circuit protective systems shall be tested in accordance with ASTM E 1725 and shall have a *fire-resistance rating* of not less than 1 hour. Electrical circuit protective systems shall be installed in accordance with their listing requirements.
3. Construction having a *fire-resistance rating* of not less than 1 hour.

[F] 2702.3 Critical circuits. Required critical circuits shall be protected using one of the following methods:

1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a fire-resistance rating of not less than 1 hour.
2. Electrical circuit protective systems shall be tested in accordance with ASTM E 1725 and shall have a *fire-resistance rating* of not less than 1 hour. Electrical circuit protective systems shall be installed in accordance with their listing requirements.
3. Construction having a *fire-resistance rating* of not less than 1 hour.

3007.8.1 Protection of wiring or cables. Wires or cables that are located outside of the elevator hoistway and machine room and that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire-detecting systems to fire service access elevators shall be protected ~~by construction having~~using one of the following methods:

1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating* of not less than 2 hours~~,~~.
2. Electrical circuit protective systems shall be ~~a circuit integrity cable having~~tested in accordance with ASTM E 1725 and shall have a *fire-resistance rating* of not less than 2 hours ~~or~~. Electrical circuit protective systems shall be ~~protected by a listed electrical protective system~~installed in accordance with their listing requirements.
3. Construction having a *fire-resistance rating* of not less than 2 hours.**E**

Exception: Wiring and cables to control signals are not required to be protected provided that wiring and cables do not serve Phase II emergency in-car operations.

3008.8.1 Protection of wiring or cables. Wires or cables that are located outside of the elevator hoistway, machine room, control room and control space and that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire-detecting systems to occupant ~~evactuation~~evacuation elevators shall be protected ~~by construction having~~ using one of the following methods:

1. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196 and shall have a *fire-resistance rating* ~~of not less than 2 hours, shall be circuit integrity cable having a fire-resistance rating of not less than 2 hours or shall be protected by a listed electrical circuit protective system having a *fire-resistance rating*~~ of not less than 2 hours.

2. Electrical circuit protective systems shall be tested in accordance with ASTM E 1725 and shall have a *fire-resistance rating* of not less than 2 hours. Electrical circuit protective systems shall be installed in accordance with their listing requirements.

3. Construction having a *fire-resistance rating* of not less than 2 hours.

Exception: Wiring and cables to control signals are not required to be protected provided that wiring and cables do not serve Phase II emergency in-car operation.

Add new standard(s) as follows: ADD NEW STANDARD TO CHAPTER 35:
ASTM E 1725 "STANDARD TEST METHODS FOR FIRE TESTS OF FIRE-RESISTIVE BARRIER SYSTEMS FOR ELECTRICAL SYSTEM COMPONENTS"

Reason: This series of code changes is intended to standardize the methods of protecting wiring or cables determined to be essential for the operation of systems and building services during emergency conditions. The basic intent of the code change proposals is already in the code, albeit somewhat random and inconsistent between sections. The change would permit protection of critical circuits using the most up to date technology based on current test methods while still recognizing the commonly used generic fire resistant materials constructed as an assembly already approved for use. Other than reformatting each section and adding a requirement for electrical circuit protective systems to be tested to the appropriate ASTM standard, there is no other significant change to what we believe is the intent of the code, and what the code already requires and/or permits.

Cost Impact: Will not increase the cost of construction
This code change will not increase the cost of construction since the intent of the code is not changed by this proposal.

Analysis: A review of the standard proposed for inclusion in the code, ASTM E 1725 "STANDARD TEST METHODS FOR FIRE TESTS OF FIRE-RESISTIVE BARRIER SYSTEMS FOR ELECTRICAL SYSTEM COMPONENTS", , with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

G 117-15 : 412.3.7-DAVIDSON4353

G 118-15

420.2

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org); Edward Kulik, Chair, Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

420.2 Separation walls. Walls separating *dwelling units* in the same building, walls separating *sleeping units* in the same building and walls separating *dwelling* or *sleeping units* from other occupancies contiguous to them in the same building shall be constructed as *fire partitions* in accordance with Section 708.

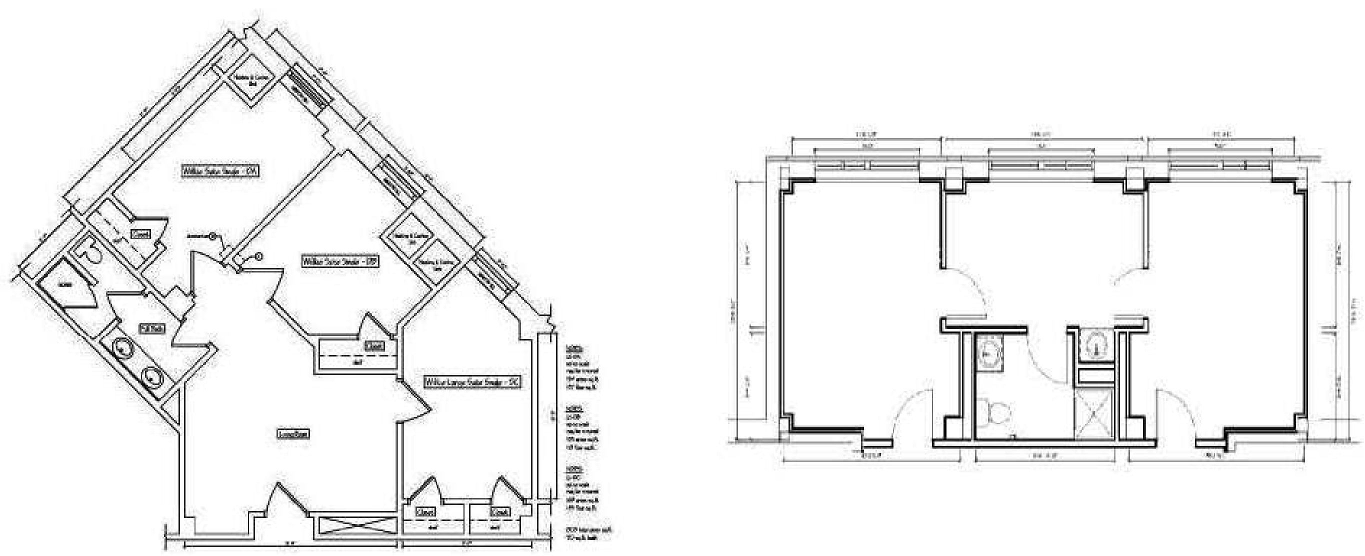
<u>Exceptions:</u>

1. <u>Where sleeping units include private bathrooms, walls between bedrooms and the associated private bathrooms are not required to be constructed as fire partitions.</u>
2. <u>Where sleeping units are constructed as suites, walls between bedrooms within the sleeping unit and the walls between the bedrooms and associated living spaces are not required to be constructed as fire partitions.</u>

Reason: There are two concerns related to separation – 1) suites within hotels, dormitories, and assisted living where a sleeping rooms may share a bathroom, or sleeping rooms may have associated living space, and 2) group homes that operate as a single family unit. There are separate proposals to deal with each. It is the intent for these proposals to work together. This proposal is for the suites.

Some hotel rooms, assisted living and dormitories are designed as suites (see examples below). In a hotel or assisted living space, common designs are one or two bedrooms a living space and private bath. In a dorm, common designs are two rooms with a private bath between; or three or four bedrooms with a living space and private bathrooms. These units act as a group similar to an apartment; and without a kitchen, the associated fire hazards are reduced. When these bedrooms are combined into suites, they should be considered as one unit for purposes of separation. A separation would still be required between these units and the common corridor.

Figures for CTC Care proposal to to Section 420 (6B)



This is part of a group of proposals to address this style of design and group homes within single family residences. Changes are proposed for the definition for sleeping units, the Group classifications in Section 310.4 and 310.5, separation requirements in Section 420, and coordination with accessibility requirements in Section 1107. Proposals will be put forward as part of Group B for fire and smoke alarm systems. The proposals could work separately.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
It is the committee's understanding that current language is not clear for where separations are required. In some cases this would be a reduction in separation requirements, and therefore a decrease in cost.

G 118-15 : 420.2 -BALDASSARRA4272

G 119-15

420.2, 420.3

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org); Edward Kulik, Chair, Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

SECTION 420
GROUPS I-1, R-1, R-2, R-3 AND R-4

420.1 General. Occupancies in Groups I-1, R-1, R-2, R-3 and R-4 shall comply with the provisions of Sections 420.1 through 420.6 and other applicable provisions of this code.

420.2 Separation walls. Walls separating *dwelling units* in the same building, walls separating *sleeping units* in the same building and walls separating *dwelling* or *sleeping units* from other occupancies contiguous to them in the same building shall be constructed as *fire partitions* in accordance with Section 708.

> **Exception:** In Group R-3 and Group R-4 facilities, walls within the dwelling unit or between sleeping unit are not required to be constructed as fire partitions.

420.3 Horizontal separation. Floor assemblies separating *dwelling units* in the same buildings, floor assemblies separating *sleeping units* in the same building and floor assemblies separating *dwelling* or *sleeping units* from other occupancies contiguous to them in the same building shall be constructed as *horizontal assemblies* in accordance with Section 711.

> **Exception:** In Group R-3 and R-4 facilities, floor assemblies within the dwelling or between sleeping units are not required to be constructed as horizontal assemblies.

Reason: There are two concerns related to separation – 1) suites within hotels, dormitories, and assisted living where a sleeping rooms may share a bathroom, or sleeping rooms may have associated living space, and 2) group homes that operate as a single family unit. There are separate proposals to deal with each. It is the intent for these proposals to work together. This proposal is for the Group R-3 and R-4.

Group R-4 group homes operate as a single family home. If these facilities are considered dwelling units or sleeping units is not consistently interpreted. Separation requirements would require bedrooms to be separated from each other and the corridor. Doors would have to be rated and have closers. This is not appropriate for this type of facility.

There have been a series of lawsuits against jurisdictions across the United States regarding enforcement of requirements for group homes that exceed the requirements for single family homes. This is being interpreted as a violation of the Fair Housing Act. The CTC committee reviewed the requirements for group homes in the codes to see where there were differences and if these differences were justified due to the level of care provided for the residents. In some limited situations, where there was a question for Group R-4 group homes, the same issue existing for Group R-3 congregate residences. For consistency in the code, these need to be considered together rather than separately. Therefore, this proposal is for both Group R-4 and Group R-3 congregate residences (both with 16 or fewer residents per Sections 310.5 and 310.6.)

This is part of a group of proposals to address this style of design and group homes within single family residences. Changes are proposed for the definition for sleeping units, the Group classifications in Section 310.4 and 310.5, separation requirements in Section 420, and coordination with accessibility requirements in Section 1107. Proposals will be put forward as part of Group B for fire and smoke alarm systems. The proposals could work separately.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
It is the committee's understanding that current language is not clear for where separations are required. In some cases this would be a reduction in separation requirements, and therefore a decrease in cost.

G 119-15 : 420.2 -BALDASSARRA4271

G 120-15

420.7 (New)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Add new text as follows:

420.7 Assisted living housing units. In Group I-1 occupancies, where a fire resistance corridor is provided, in areas where assisted living residents are housed, shared living spaces, group meeting or multipurpose therapeutic spaces open to the corridor shall be in accordance with all of the following criteria:

1. The walls and ceilings of the space are constructed as required for corridors.
2. The spaces are not occupied as resident sleeping rooms, treatment rooms, incidental uses in accordance with Section 509, or hazardous uses.
3. The open space is protected by an automatic fire detection system installed in accordance with Section 907.
4. In Group I-1, Condition 1, the corridors onto which the spaces open are protected by an automatic fire detection system installed in accordance with Section 907, or the spaces are equipped throughout with quick-response sprinklers in accordance with Section 903.3.2.
5. In Group I-1, Condition 2, the corridors onto which the spaces open, in the same smoke compartment, are protected by an automatic fire detection system installed in accordance with Section 907, or the smoke compartment in which the spaces are located is equipped throughout with quick-response sprinklers in accordance with Section 903.3.2.
6. The space is arranged so as not to obstruct access to the required exits.

Reason: The intent of the two proposals for a new Section 420.7 and 420.8 is to allow the same 'home style' environment for Group I-1 that is permitted to Sections 407.2.5 and 407.2.6 for Group I-2 nursing homes.
Section 420.7: This section allows similar open spaces to corridors as in Group I-2 with similar safeguards added from Group I-2 in Section 407. Prior to the 2015 IBC many assisted living and memory care were designed as Group I-2 which allows spaces open to corridors. Under the 2015 IBC Group I-1 can integrate intervening rooms from Chapter 10 and are not required to integrate corridors to serve sleeping units and dwelling units. It is only when the enclosed exit access component corridor is provided that the added protection features of corridors to be included. The issue is that there is a wide range of interpretation of if, when, and where corridors are required when showing typical "household" plans that most memory care and some assisted living are designed as. These plans typically are designed similar to a household where a bedroom opens directly to a living, dining, and activity area. A wide range of interpretation occurs despite the fact there is no intervening room limit for Group I-1 or corridor requirement for Group I-1. It is only Group I-2 that states that corridors are required to serve sleeping units in Section 407. This proposed section confirms that it is acceptable to use intervening rooms or these open spaces to corridor provisions in these care type settings.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will increase the cost of construction
This is an increase in cost for Group I-1 facilities that use this option, however, it will allow for greater freedom in design.

G 120-15 : 420.7 (New)-BALDASSARRA4292

G 121-15

420.7 (New), 420.7.1 (New), 420.7.2 (New)

Proponent: Adolf Zubia, representing IAFC Fire & Life Safety Section

2015 International Building Code

Add new text as follows:

420.7 Dormitory cooking facilties. Domestic cooking appliances for use by residents of Group R-2 college dormitories shall be in accordance with Sections 420.7.1 and 420.7.2.

420.7.1 Cooking appliances. Where located in Group R-2 college dormitories, domestic cooking appliances for use by residents shall be in compliance with all of the following:

1. The types of domestic cooking appliances shall be limited to ovens, cooktops, ranges, warmers, coffee makers and microwaves.
2. Domestic cooking appliances shall be limited to approved locations.
3. Cooktops and ranges shall be protected in accordance with Section 904.13.
4. Cooktops and ranges shall be provided with a domestic cooking hood installed and constructed in accordance with Section 505 of the *international Mechanical Code.*

420.7.2 Cooking appliances in sleeping rooms. Cooktops, ranges and ovens shall not be installed or used in sleeping rooms.

Reason: This proposal is submitted by Fire and Life Safety Section of the International Association of Fire Chiefs.
This proposal accomplishes the following:
1. There currently are no requirements in the IBC that regulate domestic cooking appliances for use by residents in Group R-2 college dormitories. This proposal includes basic requirements for the code official to follow in approving such installations.
2. Proposed Sections 420.7 and 420.7.1 include requirements that permit domestic cooking appliances in both common areas and sleeping rooms in college dormitories. It does not cover resident dwelling units in college campuses that are not classified as dormitories.
3. Section 420.7.1 covers domestic cooking appliances in common areas in college dormitories. The cooking appliances allowed are the same as those allowed in Section 407.2.6, Item 4 for Group I-2, Condition 1 occupancies.
4. Section 420.7.2 prohibits ovens, cooktops and ranges from being used in sleeping rooms. This reflects that fact that cooktops and ranges are the leading causes of fires in residential settings. For details see: http://www.iafc.org/files/1FIREPREV/flss_ResidentialRangeTopSafetyReport.pdf. This section does allow the use of other cooking appliances, such as microwaves and coffee makers, in sleeping rooms. However individual colleges may have more restrictive rules that prohibit some of these appliances from being used in their dormitories.

IFC/IBC Section 914.13 and 904.13.1 will be revised in the Group B code change cycle. The intent is to provide the same protection for domestic cooking appliances in R-2 college dormitories as currently provided in Group I-2, Condition 1 facilities. In essence a UL 300A fire-extinguishing system is required when a cooktop or range is provided. An automatic fire-extinguishing system is not required when only ovens, ranges, warmers, coffee makers or microwaves are provided. the revisions in Group B will be:

[F] 904.13 Domestic cooking systems ~~in Group I-2 Condition 1~~. Cooktops and ranges installed in the following occupancies shall be protected in accordance with Sections 904.13.1 through 904.13.2:
1. In Group I-2 Condition 1, occupancies where domestic cooking facilities are installed in accordance with Section 407.2.6 of the International Building Code,
2. In Group R-2 college dormitories where domestic cooking facilities are installed in accordance with Section 420.7. ~~the domestic cooking hood provided over the cooktop or range shall be equipped with an automatic fire-extinguishing system of a type recognized for protection of domestic cooking equipment. Preengineered automatic extinguishing systems shall be tested in accordance with UL 300A and listed and labeled for the intended application. The system shall be facilities are installed in accordance with this code, its listing and the manufacturer's instructions.~~

[F] 904.13.1 ~~Manual operation and interconnection~~ Automatic fire-extinguishing system. ~~Manual actuation and system interconnection shall be in accordance with Section 904.12.1 and 904.12.2, respectively.~~ The domestic cooking hood provided over the cooktop or range shall be equipped with an approved automatic fire-extinguishing system complying with the following:
1. The automatic fire-extinguishing system shall be of a type recognized for protection of domestic cooking equipment. Preengineered automatic fire-extinguishing systems shall be listed and labeled in accordance with UL 300A and installed in accordance with the manufacturer's instructions.
2. Manual actuation of the fire-extinguishing system shall be provided in accordance with Section 904.12.1.
3. Interconnection of the fuel and electric power supply shall be in accordance with Section 904.12.2.

Cost Impact: Will increase the cost of construction
This code change has the potential to increase the cost of construction due to the additional protection.

G 121-15 : 420.7 (New)-ZUBIA4622

G 122-15

420.7 (New)

Proponent: Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Add new text as follows:

420.7 Visual access The primary entrance door of individual units in dormitories, motels, hotels, apartment houses, condominiums, and vacation timeshare properties shall contain a means to allow the occupant to visually identify a visitor without unlatching the unit entry door.

Reason: The proposed new Section essentially requires a peephole or other type of door viewer, which provides an additional safety feature for occupants to determine if a hazard exists without exposing themselves to the hazard by opening the door.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction by requiring a peephole or other means of visual access through doors when such was not previously required.

G 122-15 : 420.7 (New)-DIGIOVANNI3825

G 123-15

420.8 (New), 420.8.1 (New), 420.9 (New)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technologies Committee (CTC@iccsafe.org)

2015 International Building Code

Add new text as follows:

420.8 Group I-1 cooking facilities. In Group I-1 occupancies rooms or spaces that contain a cooking facilities with domestic cooking appliances shall be in accordance with all the following criteria:

1. In Group I-1 Condition 1 occupancies, the number of care recipients served by one cooking facility shall not be greater than 30.
2. In Group I-1 Condition 2 occupancies, the number of care recipients served by one cooking facility and within the same smoke compartment shall not be greater than 30.
3. The types of domestic cooking appliances permitted shall be limited to ovens, cooktops, ranges, warmers and microwaves.
4. The space containing the domestic cooking facilities shall be arranges so as not to obstruct access to the required exit.
5. Domestic cooking hoods installed and constructed in accordance with Section 505 of the International Mechanical Code shall be provided over cooktops or ranges.
6. Cooktops and ranges shall be protected in accordance with Section 904.13.
7. A shut-off for the fuel and electrical supply to the cooking equipment shall be provided in a location that is accessible only to staff.
8. A timer shall be provided that automatically deactivates the cooking appliances within a period of not more than 120 minutes.
9. A portable fire extinguisher shall be provided. Installation shall be in accordance with Section 906 and the extinguisher shall be located within a 30-foot (9144 mm) distance of travel from each domestic cooking appliance.

420.8.1 Cooking facilities open to the corridor. Cooking facilities located in a room or space open to a corridor, aisle or common space shall comply with Section 420.8.

420.9 Group R cooking facilities. In Group R occupancies, cooking appliances used for domestic cooking operations shall be in accordance with Section 917.2 of the *International Mechanical Code.*

Reason: The intent of the two proposals for a new Section 420.7 and 420.8 is to allow the same 'home style' environment for Group I-1 that is permitted to Sections 407.2.5 and 407.2.6 for Group I-2 nursing homes.

Section 420.8 and 420.8.1: This additional protection feature requirement clarifies that kitchens in typical memory care neighborhood plans or assisted living neighborhood plans are allowed in contiguous spaces to rooms used for sleeping. This proposal then implements the additional protection features required in similar applications from Group I-2 as was approved for the 2015 IBC is Section 407.
Section 420.9: While Group R (other than Group R-4) outside the scope of the CTC Care study group, since Section 420 includes provisions for Group I-1 and R, it was felt that something had to be said regarding Group R cooking facilities following the provisions of Group I-1 cooking facilities. The intent of Section 420.9 is to allow for hotel rooms, assisted living suites, dorm suites, and small congregate residences to be allowed to use the provisions in the IMC for domestic cooking appliances. If the hotel or dormitory has a central restaurant or cafeteria, this section would not be applicable because it would be commercial cooking.
A correlative change to IFC Section 904.13 for installation of the cooking systems will be provided in Group B. Basically the Group I-1 will follow the same limits as the Group I-2, Condition 2. This proposal is coordinated with a proposal coming from FCAC and BCAC for Group I-2, Condition 1 cooking facilities.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will increase the cost of construction
This is an increase in cost for Group I-1 facilities that use this option, however, it will allow for greater freedom in design. Alternatively, requiring a commercial appliance and hood in place of the domestic appliance could be more costly. This should not be a change for domestic cooking appliances in Group R.

G 123-15 : 420.8 (New)-BALDASSARRA4912

G 124-15

202, 422.2, [F] 903.2.2 (IFC 903.2.2)

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

AMBULATORY CARE FACILITY. Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than 24-hour basis to persons who are rendered *incapable of self-preservation* by the services provided or staff has accepted responsibility for care recipients already incapable.

422.2 Separation. *Ambulatory care facilities* where the potential for four or more care recipients are to be *incapable of self-preservation* at any time, ~~whether rendered incapable by staff or staff accepted responsibility for a care recipient already incapable,~~ shall be separated from adjacent spaces, *corridors* or tenants with a *fire partition* installed in accordance with Section 708.

[F] 903.2.2 Ambulatory care facilities. An *automatic sprinkler system* shall be installed throughout the entire floor containing an *ambulatory care facility* where either of the following conditions exist at any time:

1. Four or more care recipients are incapable of self-preservation~~, whether rendered incapable by staff or staff has accepted responsibility for care recipients already incapable~~.
2. One or more care recipients that are incapable of self-preservation are located at other than the level of exit discharge serving such a facility.

In buildings where ambulatory care is provided on levels other than the *level of exit discharge*, an *automatic sprinkler system* shall be installed throughout the entire floor where such care is provided as well as all floors below, and all floors between the level of ambulatory care and the nearest *level of exit discharge*, including the *level of exit discharge*.

Reason: This proposal modifies the definition of the term ambulatory care facility. The current definition envisions typical scenarios for when a care facility might house a person who is incapable of self preservation. The definition does not capture people who are unexpectedly incapable of preservation, such as a person fainting in an office building. It does capture those facilitites who intend to render a patient incapable. The point was brought up in one of the previous cycles, what about those facilities that accept responsibility for patients who are incapable. For example, free standing emergency centers. A code change was approved that addressed this change when setting sprinkler requirements. The code change moves that accepted concept into the definition from the two locations where it is currently found.
The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This revision is a clarification. The proposal essentially moves text from the code to the defintion, therefore, this will not increase the construction.

G 124-15 : 422.2-WILLIAMS4168

G 125-15

422.6 (New), 604.2.1(IBC [F] 2702.2.1) (New)

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Building Code

Add new text as follows:

422.6 **Electrical systems** In *ambulatory care facilities*, the essential electrical system for electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of Chapter 27 and NFPA 99.

2015 International Fire Code

604.2.1(IBC [F] 2702.2.1) **Ambulatory care facilities.** Essential electrical systems fo*r ambulatory care facilities* shall be in accordance with Section 422.6 of the *International Building Code.*

Reason: The IBC currently has no direction on whether essential electrical systems (such as emergency generator) are required at ambulatory care facilities. This proposal adds the direction to go to NFPA 99, the Healthcare Facilities Code for that assessment. NFPA 99 provides a risk based approach to determine the need for an essential electrical system, what class system is required and general design requirements for each type of system.
The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will increase the cost of construction
The code change proposal will increase the cost of construction. Adding an essential electrical system will add the cost of a generator, as well as maintenance and testing over what is required currently in the IBC/IFC. However, any medicare certified ambulatory care facilities are required by federal CMS regulations to have this system, therefore, the cost of construction will not increase. Note that not all ambulatory care facilities are medicare certified.

G 125-15 : 422.6 (New)-WILLIAMS4166

G 126-15

424.1

Proponent: Marcelo Hirschler, representing GBH International (gbhint@aol.com)

2015 International Building Code

Revise as follows:

424.1 Children's play structures. Children's play structures installed inside all occupancies covered by this code that exceed 10 feet (3048 mm) in height ~~and~~ or 150 square feet (14 m^2) in area shall comply with Sections 424.2 through 424.5.

Reason: The intent of this code section is to protect children from exposure to fire in large play structures. Code officials have expressed a concern that there have been instances where suggested structures were proposed where one of the dimensions (width or height) was just slightly smaller than the cut off and the other one vastly exceeded the cut off. With the language requiring both dimensions to exceed the limits this may be interpreted that, as long as as one dimension does not exceed the limits the other dimension has no limits. That is not safe.
The change should clarify that there is a limitation on each dimension.

Cost Impact: Will increase the cost of construction
This will prevent the construction/installation of unsafe structures where one dimension is unlimited.

G 126-15 : 424.1-HIRSCHLER3519

G 127-15

427 (New), 427.1 (New)

Proponent: Lee Kranz, City of Bellevue, WA, representing Washington Association of Building Officials Technical Code Development Committee

2015 International Building Code

Add new text as follows:

SECTION 427
MEDICAL GAS SYSTEMS

427.1 Medical gas systems. Medical gas systems shall comply with Section 5306 of the *International Fire Code.*

Reason: Provisions for medical gas installations are currently found in Section 5306 of the IFC but many of the requirements for these installations require a building permit and should also be regulated from the IBC. There are no substantive changes proposed to the language found in the IFC. Examples of similar references to other codes and standards are found in Sections 425 & 916.

Cost Impact: Will not increase the cost of construction
Inserting a reference to the medical gas regulations currently found in the IFC will not change the cost of installation.

G 127-15 : 427 (New)-KRANZ3770

G 128-15

427.1 (New), 427.2 (New), 427.3 (New), 427.4 (New)

Proponent: William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org); Jason Thompson, Masonry Alliance for Codes and Standards, representing Masonry Alliance for Codes and Standards (jthompson@ncma.org); Stephen Skalko (svskalko@cox.net)

2015 International Building Code

Add new text as follows:

SECTION 427
HIGH RISK AREAS

427.1 General. The provisions of Sections 427.2 though 427.4 shall apply to buildings or structures classified as Risk Category II, III or IV where either of the following conditions exists:

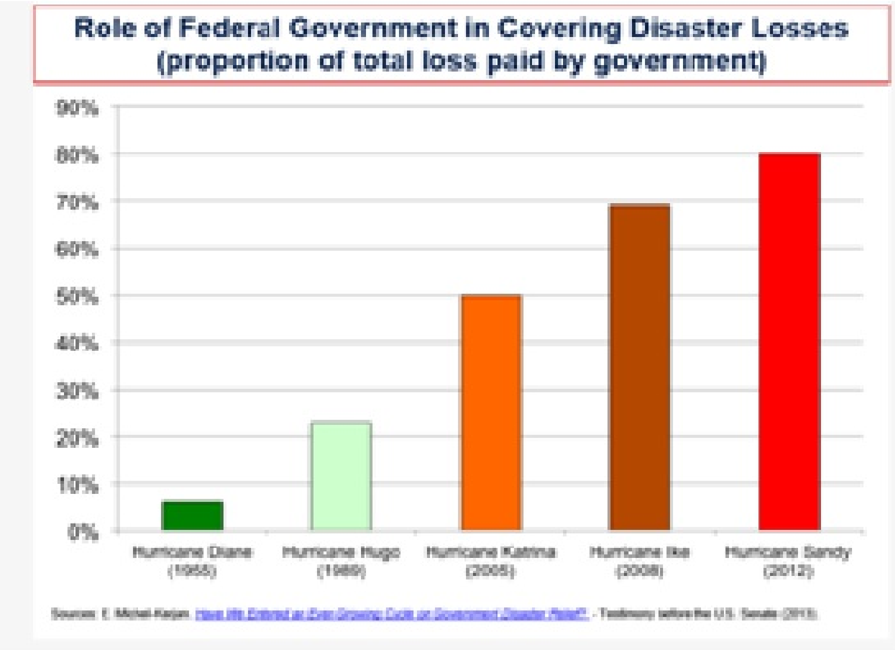
1. Located in Hurricane-Prone Regions
2. Assigned to Seismic Design Category C or greater.

427.2 Height in feet. The maximum height, in feet, of a building shall not exceed the limits specified in Table 504.3 for non-sprinklered (NS) buildings.

427.3 Number of stories. The maximum number of stories of a building shall not exceed the limits specified in Table 504.4 for non-sprinklered (NS) buildings.

427.4 Allowable area. The maximum allowable area of a building shall not exceed the limits specified in Table 506.2 for non-sprinklered (NS) buildings.

Reason: Natural disasters, in areas shown to be at high risk, continue to cost this nation billions of dollars each year in damaged and destroyed property, clean-up, lost revenue, displacement of residents, re-building efforts and more. 650,000 housing units were damaged or destroyed and 300,000 business properties in New York and New Jersey during Hurricane Sandy in 2012, while an estimated 7 million were without power. An estimated 80 Billion dollars in FEMA money will be spent solely on re-building and repair costs from just one storm. Katrina, in 2005 was more costly, with $81 billion in construction costs and over 1500 deaths directly associated with the storm.



Studies by National Oceanic Atmospheric Administration (NOAA) show the trends for hurricanes to be on the increase through the year 2100 and the probability of seismic activity continues to increase based on studies and new maps released by the United States Geological Surveys (USGS). Low lying areas in coastal communities are at high risk of storm surge flooding. During and after these major events, damage to infrastructure and utilities is enormous. Major roadways can be destroyed or roadways impassable due to flooding and in addition the affected areas will experience large scale loss of power, loss of water, gas line ruptures and fire. Damage from fires after a high wind event, earthquake or storm surge can be devastating in both residential and commercial properties. The captions below show conflagration results from Hurricane Sandy – 2012 in both commercial and residential areas.


Emergency service resources are limited at best after a natural disaster and non-existent while a hurricane passes. Fires are left to burn until either they burn out or become accessible and become a priority. A fire within a building, with combustible construction, without an operational sprinkler system, is not likely to be controlled without passive fire containment. As recently as August 2014, the Napa Valley, CA area experienced an earthquake which caused moderate damage but still sustained 16 fires after the event.


While the safety of fire sprinklers during normal times has a very good track record, the fact is: fire sprinklers will not work without a water supply and may not work without electrical service. During seismic and flooding events, water mains and electrical services are often damaged, electric fire pumps fail to operate, diesel fire pumps and emergency generators fail to operate if flooded, water pressure levels will be significantly lower from broken lines within the system, and exterior fire exposure from buildings without protection increases the risk of fire spread.

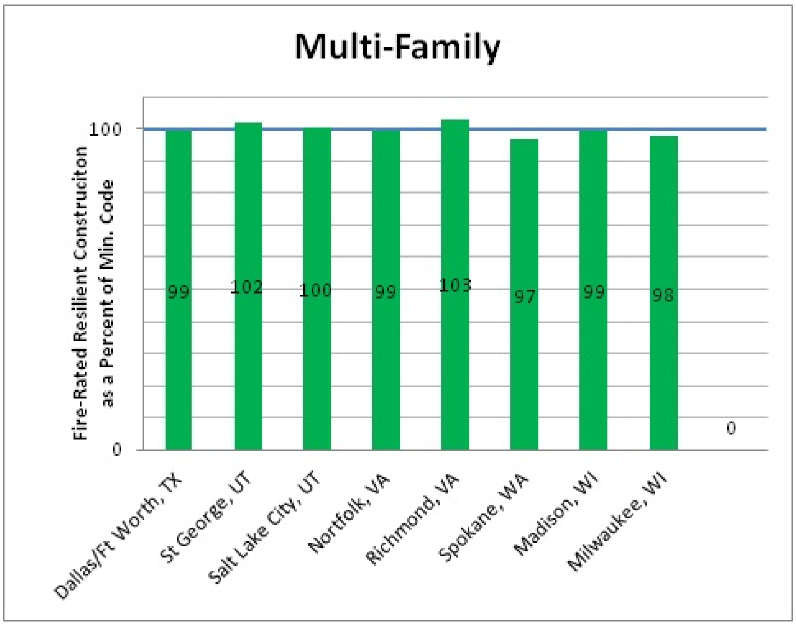
Aftermath of Hurricane Sandy

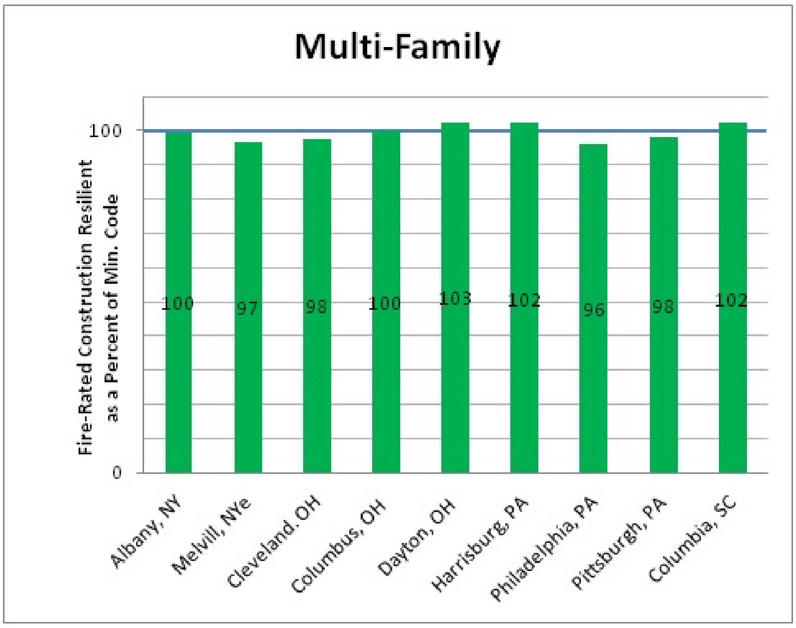
Even with clear evidence that sprinkler systems cannot be a reliable suppression source in high risk areas and historical evidence that natural disasters are increasing in number and severity, the building code still provides significant trade off incentives for sprinkler systems to allow buildings to be built bigger and higher while allowing reductions in passive fire protection. This code change recognizes that active fire protection during and after a natural disaster can not be relied upon to operate exposing structures to a level of fire protection that is dramatically less than the minimum intended by the building code. To assure a minimum level of fire protection consistent with the intent of the code following disasters, this change seeks to eliminate sprinkler trade-offs for height and area increases in high risk areas.

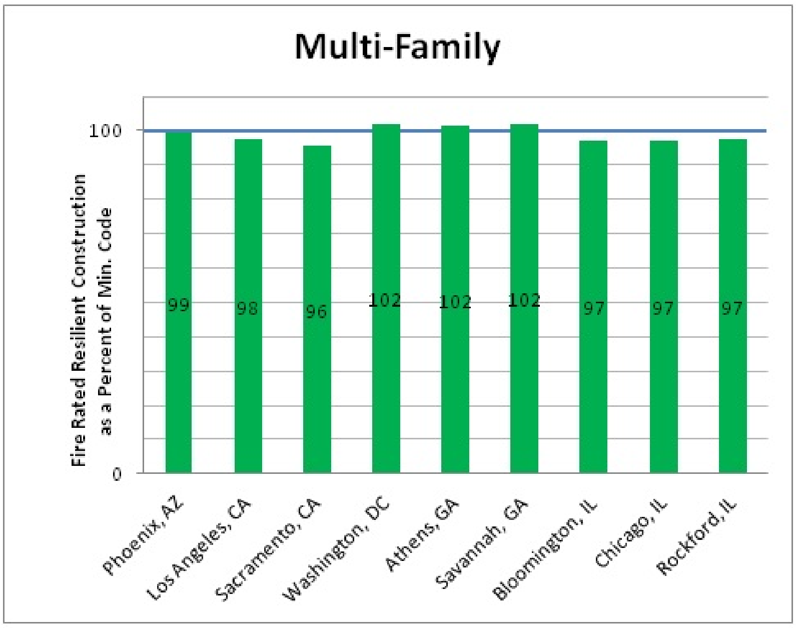
To accurately evaluate the relative construction cost it was determined that a multi-family residential structure should be schematically designed meeting all of the requirements of the International Building Code. Once designed, the buildings were reviewed for code compliance, and cost estimates would be prepared. The study was conducted by:
Architect & Engineer: Haas Architects Engineers1
Code Official: Tim E. Knisely2
Cost Estimation : Poole Anderson Construction3

The building model chosen for the project was a 4 story multi-family residential structure encompassing approximately 25,000 gross square feet of building area per floor. The cost comparisons are based on the proposed target building assembled using a typical mix of one and two bedroom dwelling units

The following construction types and alternates were included in the evaluation:
Conventional Type V framing with Type V floor system
Alternate: Conventional Type VA framing with Type VA floor system
Non-combustible framing with fire-rated non-combustible floors (concrete on steel deck)
Fire-rated load bearing non-combustible construction with fire rated non-combustible floor system (block and plank)
The cost estimate for each building model included the complete fit out of each building with the exception of movable appliances and furniture. For more details on the specific criteria visit: www.psfscac.org.


Multi-Family
Fire-Rated Resilient Construciton as a Percent of Min. Code
100
0
99
102
100
99
103
97
99
98
0
Dallas/Ft Worth, TX
St George, UT
Salt Lake City, UT
Norfolk, VA
Richmond, VA
Spokane, WA
Madison, WI
Milwaukee, WI


Multi-Family
Fire-Rated Construction Resilient as a Percent of Min. Code
100
0
100
97
98
100
103
102
96
98
102
Albany, NY
Melvill, NYe
Cleveland.OH
Columbus, OH
Dayton, OH
Harrisburg, PA
Philadelphia, PA
Pittsburgh, PA
Columbia, SC



1Haas Architects Engineers is a multi-disciplinary architectural and engineering firm located in State College, Pennsylvania with a thirty year history of client centered service including commercial, single and multi-family residential, retail, and sports based projects.
2Tim E. Knisely is a senior fire and commercial housing inspector for the Centre Region Code Administration, in State College, Pennsylvania. Mr. Knisely currently holds a certification as a registered Building Code Official in the Commonwealth of Pennsylvania and holds more than eight certifications from the International Code Council. In addition, Mr. Knisely has been involved in the fire service for
more than 20 years.
3Poole Anderson Construction is one of the largest building contractors in Central Pennsylvania with a 75 year history and an annual construction volume exceeding 60,000,000 dollars.

Bibliography: http://www.nytimes.com/2013/09/13/nyregion/fire-ravages-jersey-shore-boardwalk-rebuilt-after-hurricane-sandy.html?_r=0

http://www.cnn.com/2012/10/30/us/hurricane-sandy-color/index.html

Cost Impact: Will increase the cost of construction
To evaluate the cost impact for every occupancy and use, type of construction and building configuration is excessively burdensome for any proposed code change. In an effort to satisfy the request in the code development process that construction type determined by the proponent to be influence by cost was evaluated to the most significant cost potential impacts relative to this proposal, rectangular 4-story Type V multi-family dwellings. The independent third party studies indicate that the cost differential ranges between minus 3% to plus 3% for the most significant cost impact associated with the code change proposal which typically shifted the design from Type V construction to other Types of construction.

See reasoning statement

G 128-15 : 427 (New)-HALL5371

G 129-15

503.1

Proponent: Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com)

2015 International Building Code

Revise as follows:

503.1 General. Unless otherwise specifically modified in Chapter 4 and this chapter, *building height*, number of stories and *building area* shall not exceed the limits specified in Sections 504 and 506 based on the type of construction as determined by Section 602 and the occupancies as determined by Section 302 except as modified hereafter. *Building height*, number of stories and *building* area provisions shall be applied independently. Each portion of a building separated by one or more *fire walls* complying with Section 706 shall be considered to be a separate building. Buildings shall not cross lot lines.

Reason: No where in the code has any mention that buildings should not be crossing the property lines. Although this has been an obvious understanding and practice, there are still some designers that take the advantage of absence of this statement and claim that the code does not disallow this practice.

Cost Impact: Will not increase the cost of construction
This Code proposal does not increase the cost of construction.

G 129-15 : 503.1-MAIEL4490

G 130-15

503.1, 706.1

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

503.1 General. Unless otherwise specifically modified in Chapter 4 and this chapter, *building height*, number of stories and *building area* shall not exceed the limits specified in Sections 504 and 506 based on the type of construction as determined by Section 602 and the occupancies as determined by Section 302 except as modified hereafter. *Building height*, number of stories and *building* area provisions shall be applied independently. ~~Each~~For the purposes of determining area limitations, height limitations and type of construction, each portion of a building separated by one or more *fire walls* complying with Section 706 shall be considered to be a separate building.

706.1 General. ~~Each portion of a building separated by one or more *fire*~~ *Fire walls* ~~that comply with the provisions of this section~~ shall be ~~considered a separate building~~constructed in accordance with Sections 706.2 through 706.11. The extent and location of such *fire walls* shall provide a complete separation. Where a *fire wall* separates occupancies that are required to be separated by a *fire barrier* wall, the most restrictive requirements of each separation shall apply.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
The purpose of this proposal is to clarify the intent of the these sections of the Code that the requirement for a fire wall in Sections 503.1 and 706.1 is predicated on the determination of the maximum allowable height and area calculations under Chapter 5. Using these sections of Code to control other building features or elements such as means of egress, building systems or building utilities is not intended or implied by these sections of the Code. However, by inclusion of the first sentence in Section 706.1 some code officials have incorrectly interpreted that language to mean that the portions of the various elements and systems on each side of a fire wall must be completely self-contained. There are no requirements in the I Codes that mandate that the placement of fire walls to create a separate building such that its building features need to be separated from other like building features in adjacent buildings. The scope of Section 706 is to provide the technical requirements for the construction of a fire wall.

The added language in Section 503.1 along with the strikeout and added language in Section 706.1 will clarify application of these two sections.

Cost Impact: Will not increase the cost of construction
The cost of construction will be reduced by eliminating incorrect application of Section 706.1.

G 130-15 : 503.1-KULIK4966

G 131-15

503.1.4 (New), 1004.5

Proponent: Lee Kranz, City of Bellevue, WA, representing City of Bellevue, Washington

2015 International Building Code

Add new text as follows:

503.1.4 Occupied roofs. For the purposes of Tables 504.3 and 504.4, occupancies are permitted on roofs where the occupancy is permitted on the story immediately below. The area to be used as an occupied roof shall comply with the allowable area limitations of Table 506.2 for the intended occupancy.

> **Exception:** Occupied roofs are not required to comply with Tables 504.3 and 504.4 where located on buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and fire alarm notification in accordance with Section 907 is provided in the area of the occupied roof.

Revise as follows:

1004.5 Outdoor areas. *Yards*, patios, *courts*, occupied roofs, and similar outdoor areas accessible to and usable by the building occupants shall be provided with *means of egress* as required by this chapter. The *occupant load* of such outdoor areas shall be assigned by the *building official* in accordance with the anticipated use. Where outdoor areas are to be used by persons in addition to the occupants of the building, and the path of egress travel from the outdoor areas passes through the building, *means of egress* requirements for the building shall be based on the sum of the *occupant loads* of the building plus the outdoor areas.

Exceptions:

1. Outdoor areas used exclusively for service of the building need only have one *means of egress*.
2. Both outdoor areas associated with Group R-3 and individual dwelling units of Group R-2.

Reason: Occupied roofs host different occupancy groups but most often consist of Groups A and B. Means of egress, accessibility, structural design, access to plumbing fixtures and guardrails are already addressed in the code and must be provided for occupants utilizing the area of an occupied roof. Type of construction limitations based on occupancy classification are not currently addressed in the code for occupied roofs because an occupied roof in not considered to be a story, as defined in the code. If approved, this code change will clarify that occupied roofs are limited to the roof level of the highest story per Tables 504.3 and 504.4 for the applicable occupancy and must comply with the limitations of Table 506.2 for the area of the roof to be occupied even though it is not considered to be a "story".
The proposed exception allows occupied roofs to be located on any story and at any height in a building protected with an automatic sprinkler system throughout and with fire alarm notification in the area of the occupied roof. The exception is appropriate since smoke will not accumulate on an occupied roof as it does inside the building and there is an added level of protection provided by the sprinkler and fire alarm systems.

"Occupied roofs" is proposed to be added to Section 1004.5 to clairfy that they shall be provided with means of egress as required by Chapter 10.

Cost Impact: Will increase the cost of construction
This code change will require additional cost due to a new requirement to install sprinkler protection and fire alarm notification in some cases to accommodate an occupied roof on a building that may not otherwise require these systems.

G 131-15 : 503.1.4 (New)-KRANZ3867

G 132-15

503.1.2.1 (New)

Proponent: Victor Cuevas, representing City of Los Angeles (victor.cuevas@lacity.org)

2015 International Building Code

Add new text as follows:

503.1.2.1 Buildings on same property and buildings containing courts. For the purposes of determining the required wall and opening protection and roof-covering requirements, buildings on the same property and court walls of buildings over one story in height shall be assumed to have a propertly line between them.

Reason: For the purpose of life –safety and fire protection, it's important to establish opening limitations for courts.

Cost Impact: Will increase the cost of construction
The code change proposal increases construction cost where the separation between the assumed propertly line and the building facade will require fire resistant construction.

G 132-15 : 503.1.2.1 (New)-CUEVAS4647

G 133-15

TABLE 504.3, TABLE 504.4, TABLE 506.2, TABLE 803.11, 1006.2.2.6 (New), TABLE 1017.2, TABLE 1020.1; (IFC, TABLE 1006.2.1, 1006.2.2, 1006.2.2.6 (New), TABLE 1017.2, TABLE 1020.1)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org); Edward Kulik, Chair Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

TABLE 504.3
ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE [a]

OCCUPANCY CLASSIFICATION	TYPE OF CONSTRUCTION									
	SEE FOOTNOTES	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A, B, E, F, M, S, U	NS[b]	UL	160	65	55	65	55	65	50	40
	S	UL	180	85	75	85	75	85	70	60
H-1, H-2, H-3, H-5	NS[c, d]	UL	160	65	55	65	55	65	50	40
	S									
H-4	NS[c, d]	UL	160	65	55	65	55	65	50	40
	S	UL	180	85	75	85	75	85	70	60
I-1 Condition 1, I-3	NS[d, e]	UL	160	65	55	65	55	65	50	40
	S	UL	180	85	75	85	75	85	70	60
I-1 Condition 2, I-2	NS[d, f, e]	UL	160	65	55	65	55	65	50	40
	S	UL	180	85						
I-4	NS[d, g]	UL	160	65	55	65	55	65	50	40
	S	UL	180	85	75	85	75	85	70	60
R[h]	NS[~~d, h~~]	UL	160	65	55	65	55	65	50	40
	S13D	60	60	60	60	60	60	60	50	40
	S13R	60	60	60	60	60	60	60	60	60
	S	UL	180	85	75	85	75	85	70	60

For SI: 1 foot = 304.8 mm.

Note: UL = Unlimited; NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.

a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.

b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.

c. New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.

d. The NS value is only for use in evaluation of existing building height in accordance with the *International Existing Building Code*.

e. New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies Condition 1, see Exception 1 of Section 903.2.6.

f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and Section 1103.5 of the *International Fire Code*.

g. For new Group I-4 occupancies, see Exceptions 2 and 3 of Section 903.2.6.

h. New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.

TABLE 504.4
ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE [a, b]

OCCUPANCY CLASSIFICATION	TYPE OF CONSTRUCTION									
	SEE FOOTNOTES	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A-1	NS	UL	5	3	2	3	2	3	2	1
	S	UL	6	4	3	4	3	4	3	2
A-2	NS	UL	11	3	2	3	2	3	2	1
	S	UL	12	4	3	4	3	4	3	2
A-3	NS	UL	11	3	2	3	2	3	2	1
	S	UL	12	4	3	4	3	4	3	2
A-4	NS	UL	11	3	2	3	2	3	2	1
	S	UL	12	4	3	4	3	4	3	2
A-5	NS	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S	UL	UL	UL	UL	UL	UL	UL	UL	UL
B	NS	UL	11	5	3	5	3	5	3	2
	S	UL	12	6	4	6	4	6	4	3
E	NS	UL	5	3	2	3	2	3	1	1
	S	UL	6	4	3	4	3	4	2	2
F-1	NS	UL	11	4	2	3	2	4	2	1
	S	UL	12	5	3	4	3	5	3	2
F-2	NS	UL	11	5	3	4	3	5	3	2
	S	UL	12	6	4	5	4	6	4	3
H-1	NS[c, d]	1	1	1	1	1	1	1	1	NP
	S									
H-2	NS[c, d]	UL	3	2	1	2	1	2	1	1
	S									
H-3	NS[c, d]	UL	6	4	2	4	2	4	2	1
	S									
H-4	NS[c, d]	UL	7	5	3	5	3	5	3	2
	S	UL	8	6	4	6	4	6	4	3
H-5	NS[c, d]	4	4	3	3	3	3	3	3	2

	S									
I-1 Condition 1	NS[d, e]	UL	9	4	3	4	3	4	3	2
	S	UL	10	5	4	5	4	5	4	3
I-1 Condition 2	NS[d, e]	UL	9	4	3	4	3	4	3	2
	S	UL	10	5						
I-2	NS[d, f]	UL	4	2	1	1	NP	1	1	NP
	S	UL	5	3						
I-3	NS[d, e]	UL	4	2	1	2	1	2	2	1
	S	UL	5	3	2	3	2	3	3	2
I-4	NS[d, g]	UL	5	3	2	3	2	3	1	1
	S	UL	6	4	3	4	3	4	2	2
M	NS	UL	11	4	2	4	2	4	3	1
	S	UL	12	5	3	5	3	5	4	2

OCCUPANCY CLASSIFICATION	TYPE OF CONSTRUCTION									
	SEE FOOTNOTES	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
R-1[h]	NS[d, ~~h~~]	UL	11	4	4	4	4	4	3	2
	S13R	4	4						4	3
	S	UL	12	5	5	5	5	5	4	3
R-2[h]	NS[d, ~~h~~]	UL	11	4	4	4	4	4	3	2
	S13R	4	4	4					4	3
	S	UL	12	5	5	5	5	5	4	3
R-3[h]	NS[d, ~~h~~]	UL	11	4	4	4	4	4	3	3
	S13D	4	4						3	3
	S13R	4	4						4	4
	S	UL	12	5	5	5	5	5	4	4
R-4[h]	NS[d, ~~h~~]	UL	11	4	4	4	4	4	3	2
	S13D	4	4						3	2
	S13R	4	4						4	3
	S	UL	12	5	5	5	5	5	4	3
S-1	NS	UL	11	4	2	3	2	4	3	1
	S	UL	12	5	3	4	3	5	4	2

S-2	NS	UL	11	5	3	4	3	4	4	2
	S	UL	12	6	4	5	4	5	5	3
U	NS	UL	5	4	2	3	2	4	2	1
	S	UL	6	5	3	4	3	5	3	2

Note: UL = Unlimited; NP = Not Permitted; NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.

a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.

b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.

c. New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.

d. The NS value is only for use in evaluation of existing building height in accordance with the *International Existing Building Code.*

e. New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies, Condition 1, see Exception 1 of Section 903.2.6.

f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and Section 1103.5 of the *International Fire Code.*

g. For new Group I-4 occupancies, see Exceptions 2 and 3 of Section 903.2.6.

h. New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.

TABLE 506.2
ALLOWABLE AREA FACTOR (A_t = NS, S1, S13R, or SM, as applicable) IN SQUARE FEET [a, b]

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A-1	NS	UL	UL	15,500	8,500	14,000	8,500	15,000	11,500	5,500
	S1	UL	UL	62,000	34,000	56,000	34,000	60,000	46,000	22,000
	SM	UL	UL	46,500	25,500	42,000	25,500	45,000	34,500	16,500
A-2	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
A-3	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
A-4	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
A-5	NS	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S1									
	SM									
B	NS	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
	S1	UL	UL	150,000	92,000	114,000	76,000	144,000	72,000	36,000

	SM	UL	UL	112,500	69,000	85,500	57,000	108,000	54,000	27,000
E	NS	UL	UL	26,500	14,500	23,500	14,500	25,500	18,500	9.500
	S1	UL	UL	106,000	58,000	94,000	58,000	102,000	74,000	38,000
	SM	UL	UL	79,500	43,500	70,500	43,500	76,500	55,500	28,500
F-1	NS	UL	UL	25,000	15,500	19,000	12,000	33,500	14,000	8.500
	S1	UL	UL	100,000	62,000	76,000	48,000	134,000	56,000	34,000
	SM	UL	UL	75,000	46,500	57,000	36,000	100,500	42,000	25,500
F-2	NS	UL	UL	37,500	23,000	28,500	18,000	50,500	21,000	13,000
	S1	UL	UL	150,000	92,000	114,000	72,000	202,000	84,000	52,000
	SM	UL	UL	112,500	69,000	85,500	54,000	151,500	63,000	39,000
H-1	NS[c]	21,000	16,500	11,000	7,000	9.500	7,000	10,500	7,500	NP
	S1									
H-2	NS[c]	21,000	16,500	11,000	7,000	9.500	7,000	10,500	7,500	3,000
	S1									
	SM									
H-3	NS[c]	UL	60,000	26,500	14,000	17,500	13,000	25,500	10,000	5,000
	S1									
	SM									
H-4	NS[c, d]	UL	UL	37,500	17,500	28,500	17,500	36,000	18,000	6,500
	S1	UL	UL	150,000	70,000	114,000	70,000	144,000	72,000	26,000
	SM	UL	UL	112,500	52,500	85,500	52,500	108,000	54,000	19,500
H-5	NS[c, d]	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
	S1	UL	UL	150,000	92,000	114,000	76,000	144,000	72,000	36,000
	SM	UL	UL	112,500	69,000	85,500	57,000	108000	54,000	27,000

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
I-1	NS[d, e]	UL	55,000	19,000	10,000	16,500	10,000	18,000	10,500	4,500
	S1	UL	220,000	76,000	40,000	66,000	40,000	72,000	42,000	18,000
	SM	UL	165,000	57,000	30,000	49,500	30,000	54,000	31,500	13,500
I-2	NS[d, f]	UL	UL	15,000	11,000	12,000	NP	12,000	9,500	NP
	S1	UL	UL	60,000	44,000	48,000	NP	48,000	38,000	NP
	SM	UL	UL	45,000	33,000	36,000	NP	36,000	28,500	NP

I-3	NS[d, e]	UL	UL	15,000	10,000	10,500	7,500	12,000	7,500	5,000
	S1	UL	UL	45,000	40,000	42,000	30,000	48,000	30,000	20,000
	SM	UL	UL	45,000	30,000	31,500	22,500	36,000	22,500	15,000
I-4	NS[d, g]	UL	60.500	26,500	13,000	23,500	13,000	25,500	18,500	9,000
	S1	UL	121,000	106,000	52,000	94,000	52,000	102,000	74,000	36,000
	SM	UL	181,500	79,500	39,000	70,500	39,000	76,500	55,500	27,000
M	NS	UL	UL	21,500	12,500	18,500	12,500	20,500	14,000	9,000
	S1	UL	UL	86,000	50,000	74,000	50,000	82,000	56,000	36,000
	SM	UL	UL	64,500	37,500	55,500	37,500	61,500	42,000	27,000
R-1 [h]	NS[d~~, h~~]	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
	S13R									
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
R-2[h]	NS[d~~, h~~]	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
	S13R									
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
R-3[h]	NS[d~~, h~~]	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S13D									
	S13R									
	S1									
	SM									
R-4[h]	NS[d~~, h~~]	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
	S13D									
	S13R									
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
S-1	NS	UL	48,000	26,000	17,500	26,000	17,500	25,500	14,000	9,000
	S1	UL	192,000	104,000	70,000	104,000	70,000	102,000	56,000	36,000
	SM	UL	144,000	78,000	52,500	78,000	52,500	76,500	42,000	27,000
S-2	NS	UL	79,000	39,000	26,000	39,000	26,000	38,500	21,000	13,500
	S1	UL	316,000	156,000	104,000	156,000	104,000	154,000	84,000	54,000
	SM	UL	237,000	117,000	78,000	117,000	78,000	115,500	63,000	40,500

U	NS	UL	35,500	19,000	8,500	14,000	8,500	18,000	9,000	5,500
	S1	UL	142,000	76,000	34,000	56,000	34,000	72,000	36,000	22,000
	SM	UL	106,500	57,000	25,500	42,000	25,500	54,000	27,000	16,500

Note: UL = Unlimited; NP = Not permitted;

For SI: 1 square foot = 0.0929 m^2.

NS = Buildings not equipped throughout with an automatic sprinkler system; S1 = Buildings a maximum of one story above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; SM = Buildings two or more stories above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.

a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.

b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.

c. New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.

d. The NS value is only for use in evaluation of existing building area in accordance with the *International Existing Building Code.*

e. New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies, Condition 1, see Exception 1 of Section 903.2.6.

f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and Section 1103.5 of the *International Fire Code.*

g. New Group I-4 occupancies see Exceptions 2 and 3 of Section 903.2.6.

h. New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.

TABLE 803.11

INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY[k]

GROUP	**SPRINKLERED[l]**			**NONSPRINKLERED**		
	Interior exit stairways, interior exit ramps and exit passageways[a, b]	**Corridors and enclosure for exit access stairways and exit access ramps**	**Rooms and enclosed spaces[c]**	**Interior exit stairways, interior exit ramps and exit passageways[a, b]**	**Corridors and enclosure for exit access stairways and exit access ramps**	**Rooms and enclosed spaces[c]**
A-1 & A-2	B	B	C	A	A[d]	B[e]
A-3[f] , A-4, A-5	B	B	C	A	A[d]	C
B, E, M, R-1	B	C	C	A	B	C
R-4[m]	B	C	C	A	B	B
F	C	C	C	B	C	C
H	B	B	C[g]	A	A	B
I-1	B	C	C	A	B	B
I-2	B	B	B[h, i]	A	A	B
I-3	A	A[j]	C	A	A	B
I-4	B	B	B[h, i]	A	A	B
R-2	C	C	C	B	B	C
R-3[m]	C	C	C	C	C	C
S	C	C	C	B	B	C
U	No restrictions			No restrictions		

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929m^2 .

a. Class C interior finish materials shall be permitted for wainscotting or paneling of not more than 1,000 square feet of applied surface area in the grade lobby where applied directly to a noncombustible base or over furring strips applied to a noncombustible base and fireblocked as required by Section 803.13.1.

b. In other than Group I-3 occupancies in buildings less than three stories above grade plane, Class B interior finish for nonsprinklered buildings and Class C interior finish for sprinklered buildings shall be permitted in interior exit stairways and ramps.

c. Requirements for rooms and enclosed spaces shall be based upon spaces enclosed by partitions. Where a fire-resistance rating is required for structural elements, the enclosing partitions shall extend from the floor to the ceiling. Partitions that do not comply with this shall be considered enclosing spaces and the rooms or spaces on both sides shall be considered one. In determining the applicable requirements for rooms and enclosed spaces, the specific occupancy thereof shall be the governing factor regardless of the group classification of the building or structure.

d. Lobby areas in Group A-1, A-2 and A-3 occupancies shall not be less than Class B materials.

e. Class C interior finish materials shall be permitted in places of assembly with an occupant load of 300 persons or less.

f. For places of religious worship, wood used for ornamental purposes, trusses, paneling or chancel furnishing shall be permitted.

g. Class B material is required where the building exceeds two stories.

h. Class C interior finish materials shall be permitted in administrative spaces.

i. Class C interior finish materials shall be permitted in rooms with a capacity of four persons or less.

j. Class B materials shall be permitted as wainscotting extending not more than 48 inches above the finished floor in corridors and exit access stairways and ramps.

k. Finish materials as provided for in other sections of this code.

l. Applies when protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

m. Where Group R-3 and R-4 occupancies are permitted in Section 903.2.8 to be protected by an automatic sprinkler system installed in accordance with Section 903.3.1.3 the requirements for a non-sprinklered building shall apply.

TABLE 1006.2.1
SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

OCCUPANCY	MAXIMUM OCCUPANT LOAD OF SPACE	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)		
		Without Sprinkler System (feet)		With Sprinkler System (feet)
		Occupant Load		
		OL ≤ 30	OL 30	
A[c] , E, M	49	75	75	75[a]
B	49	100	75	100[a]
F	49	75	75	100[a]
H-1, H-2, H-3	3	NP	NP	25[b]
H-4, H-5	10	NP	NP	75[b]
I-1, I-2[d] , I-4	10	NP	NP	75[a]
I-3	10	NP	NP	100[a]
R-1	10	NP	NP	75[a]
R-2	10	NP	NP	125[a]
R-3[e]	10	NP	NP	125[a, g]
R-4[e]	10	~~75~~ NP	~~75~~NP	125[a, g]
S[f]	29	100	75	100[a]
U	49	100	75	75[a]

For SI: 1 foot = 304.8 mm.

NP = Not Permitted

a. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where *automatic sprinkler systems* are permitted in accordance with Section 903.3.1.2.

b. Group H occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.5.

c. For a room or space used for assembly purposes having *fixed seating*, see Section 1029.8.

d. For the travel distance limitations in Group I-2, see Section 407.4.

e. The length of *common path of egress travel* distance in a Group R-3 occupancy located in a mixed occupancy building or within a Group R-3 or R-4 *congregate living facility*.

f. The length of *common path of egress travel* distance in a Group S-2 *open parking garage* shall be not more than 100 feet.

g. For the travel distance limitations in Group R-3 and R-4 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3, see Section 1006.2.2.6.

1006.2.2 Egress based on use. The numbers of *exits* or access to *exits* shall be provided in the uses described in Sections 1006.2.2.1 through ~~1006.2.2.5~~1006.2.2.6.

Add new text as follows:

1006.2.2.6 Group R-3 and R-4. Where Group R-3 occupancies are permitted by Section 903.2.8 to be protected by an automatic sprinkler system installed in accordance with Section 903.3.1.3, the exit access travel distance for Group R-3 shall not be more than 125 feet. Where Group R-4 occupancies are permitted by Section 903.2.8 to be protected by an automatic sprinkler system installed in accordance with Section 903.3.1.3, the exit access travel distance for Group R-4 shall not be more than 75 feet.

TABLE 1017.2
EXIT ACCESS TRAVEL DISTANCE[a]

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
A, E, F-1, M, R, S-1	200[e]	250[b]
I-1	Not Permitted	250[b]
B	200	300[c]
F-2, S-2, U	300	400[c]
H-1	Not Permitted	75[d]
H-2	Not Permitted	100[d]
H-3	Not Permitted	150[d]
H-4	Not Permitted	175[d]
H-5	Not Permitted	200[c]
I-2, I-3, I-4	Not Permitted	200[c]

For SI: 1 foot = 304.8 mm.

a. See the following sections for modifications to *exit access* travel distance requirements:

Section 402.8: For the distance limitation in malls.

Section 404.9: For the distance limitation through an atrium space.

Section 407.4: For the distance limitation in Group I-2.

Sections 408.6.1 and 408.8.1: For the distance limitations in Group I-3.

Section 411.4: For the distance limitation in special amusement buildings.

Section 412.7: For the distance limitations in aircraft manufacturing facilities.

Section 1006.2.2.2: For the distance limitation in refrigeration machinery rooms.

Section 1006.2.2.3: For the distance limitation in refrigerated rooms and spaces.

Section 1006.3.2: For buildings with one exit.

Section 1017.2.2: For increased distance limitation in Groups F-1 and S-1.

Section 1029.7: For increased limitation in assembly seating.

Section 3103.4: For temporary structures.

Section 3104.9: For pedestrian walkways.

b. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where *automatic sprinkler systems* are permitted in accordance with Section 903.3.1.2.

c. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

d. Group H occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.5.1.

e. Group R-3 and R-4 buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3. See Section 903.2.8 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.3.

TABLE 1020.1
CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (hours)	
		Without sprinkler system	With sprinkler system[c]
H-1, H-2, H-3	All	Not Permitted	1
H-4, H-5	Greater than 30	Not Permitted	1
A, B, E, F, M, S, U	Greater than 30	1	0
R	Greater than 10	~~Not Permitted~~ 1[d]	0.5
I-2[a] , I-4	All	Not Permitted	0
I-1, I-3	All	Not Permitted	1[b]

a. For requirements for occupancies in Group I-2, see Sections 407.2 and 407.3.

b. For a reduction in the *fire-resistance rating* for occupancies in Group I-3, see Section 408.8.

c. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2 where allowed.

d. Group R-3 and R-4 buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3. See Section 903.2.8 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.3.

Reason:
The current tables do not include any requirement for Group R-3 and R-4 occupancies that are permitted to use a NFPA 13D systems. Saying just use the non-sprinklered requirements does not work because in some cases that is allowing a taller building then a building with an NFPA13R system.
This is NOT asking for ANY tradeoffs for an NFPA13D system. The provisions applied are always the MOST RESTRICTIVE of what is permitted for a non-sprinklered building or a building using an NFPA13R system.
There have been a series of lawsuits against jurisdictions across the United States regarding enforcement of requirements for group homes that exceed the requirements for single family homes. This is being interpreted as a violation of the Fair Housing Act. The CTC committee reviewed the requirements for group homes in the codes to see where there were differences and if these differences were justified due to the level of care provided for the residents. In some limited situations, where there was a question for Group R-4 group homes, the same issue existing for Group R-3 congregate residences. For consistency in the code, these need to be considered together rather than separately. Therefore, this proposal is for both Group R-4 and Group R-3 congregate residences (both with 16 or fewer residents per Sections 310.5 and 310.6.)
The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This is a clarification of the code, therefore, there will not be an increase in cost.

G 133-15 : T504.3-BALDASSARRA4275

G 134-15

504.4

Proponent: Jay Hyde, representing Sacramento Valley Association of Building Officials (jhyde@mognot.com)

2015 International Building Code

Revise as follows:

504.4 Number of stories. The maximum number of stories of a building shall not exceed the limits specified in Table 504.4. For the purposes of determining the allowable number of stories, an occupied roof shall not be considered a story.

Reason: An occupied roof does not have side walls or a floor or roof above. Products of Combustion, such as smoke or hot gasses will not be trapped endangering the occupants. In adition, an occupied roof would not contribute appreciably to the fuel load of the building. This clarification makes it clear that the story limits for a given occupancy in a building of a given construction type apply to a story as defined by Chapter 2 and that an occupied roof may be above the top story with out violating the story limits of Table 504.4.

Cost Impact: Will not increase the cost of construction
May decrease the cost of construction by not requiring that a construction type be increased due to the location of an occupied roof.

G 134-15 : 504.4-HYDE5273

G 135-15

Section 504.5 (New)

Proponent: Stephen Skalko, representing Masonry Alliance for Codes and Standards (svskalko@cox.net)

2015 International Building Code

Add new text as follows:

Section 504.5 **Fire apparatus access roads** Not less than two fire apparatus access roads shall be provided for buildings of Type III, IV or V construction that are four or more stories in height. The fire apparatus access roads shall comply with Section 503 of the *International Fire Code.* The termination point of the fire apparatus access roads on the building site shall be placed a distance apart not less than one-third of the length of the maximum overall diagonal dimension of the building or area to be served, as measured in a straight line.

Reason: As buildings of Type III, IV and V construction are being built to taller heights as allowed in Tables 504.3 and 504.4 of the code, they are representing a significant challenge for the fire service in responding to and attempting to extinguish or control the burning of the combustible structure, especially at the higher elevations. In addition, these buildings of combustible material necessitate response by larger numbers of fire fighters and fire apparatus. This is evident by the fires that have occurred in recent years for buildings of combustible framing under construction.
A recent example is a major fire in Los Angeles with five stories of wood framing over a two story concrete podium on December 8, 2014. The apartment building known as the DaVinci required more than 250 firefighters to be dispatched to the scene. Access to parts of the building under fire was limited by the site layout.

Other recent large combustible framed building that experienced fires also presented significant challenges for the fire service include:

1. Monroe Apartments, Portland, OR August 8,2013
2. Student Apartments, Kingston, Ontario, CAN December 17, 2013
3. 550 East and 500 South, Salt Lake City, UT February 9, 2014
4. Commercial Building, Roxbury, MA, March 3, 2014
5. Mission Bay Project, San Francisco, CA March 11, 2014
6. Axis Apartments, Houston, TX , March 25, 2014
7. Beacon Street,Boston, MA March 27, 20t4
8. Gables Upper Rock, Rockville, MD Apri , 2014
9. SE Tech Cente rDrive, Vancouver, WA, June 19, 2014
10. Victoria Commons, Kitchener, Ontario, CAN, July 22, 2014
11. Apollo Way,Madison, WI August 8, 2014

This proposal will require at least two fire apparatus access roads be provided for these taller buildings of combustible construction to assist the fire service in responding to and possibly gaining early control of the fire. To insure reasonable remoteness of the location of these access roads on site they are being required to be placed a distance equal to 1/3 the overall diagonal of the building similar to criteria for remoteness of exits and exit access in Section 1007.1.1.

Cost Impact: Will increase the cost of construction
This proposal is expected to increase the cost of construction due to the additional fire apparatus access roads required on site. This increased cost however is necessary to reduce the risk of damage to adjacent properties due to fire exposure and provide the fire service with improved access for firefighting response to these taller buildings of combustible construction.

G 135-15 : 504.5 (New)-SKALKO5797

G 136-15

505.2

Proponent: Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

505.2 Mezzanines. A *mezzanine* or *mezzanines* in compliance with Section 505.2 shall be considered a portion of the *story* below. Such *mezzanines* shall not contribute to either the *building area* or number of *stories* as regulated by Section 503.1. The area of the *mezzanine* shall be included in determining the *fire area*. The clear height above and below the *mezzanine* floor construction shall be not less than 7 feet 6 inches (2286 mm).

Exception: The clear height above and below the mezzanine shall not be less than 7 feet (2134 mm) where occupant loads are equal to or less than those shown in Table 1006.2.1.

Reason: Mezzanines are grouped with equipment platforms in the code. This is consistent with the thought that mezzanines are primarily small areas for equipment or storage. However the size of the mezzanine is only limited by the area of the floor below; larger floor plates allow larger mezzanines. The code encourages the use of large mezzanines since they do not count as stories and do not contribute to building area. The occupancy group of mezzanines is also not limited. As a consequence of these two conditions the code allows large occupancy loads in mezzanines. Greater occupancy loads increases evacuation times. Section 1208.2 dictates a minimum ceiling height of 7'-6" for occupiable spaces, habitable spaces and corridors.
Section 1003.2 requires the clear height of a means of egress be at least 7-6" with some exceptions. One exception being a mezzanine designed in accordance with Section 505. By limiting the occupant loads to those shown in Table 1006.2.1 for the threshold at which additional means of egress would be required would reduce any potential risk of endangering occupant in a fire event.

Cost Impact: Will increase the cost of construction
For larger mezzanines, this proposal will increase the cost of construction by requiring taller ceiling heights than are currently required by code.

G 136-15 : 505.2-DIGIOVANNI3826

G 137-15

505.2.1, 505.2.1.1 (New), 505.3.1

Proponent: Maureen Traxler, City of Seattle Dept of Planning & Development, representing Washington Association of Building Officials Technical Code Development Committee (maureen.traxler@seattle.gov)

2015 International Building Code

Revise as follows:

505.2.1 Area limitation. The aggregate area of a *mezzanine* or *mezzanines* within a room shall be not greater than one-third of the floor area of that room or space in which they are located. The enclosed portion of a room shall not be included in a determination of the floor area of the room in which the *mezzanine* is located. In determining the allowable *mezzanine* area, the area of the *mezzanine* shall not be included in the floor area of the room.

~~Where a room contains both a *mezzanine* and an *equipment platform*, the aggregate area of the two raised floor levels shall be not greater than two-thirds of the floor area of that room or space in which they are located.~~

Exceptions:

1. The aggregate area of *mezzanines* in buildings and structures of Type I or II construction for special industrial occupancies in accordance with Section 503.1.1 shall be not greater than two-thirds of the floor area of the room.
2. The aggregate area of *mezzanines* in buildings and structures of Type I or II construction shall be not greater than one-half of the floor area of the room in buildings and structures equipped throughout with an *approved automatic sprinkler system* in accordance with Section 903.3.1.1 and an *approved emergency voice/alarm communication system* in accordance with Section 907.5.2.2.

505.2.1.1 Aggregate area of mezzanines and equipment platforms Where a room contains both a mezzanine and an equipment platform, the aggregate area of the two raised floor levels shall be not greater than two-thirds of the floor area of that room or space in which they are located. The area of the mezzanine shall not exceed the area determined according to Section 505.2.1

505.3.1 Area limitation. The aggregate area of all *equipment platforms* within a room shall be not greater than two-thirds of the area of the room in which they are located. Where an *equipment platform* is located in the same room as a *mezzanine*, the area of the *mezzanine* shall be determined by Section 505.2.1 and the combined aggregate area of the *equipment platforms* and *mezzanines* shall be not greater than two-thirds of the room in which they are located. The area of the mezzanine shall not exceed the area determined according to Section 505.2.1.

Reason: The current language states that, when a mezzanine and an equipment platform are located in the same room, their total area can be 2/3 the area of the room. This language allows mezzanines to be larger than is intended by the code. For example, it allows a room to have a small equipment platform with an area 1% the size of the room and a large mezzanine with an area 65% the size of the room.
The statement that the mezzanine's area is determined by Section 505.2.1 doesn't quite solve the problem because the same language about aggregating the area appears there, too. We propose putting the provisions related to aggregate area of mezzanines and platforms into a new subsection 505.2.1.1 to allow us to refer to the base language about mezzanine area separately. No change to the Section 505.2.1 exceptions is proposed; they are merely moved so they stay with the base language about area of mezzanines.

Cost Impact: Will not increase the cost of construction
This proposal is a clarification of existing code provisions and will not increase the cost of construction.

G 137-15 : 505.2.1-TRAXLER4267

G 138-15

505.2.1

Proponent: Marshall Klein, representing NMHC

2015 International Building Code

Revise as follows:

505.2.1 Area limitation. The aggregate area of a *mezzanine* or *mezzanines* within a room shall be not greater than one-third of the floor area of that room or space in which they are located. The enclosed portion of a room shall not be included in a determination of the floor area of the room in which the *mezzanine* is located. In determining the allowable *mezzanine* area, the area of the *mezzanine* shall not be included in the floor area of the room.

Where a room contains both a *mezzanine* and an *equipment platform*, the aggregate area of the two raised floor levels shall be not greater than two-thirds of the floor area of that room or space in which they are located.

Exceptions:

1. The aggregate area of *mezzanines* in buildings and structures of Type I or II construction for special industrial occupancies in accordance with Section 503.1.1 shall be not greater than two-thirds of the floor area of the room.
2. The aggregate area of *mezzanines* in buildings and structures of Type I or II construction shall be not greater than one-half of the floor area of the room in buildings and structures equipped throughout with an *approved automatic sprinkler system* in accordance with Section 903.3.1.1 and an *approved emergency voice/alarm communication system* in accordance with Section 907.5.2.2.
3. <u>The aggregate area of a *mezzanine* within a *dwelling unit* that is located in a building equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 shall not be greater than one-half of the floor area of the room, provided:</u>
   3.1. <u>The *mezzanine*, other than enclosed closets and bathrooms, shall be open to the room in which such *mezzanine* is located.</u>
   3.2. <u>The opening to the room shall be unobstructed except for walls not more than 42 inches (1067 mm) in height, columns and posts, and</u>
   3.3. <u>Exceptions to Section 505.2.3 shall not be permitted.</u>

Reason: Currently, Section 505.2.3 permits mezzanines with an occupant load of 10 or less to be entirely enclosed, with an enclosed area up to 1/3 of the area of the room in which the mezzanine is located. This proposal provides an option to forfeit a fully enclosed mezzanine to gain an allowable area up to 1/2 of the room area. From a safety perspective, having the mezzanine open to the space below provides increased awareness for occupants in either area to a hazardous condition that develops within the space. The proposed slight increase in mezzanine area is reasonable based on the increase in safety associated with not allowing the entire mezzanine to be enclosed.

Cost Impact: Will not increase the cost of construction
Because this proposal simply provides an optional exception, there is no impact on the cost of construction unless someone chooses to apply the exception. Where the exception is applied, the cost of construction will presumably decrease based on eliminating the wall that might have otherwise been installed to separate the mezzanine from the room.

G 138-15 : 505.2.1-KLEIN4533

G 139-15

505.2.3

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

505.2.3 Openness. A *mezzanine* shall be open and unobstructed to the room in which such *mezzanine* is located except for walls not more than 42 inches (1067 mm) in height, columns and posts.

Exceptions:

1. *Mezzanines* or portions thereof are not required to be open to the room in which the *mezzanines* are located, provided that the *occupant load* of the aggregate area of the enclosed space is not greater than 10.
2. A *mezzanine* having two or more exits or access to exits is not required to be open to the room in which the *mezzanine* is located.
3. *Mezzanines* or portions thereof are not required to be open to the room in which the *mezzanines* are located, provided that the aggregate floor area of the enclosed space is not greater than 10 percent of the *mezzanine* area.
4. In industrial facilities, *mezzanines* used for control equipment are permitted to be glazed on all sides.
5. In occupancies other than Groups H and I, that are no more than two *stories* above *grade plane* and equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, a *mezzanine* having two or more ~~*means of egress*~~exits or access to exits shall not be required to be open to the room in which the *mezzanine* is located.

Reason: The intent of this proposal is to revise Exception 5 to be consistent with the terminology in Exception 2.
In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled Unenclosed Exit Stairs. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal is a clarification of provisions.

G 139-15 : 505.2.3-KULIK3642

G 140-15

506.1.4 (New)

Proponent: Vickie Lovell, InterCode Incorporated, representing Fire Safe North America (vickie@intercodeinc.com)

2015 International Building Code

Add new text as follows:

506.1.4 **Allowable area for buildings in disaster prone regions.** For buildings more than one story in height above grade plane that are of construction Types IIB, IIIB and VB, the maximum allowable area shall not be greater than the area permitted for non-sprinklered (NS) buildings in accordance with Table 506.2, adjusted for any frontage increase in accordance with 506.3 and where such buildings are any of the following:

1. Assigned to Seismic Design Category C or D in Table 1613.3.5(1).
2. Located in a flood hazard area established in accordance with Section 1612.3.
3. Located in a hurricane-prone region.

Reason: The purpose of this code change is to reduce the total reliance of a community and its firefighters on sprinkler systems in disaster-prone areas of the country where the water supply and/or power may be interrupted, or are likely to have municipal water system operation issues. This proposal is a very conservative proposal to promote community resiliency by limiting the footprint of multi-story buildings that have no vertical fire compartmentation to that which would be allowed for non-sprinklered buildings. The Type IIB, IIIB, and VB buildings may have a fully involved fire in a very short amount of time in the event that water supplies for sprinklers are reduced or impaired after a natural catastrophe. Such water supply interruptions are not uncommon after natural disasters. For non-rated multi-story buildings, meaning buildings that have no fire resistance rated floors, fire may spread freely and quickly from story to story. Limiting the per-floor area of Type IIB, IIB, and VB buildings is intended to result in protecting buildings in areas at high risk for natural catastrophes the most essential combustible buildings and facilities with both sprinkler protection and increased fire resistance rated vertical compartmentation. This proposal may be fairly considered to be the proverbial "belt-and suspenders" approach. If one were to fail, the other protection method would provide an added layer of protection that would serve to prevent a life safety disaster.
The 2012 IBC Sections 504.2 and 506.3 had specific allowable increases that were permitted when automatic sprinkler systems were installed. Those allowances have been incorporated into Tables 504.3 and Table 504.4 as S1 and SM. Such allowable area increases permitted by the code assumed that power and water supply will be readily available and reliable for the successful operation of fire suppression systems. This is especially true for combustible construction such as Types IIB, IIIB and VB, and also for non-combustible construction without any vertical compartmentation. For some parts of the country where buildings impacted by a natural disaster may remain without reliable water and or power for a considerable period of time, that general assumption may not be an acceptable risk. It may also be an unacceptable risk to assume that firefighters will be able to respond at their normal efficiencies.

Responding to the challenge of mitigating damage from natural disasters, California has more stringent requirements on buildings they have designated as "high-risk ". But more than 15% of the U.S. population lives in potential major earthquake areas. 41 states and territories have moderate to high risk. There is a real likelihood of power and water supplies being interrupted following a major seismic event, along with the potential for multiple simultaneous structure fires and also uncontrollable building-to-building fire spread. In October 17, 1989, a 7.1 earthquake in Santa Cruz Mountains was responsible for 26 fires in San Francisco, 60 miles from epicenter. There were 67 documented breaks in water mains which effectively eliminated water pressure in the area. In January 19, 1994, a 6.8 earthquake centered in Northridge, CA. There were approximately 100 fire ignitions, 30 to 50 of those were considered significant. The main cause of fire was largely due to natural gas leaks. Additionally, the water supply systems in the area were damaged causing low pressure in water distribution. On January 17, 1995, a 6.8 (approx.) earthquake near Kobe, Japan caused 90 fires to start within minutes. 85 spread to adjacent buildings and 10 approached or reached conflagration status. 1,700 water line breaks occurred within a couple of hours. There were 7,000 buildings destroyed by fire alone. Similar data of increased fire incidents are available in hurricane and flood prone regions. History has shown that increased incidents of fires after a disaster can be more destructive to life and property than the disaster itself.

This change is limited in its application to multi-story buildings without any vertical fire compartmentation in the higher risk, disaster prone regions defined by the code. There may be some types of combustible materials of these buildings that should appropriately be exempted from this area limitation.

Cost Impact: Will increase the cost of construction
This code change proposal will increase the cost of construction for some building types.

G 140-15 : 506.1.4 (New)-LOVELL5295

G 141-15

TABLE 506.2

Proponent: Vickie Lovell, InterCode Incorporated, representing National Greenhouse Manufacturers Association (vickie@intercodeinc.com)

TABLE 506.2
ALLOWABLE AREA FACTOR (A_t = NS, S1, S13R, or SM, as applicable) IN SQUARE FEET [a, b]

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A-1	NS	UL	UL	15,500	8,500	14,000	8,500	15,000	11,500	5,500
	S1	UL	UL	62,000	34,000	56,000	34,000	60,000	46,000	22,000
	SM	UL	UL	46,500	25,500	42,000	25,500	45,000	34,500	16,500
A-2	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
A-3	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
A-4	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
A-5	NS S1 SM	UL	UL	UL	UL	UL	UL	UL	UL	UL
B	NS	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
	S1	UL	UL	150,000	92,000	114,000	76,000	144,000	72,000	36,000
	SM	UL	UL	112,500	69,000	85,500	57,000	108,000	54,000	27,000
E	NS	UL	UL	26,500	14,500	23,500	14,500	25,500	18,500	9.500
	S1	UL	UL	106,000	58,000	94,000	58,000	102,000	74,000	38,000
	SM	UL	UL	79,500	43,500	70,500	43,500	76,500	55,500	28,500
F-1	NS	UL	UL	25,000	15,500	19,000	12,000	33,500	14,000	8.500
	S1	UL	UL	100,000	62,000	76,000	48,000	134,000	56,000	34,000
	SM	UL	UL	75,000	46,500	57,000	36,000	100,500	42,000	25,500
F-2	NS	UL	UL	37,500	23,000	28,500	18,000	50,500	21,000	13,000
	S1	UL	UL	150,000	92,000	114,000	72,000	202,000	84,000	52,000

	SM	UL	UL	112,500	69,000	85,500	54,000	151,500	63,000	39,000
H-1	NS[c]	21,000	16,500	11,000	7,000	9.500	7,000	10,500	7,500	NP
	S1									
H-2	NS[c]	21,000	16,500	11,000	7,000	9.500	7,000	10,500	7,500	3,000
	S1									
	SM									
H-3	NS[c]	UL	60,000	26,500	14,000	17,500	13,000	25,500	10,000	5,000
	S1									
	SM									
H-4	NS[c, d]	UL	UL	37,500	17,500	28,500	17,500	36,000	18,000	6,500
	S1	UL	UL	150,000	70,000	114,000	70,000	144,000	72,000	26,000
	SM	UL	UL	112,500	52,500	85,500	52,500	108,000	54,000	19,500
H-5	NS[c, d]	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
	S1	UL	UL	150,000	92,000	114,000	76,000	144,000	72,000	36,000
	SM	UL	UL	112,500	69,000	85,500	57,000	108000	54,000	27,000

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
I-1	NS[d, e]	UL	55,000	19,000	10,000	16,500	10,000	18,000	10,500	4,500
	S1	UL	220,000	76,000	40,000	66,000	40,000	72,000	42,000	18,000
	SM	UL	165,000	57,000	30,000	49,500	30,000	54,000	31,500	13,500
I-2	NS[d, f]	UL	UL	15,000	11,000	12,000	NP	12,000	9,500	NP
	S1	UL	UL	60,000	44,000	48,000	NP	48,000	38,000	NP
	SM	UL	UL	45,000	33,000	36,000	NP	36,000	28,500	NP
I-3	NS[d, e]	UL	UL	15,000	10,000	10,500	7,500	12,000	7,500	5,000
	S1	UL	UL	45,000	40,000	42,000	30,000	48,000	30,000	20,000
	SM	UL	UL	45,000	30,000	31,500	22,500	36,000	22,500	15,000
I-4	NS[d, g]	UL	60.500	26,500	13,000	23,500	13,000	25,500	18,500	9,000
	S1	UL	121,000	106,000	52,000	94,000	52,000	102,000	74,000	36,000
	SM	UL	181,500	79,500	39,000	70,500	39,000	76,500	55,500	27,000
M	NS	UL	UL	21,500	12,500	18,500	12,500	20,500	14,000	9,000
	S1	UL	UL	86,000	50,000	74,000	50,000	82,000	56,000	36,000

	SM	UL	UL	64,500	37,500	55,500	37,500	61,500	42,000	27,000
R-1	NS[d, h]	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
	S13R									
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
R-2	NS[d, h]	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
	S13R									
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
R-3	NS[d, h]	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S13R									
	S1									
	SM									
R-4	NS[d, h]	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
	S13R									
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
S-1	NS	UL	48,000	26,000	17,500	26,000	17,500	25,500	14,000	9,000
	S1	UL	192,000	104,000	70,000	104,000	70,000	102,000	56,000	36,000
	SM	UL	144,000	78,000	52,500	78,000	52,500	76,500	42,000	27,000
S-2	NS	UL	79,000	39,000	26,000	39,000	26,000	38,500	21,000	13,500
	S1	UL	316,000	156,000	104,000	156,000	104,000	154,000	84,000	54,000
	SM	UL	237,000	117,000	78,000	117,000	78,000	115,500	63,000	40,500
U	NS[i]	UL	35,500	19,000	8,500	14,000	8,500	18,000	9,000	5,500
	S1	UL	142,000	76,000	34,000	56,000	34,000	72,000	36,000	22,000
	SM	UL	106,500	57,000	25,500	42,000	25,500	54,000	27,000	16,500

Note: UL = Unlimited; NP = Not permitted;

For SI: 1 square foot = 0.0929 m^2.

NS = Buildings not equipped throughout with an automatic sprinkler system; S1 = Buildings a maximum of one story above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; SM = Buildings two or more stories above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2.

a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.

b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.

c. New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.

d. The NS value is only for use in evaluation of existing building area in accordance with the *International Existing Building Code.*

e. New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies, Condition 1, see Exception 1 of Section 903.2.6.

f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and Section 1103.5 of the *International Fire Code.*

g. New Group I-4 occupancies see Exceptions 2 and 3 of Section 903.2.6.

h. New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.

i. The maximum allowable area for a single story non-sprinklered Group U greenhouse is permitted to be 9,000 sq. ft., or shall be permitted to comply with Table C102.1 of Appendix C in this code.

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Reason: The primary function of a greenhouse is to create a controlled environment for the propagation and cultivation of plants, and is intended to achieve the optimum environment for the protection of the plants from the outside environment. Many typical building requirements intended for human comfort, health, safety and welfare are not applicable or necessary for the construction or operation of greenhouses. The majority of commercial greenhouses are truly agricultural structures and classified as Group U. Nearly all greenhouses are built as Type VB (NS) construction. This purpose of this proposal increases the maximum allowable area of single story Group U greenhouses (NS) from 5,500 to 9,000. The allowable area for other structures in use Group U would remain unchanged.

Appendix C of the IBC permits 12,000 sq. ft. of allowable area for ALL Group U structures, including greenhouses.

The IBC currently permits a minimum allowable area of 9,000 sq. ft. for non-sprinklered, Type VB greenhouses classified as Group B, E, M or F-2 (which could have significant occupant load due to access by the public). Using a determination based on "equivalent risk" described in the preface pages of the IBC on page xi, "equivalent risk involves three interdependent considerations: (1) the level of fire hazard associated with the specific occupancy of the facility; (2) the reduction of fire hazard by limiting the floor area(s) and the height of the building based on the fuel load (combustible contents and burnable building components) and (3) the level of overall fire resistance provided by the type of construction used for the building. The greater the potential fire hazards indicated as a function of the group, the lesser the height and area allowances for a particular construction type." Therefore, it would be difficult to justify why a Group U greenhouse should be permitted less allowable area than an identical greenhouse permitted as Group B, E, F-2 or M. This proposal permits a Group U greenhouse to have the same allowable area as other use groups when there is no increased risk.

Cost Impact: Will not increase the cost of construction
There is no cost impact related to this proposal because the code already permits the allowable area to be more than 5,500 sq. ft. in greenhouses.

G 141-15 : T506.2-LOVELL4414

G 142-15

506.3, 506.3.1

Proponent: William Hall, representing Portland Cement Association (jhall@cement.org)

2015 International Building Code

Revise as follows:

506.3 Frontage increase. Every building shall adjoin or have access to a public way to receive an area factor increase based on frontage. ~~Area~~ Buildings four stories or more in height, as measured from the grade plane, of Type III and V construction, using combustible framing material shall also not have less than 25 percent of its perimenter on a public way or open space. Such open space shall be either on the same lot or dedicated for public use and shall be accessed from a street or approved fire lane. The area factor increase shall be determined in accordance with Sections 506.3.1 through 506.3.3.

506.3.1 Minimum percentage of perimeter. To qualify for an area factor increase based on frontage, a building shall have not less than 25 percent of its perimeter on a public way or open space. Such open space shall be either on the same lot or dedicated for public use and shall be accessed from a street or approved fire lane. Open space for buildings four or more stories in height as measured from the grade plane, of Type III and V construction, using combustible framing material shall have a grade of not more than 10 percent and be provided with a *fire apparatus access road in* accordance with Section 503 of the *International Fire Code* for full length of open space. Open space that is not used for open perimeter area increases are not required to provide fire apparatus access roads or 10 percent grade.

Reason: Fires during construction have been on the increase across the U.S and other countries which utilize combustible construction in multi-story buildings. The intensity of these fires put adjacent buildings, businesses and residents at risk until the project is complete, which can take up to 2 years to complete or more if the project stalls. These fires are caused by a multitude of reasons including but not limited to arson, smoking, cooking, heating and hot work. Fire service, even in large well equipped jurisdictions cannot effectively stop these conflagrations and most of these incidents end in total loss of the building under construction as well as damaged or destroyed adjacent buildings. Many times adjacent buildings are at risk due to the extreme heat, flying embers and wind speeds, as seen in the recent Los Angeles fire where paper, laying on a desk in an adjacent high rise structure caught fire and 6 six floors of the high rise were on fire. Currently the building code allows a 75% increase in the base tabular area when the structure has an on open perimeter of 20-30 feet, in more than 25 percent of total building perimeter. Currently the open space is not required to be open or traversable by fire apparatus vehicles.

This code proposal does two things: First requires that all Type III and V buildings, 4 or more stories, be required to provde 25% open space or public space and secondly would require that the open space, used for an increase in allowable area, be usable by the fire service and apparatus, in Type III and V buildings 4 or more stories in height.

Fire serviice must be able to access the structure to effectively battle the fire. If a building is allowed to be built bigger by providing open space, the space should serve as access for fire fighting.

Cost Impact: Will increase the cost of construction

This change will increase the cost of construction for Type III and V construction, 4 stories and over, using combustible construction.

G 142-15 : 506.3-HALL4560

G 143-15

202 (New), 506.3.1

Proponent: Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

2015 International Building Code

Add new text as follows:

SECTION 202 DEFINITIONS

FIRE APPARATUS ACCESS ROAD A road that provides fire apparatus access from a fire station to a facility, building or portion thereof. This is a general term inclusive of all other terms such as fire lane, public street, private street, parking lot lane and access roadway.

Revise as follows:

506.3.1 Minimum percentage of perimeter. To qualify for an area factor increase based on frontage, a building shall have not less than 25 percent of its perimeter fronting on a public way or ~~open space~~yard. Such open space shall be either on the same lot or dedicated for public use and shall be accessed from a street or approved *fire ~~lane~~apparatus access road*.

Reason: Section 202 of the International Fire Code more clearly describes what the I codes intend when the term fire lane is used. The term makes it clear that it's purpose is for the movement and staging of fire apparatus and includes private streets, parking lo lanes and access roadways. This editorial code change adds consistency and clarity.
The term fire lane is too restrictive since it is evident from definition in IBC Section 202 and states that a fire lane is "A road or other passageway developed to allow the passage of fire apparatus. A fire lane is not necessarily intended for vehicular traffic other than fire apparatus". A fire apparatus access road can be used by vehicles other than fire apparatus. Additionally open space is not a defined term however yard is and yard is required to be clear and open to the sky which is what is intended for the open space.

The term fire lane is used in three instances in the IBC (Section 202, 506.3.1 and 705.8.1 Except 1 and 2) and since it is a a permissible element within the fire aparatus roadway definition the proposed definition will not add conflicts with other parts of the code.

Cost Impact: Will not increase the cost of construction
This code change is editorial. A fire access roadway will be required by the fire code to access exterior portions of a building within 200 ft of the response point.

G 143-15 : 506.3.1-FATTAH4661

G 144-15

506.3.3, 506.3.3.1 (New), 506.3.3.2 (New)

Proponent: William Hall, representing Portland Cement Association (jhall@cement.org); Jason Thompson (jthompson@ncma.org)

2015 International Building Code

Revise as follows:

506.3.3 Amount of increase. The area factor increase based on frontage shall be determined in accordance with ~~Equation 5-5:~~ Sections 506.3.3.1 and 506.3.3.2.

~~I_f=[*F*/*P*-0.25]*W*/30~~ ~~**(Equation 5-5)**~~

~~where:~~

~~I_f~~	~~=~~	~~Area factor increase due to frontage.~~
~~*F*~~	~~=~~	~~Building perimeter that fronts on a *public way* or open space having minimum distance of 20 feet (6096 mm).~~
~~*P*~~	~~=~~	~~Perimeter of entire building (feet).~~
~~*W*~~	~~=~~	~~Width of *public way* or open space (feet) in accordance with Section 506.3.2.~~

506.3.3.1 Type II contruction The area factor increase based on frontage shall be determined in accordance with equation 5.5.

I_f=[F/P- 0.25]W/30 (Equation 5-5)

where:

I_f = Area factor increase due to frontage.
F = Building perimeter that fronts on a public way or open space having minimum distance of 20 feet (6096 mm).
P = Perimeter of entire building (feet).
W = Width of public way or open space (feet) in accordance with Section 506.3.2.

Add new text as follows:

506.3.3.2 Type III, IV and V Construction. The area factor increase based on frontage shall be determined in accordance with equation 5.6.

I_f=[*F*/*P*- 0.25]*W*/30-H **(Equation 5-6**

where:

I_f	=	Area factor due to frontage
F	=	Building perimeter that fronts on a *public way* or open space having minimum distance of 20 feet (6096 mm)
P	=	Perimeter of entire building (feet).
W	=	Width of *public way* or open space (feet) in accordance with Section 506.3.2.
H	=	0 if 1 story 25% if 2 story 50% if 3 story 75% if 4 or more stories

Where increase factor is negative, 0 shall be used.

Reason: Fires during construction have been on the increase across the U.S and other countries which utilize combustible construction in multi-story buildings. The intensity of these fires put adjacent buildings, businesses and residents at risk until the project is complete, which can take up to 2 years to complete or more if the project stalls. These fires are caused by a multitude of reasons including but not limited to arson, smoking, cooking, heating and hot work. Fire service, even in large well equipped jurisdictions cannot effectively stop these conflagrations and most of these incidents end in total loss of the building under construction as well as damaged or destroyed adjacent buildings. Many times adjacent buildings are at risk due to the extreme heat, flying embers and wind speeds, as seen in the recent Los Angeles fire where paper, laying on a desk in an adjacent high rise structure caught fire and 6 six floors of the high rise were on fire. Currently the building code allows a 75% increase in the base tabular area when the structure has an on open perimeter of 20-30 feet, in more than 25 percent of total building perimeter.
This amount of distance does not correctly relate to safe distances needed to mitigate fire spread by thermal radiation. Based on the research report titled "External fire spread: building separation and boundary distances" published by the Fire Research Station, separation distances of 30 feet during construction are not adequate in limiting fire exposure in adjacent buildings and obviously do not provide safe distances for firefighting operations.
To paraphrase the report, the minimum intensity for fire ignition is 0.3 cal cm-2s-1. To maintain levels at or below this rate of thermal radiation, fire separation distances are based on the height and width of the burning building, the number of windows and a presumed heat release ranging from 2 to 4 cal cm-2s-1 depending on fire load. Office and residential usually are calculated at 2 cal cm-2s-1 but in the construction phase, a total burnout is expected with full exposure so 4 cal cm-2s-1 is the appropriate rate and is very

conservative. Thermal radiation rates could be much higher depending on wind and openness of the structure. Based on this information, fire separation distances for a small building 100 wide by 30 feet tall requires 52 feet of separation to keep adjacent structures at or below the minimum intensity for ignition. A large building, 7 stories, such as the one in LA, would have required a minimum of 141 feet separation distance.

This proposal limits the open perimeter area increase on multi-story combustible buildings based on a separation distance of 30 feet by introducing a new height variable into the equation.

Cost Impact: Will increase the cost of construction
While not directly increasing the cost of construction, this proposal will limit the allowable area increases in some buildings using combustible construction for multi-story construction. The cost impact is difficult to determine, based on means and methods used by the designer.

G 144-15 : 506.3.3-HALL4939

G 145-15

202 (New), 507.2

Proponent: Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

FIRE APPARATUS ACCESS ROAD A road that provides fire apparatus access from a fire station to a facility, building or portion thereof. This is a general term inclusive of all other terms such as fire lane, public street, private street, parking lot lane and access roadway.

Revise as follows:

507.2 Measurement of open spaces.
Where Sections 507.3 through 507.13 require buildings to be surrounded and adjoined by *public ways* and *yards*, those open spaces shall be determined as follows:

1. Yards shall be measured from the building perimeter in all directions to the closest interior *lot lines* or to the exterior face of an opposing building located on the same *lot*, as applicable.
2. Where the building fronts on a *public way*, the entire width of the *public way* shall be used.
3. Yards shall be on the same lot and shall be accessed from a *fire apparatus access road.*

Reason: This code change is necessary to ensure that yards used for 60 ft wide open space required for unlimited area buildings be accessible by the fire department. The code change makes Section 507.2 consistent with Section 506.3.1 requires that the yard be located on the same lot and that the yard be accessed rom a fire apparatus access road. The term fire apparatus access road is also added in the definitions of the IBC as a part of this code change since the IFC definition is more descriptive of than fire lane of the options that are permissible.
Yards and streets surrounding unlimited area buildings serve two purposes. They provide a fire separation distance of not less than 60 ft for unlimited area buildings to protect adjoining properties. The yard is also used for fire department access for staging and fire fighting purposes.

2012 IBC commentary page 5-15 through 5-17 while intended for Section 507.2 includes figures depicting code intent for access to yards which this code change proposes to codify in the affected Sections.

Unlimited area buildings are large buildings with exterior exit doors ont he perimeter, additionally the IFC will require fire access roadways on the sides and possible the rear of the fire hose pull distance to all portions of the exterior wall of 200 ft is exceeded.

Cost Impact: Will not increase the cost of construction
This is an editorial code change and is necessary to ensure public safety and fire fighter safety.

G 145-15 : 507.2-FATTAH4666

G 146-15

507.4

Proponent: Anthony Apfelbeck, City of Altamonte Springs Building/Fire Safety Division, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Building Code

Revise as follows:

507.4 Sprinklered, one-story buildings. The area of a Group A-4 building no more than one *story above grade plane* of other than Type V construction, or the area of a Group B, F, M or S building no more than one story above grade plane of any construction type, shall not be limited where the building is provided with an *automatic sprinkler system* throughout in accordance with Section 903.3.1.1 and is surrounded and adjoined by *public ways* or *yards* not less than 60 feet (18 288 mm) in width.

Exceptions:

1. Buildings and structures of Type I or II construction for rack storage facilities that do not have access by the public shall not be limited in height, provided that such buildings conform to the requirements of Sections 507.4 and 903.3.1.1 and Chapter 32 of the *International Fire Code* .
2. The *automatic sprinkler system* shall not be required in areas occupied for indoor participant sports, such as tennis, skating, swimming and equestrian activities in occupancies in Group A-4, provided that ~~both~~all of the following criteria are met:
    2.1. *Exit* doors directly to the outside are provided for occupants of the participant sports areas.
    2.2. The building is equipped with a *fire alarm system* with *manual fire alarm boxes* installed in accordance with Section 907.
    2.3. An *automatic sprinkler system* is provided in storage rooms, press boxes, concession booths or other spaces ancillary to the sport activity space.

Reason: While it is appropriate to eliminate fire sprinklers in the large open spaces of these facilities, protection of ancillary spaces by fire sprinklers should still be provided. Many of these spaces are concealed and don't contribute to the awareness of a developing fire condition. In addition, many ancillary spaces can have significant amounts of combustible contents. Concession spaces and equipment storage spaces are two examples that should still be protected with a fire sprinkler system.

Cost Impact: Will increase the cost of construction
This proposals will increase the cost of construction in order to protect ancillary spaces in these Group A-4 occupancies.

G 146-15 : 507.4-APFELBECK3863

G 147-15

508.2.3

Proponent: Jeff Hugo, National Fire Sprinkler Association, representing National Fire Sprinkler Association (hugo@nfsa.org)

2015 International Building Code

Revise as follows:

508.2.3 Allowable building area. The allowable area of the building shall be based on the applicable provisions of Section 506 for the main occupancy of the building. Aggregate accessory occupancies shall not occupy more than 10 percent of the floor area of the story in which they are located and shall not exceed the tabular values for nonsprinklered buildings in Table 506.2 for each such accessory occupancy.

Exception: Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.2, aggregate accessory occupancies shall be not more than 50 per cent of the floor area of the floor of the story in which they are located where such accessary occupancies are permitted by NFPA 13R to be protected by quick-response or residential sprinklers. The allowable building area for stories with such accessory occupancies shall be based on the allowable building area for the main occupancy in accordance with Section 503.1.

Reason: The application of the 10% of the floor area criteria under IBC Section 508.2.3 to such types of residential occupancies covered under NFPA 13R creates major design and cost problems with 2 hour separations for accessary occupancies in such residential buildings. 2013 NFPA 13R Sections 6.2.2, 6.4.7 & 7.2 have detailed sprinkler and compartment requirements incorporated into the NFPA 13R standard to address accessary spaces outside the dwelling units when considered part of the residential (predominant) occupancy. This proposed code change would better correlate with the requirements in NFPA 13R for area/spaces outside the dwelling units that have fire loads similar to residential fire loads and/or are compartmented into 500 square feet or less in area.

Cost Impact: Will not increase the cost of construction
Reduces construction costs by reducing fire barriers between floors and adjacent occupancies.

G 147-15 : 508.2.3-HUGO4650

G 148-15

508.3.1

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Building Code

Revise as follows:

508.3.1 Occupancy classification. Nonseparated occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space. In addition, the most restrictive provisions of Chapter 9 that apply to the nonseparated occupancies shall apply to the total nonseparated occupancy area. Where nonseparated occupancies occur in a *high-rise building*, the most restrictive requirements of Section 403 that apply to the nonseparated occupancies shall apply throughout the *high-rise building*. Where one of the non-separated occupancies is Group I-2, Condition 2, the most restrictive requirements of Sections 407, 509, 712, and Chapter 10 shall apply.

Reason: This proposal modifies the requirements for non-separated mixed uses. In a hospital buildings, it is important to maintain some fire protection features throughout the building. Many of these restrictions directly support the defend-in-place concept that hospitals rely on. Specifically included are incidental use areas, protected vertical openings, and hospital-specific egress provisions. As written, the current code would allow an unprotected vertical opening to be located in the non-separated business portion of a hospital building. Arguably you could use the definition of a smoke compartment to challenge this idea, but that argument is very subtle and highlights an inherent conflict ion the code. Section 407 is specific to I-2 occupancies, not to building that contain I-2 occupancies. Yet section 407 contains provisions for corridor construction, smoke compartmentation and hospital specific egress provisions that should be maintained to support the defend in place concept.

By clearly stating in this section that there are some concepts in a hospital building that need to be treated differently, we can provide clear direction to designers and enforcers. This code change is needed to be consistent with the requirements of Medicaid and Medicare (CMS.)

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will increase the cost of construction
While this is an increase in construction based on only IBC requirements, however, this is a requirement from federal CMS in hospitals; therefore, this is not an increase in actual construction cost.

G 148-15 : 508.3.1-WILLIAMS4243

G 149-15

508.3.2, 508.4.3

Proponent: Robert Snyder, City of Bellevue, representing Washington Association of Building Officials Technical Code Development Committee (rsnyder@bellevuewa.gov)

2015 International Building Code

Revise as follows:

508.3.2 Allowable building area, height and ~~height~~number of stories. The allowable *building area, height* and ~~height~~number of stories of the building or portion thereof shall be based on the most restrictive allowances for the occupancy groups under consideration for the type of construction of the building in accordance with Section 503.1.

508.4.3 Allowable building height and number of stories. Each separated occupancy shall comply with the *building height and story* limitations based on the type of construction of the building in accordance with Section 503.1.

> **Exception:** Special provisions of Section 510 shall permit occupancies at *building heights and number of stories* other than those provided in Section 503.1.

Reason: This proposal provides consistency between IBC Sections 503.1, 504.1, 504.2, 508.3.2 and 508.4.3 by including both building height and number of stories. The number of stories, as well as, the building height must be considered when determining the requirements for separated and non-separated occupancies.

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction. Changes presented are editorial.

G 149-15 : 508.3.2-SNYDER4503

G 150-15

508.4.1

Proponent: Gregory Keith, Professional heuristic Development, representing The Boeing Company (grkeith@mac.com)

2015 International Building Code

Revise as follows:

508.4.1 Occupancy classification. Separated occupancies shall be individually classified in accordance with Section 302.1. Each separated space shall comply with this code based on the occupancy classification of that portion of the building. The most restrictive provisions of Chapter 9 that apply to the occupancies not required to have an occupancy separation in accordance with Table 508.4 shall apply to the total un-separated occupancy areas. Where such un-separated occupancies occur in a high-rise building, the most restrictive requirements of Section 403 that apply to the un-separated occupancies shall apply throughout the high-rise building.

Reason: IBC mixed occupancy provisions have evolved over several editions. The separated occupancy design option now includes conditions where given occupancies are not required to have a physical occupancy separation. The nonseparated occupancy provisions at Section 508.3.1 state that specific Chapter 9 and Section 403 requirements potentially apply to the entire applicable space. It is only logical that the same requirements apply to un-separated occupancies allowed by Section 508.4. This proposal effectively duplicates the Section 508.3 provisions in Section 508.4. Approval of this proposal will result in the consistent protection of nonseparated and un-separated occupancies.

Cost Impact: Will increase the cost of construction
Potentially, approval of this proposal could result in an increase of cost in some occupancies using the separated mixed occupancy design option. However, such costs will not exceed those currently associated with the nonseparated occupancy design option.

G 150-15 : 508.4.1-KEITH4376

G 151-15

508.4.1, TABLE 508.4

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

508.4.1 Occupancy classification. Separated occupancies shall be individually classified in accordance with Section 302.1. Each separated space shall comply with this code based on the occupancy classification of that portion of the building. The most restrictive provisions of Chapter 9 that apply to the separate occupancies shall apply to the total non-fire barrier separated occupancy areas. Occupancy separations that serve to define fire area limits established in Chapter 9 for requiring a fire protection system shall also comply with Section 901.7.

TABLE 508.4
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

OCCUPANCY	A, E		I-1[a], I-3, I-4		I-2		R[a]		F-2, S-2[b], U		B[e], F-1, M, S-1		H-1		H-2		H-3, H-4		H-5	
	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS
A, E	N	N	1	2	2	NP	1	2	N	1	1	2	NP	NP	3	4	2	3	2	NP
I-1[a] , I-3, I-4	—	—	N	N	2	NP	1	NP	1	2	1	2	NP	NP	3	NP	2	NP	2	NP
I-2	—	—	—	—	N	N	2	NP	2	NP	2	NP	NP	NP	3	NP	2	NP	2	NP
R[a]	—	—	—	—	—	—	N	N	1[c]	2[c]	1	2	NP	NP	3	NP	2	NP	2	NP
F-2, S-2[b] , U	—	—	—	—	—	—	—	—	N	N	1	2	NP	NP	3	4	2	3	2	NP
B[e] , F-1, M, S-1	—	—	—	—	—	—	—	—	—	—	N	N	NP	NP	2	3	1	2	1	NP
H-1	—	—	—	—	—	—	—	—	—	—	—	—	N	NP	NP	NP	NP	NP	NP	NP
H-2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP	1	NP	1	NP
H-3, H-4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1[d]	NP	1	NP
H-5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP

S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

N = No separation requirement.

NP = Not permitted.

a See Section 420.

b. The required separation from areas used only for private or pleasure vehicles shall be reduced by 1 hour but not to less than 1 hour.

c. See Section 406.3.4.

d. Separation is not required between occupancies of the same classification.

e. See Section 422.2 for ambulatory care facilities.

f. Occupancy separations that serve to define fire area limits established in Chapter 9 for requiring fire protection systems shall also comply with Section 707.3.10 and Table 707.3.10 in accordance with Section 901.7.

Reason: This proposal is intended to clarify how to address fire protection installations for separated occupancies where the table does not require a fire separation. The concepts contained within Chapter 9 of the code are that area fire protection systems are installed throughout a fire area at a minimum for proper functioning. The additional language proposed for Section 508.4.1 is copied from Section 508.3.1 and the added note F. provides direct linkage to the fire area provisions found in Chapter 9 and links to the requirements for fire barriers in Chapter 7. This clarification eliminates confusion that occasionally occurs when a designer or code official applies occupancy linked fire protection requirements in a "separated" occupancy that Table 508.4 does not specify a fire rated separation for.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction. By clarifying how to apply the fire protection requirements for an occupancy classification when dealing with separated occupancies the cost of compliance may be reduced by eliminating costly errors in application.

G 152-15

508.4.4.2 (New)

Proponent: Vickie Lovell, InterCode Incorporated, representing Fire Safe North America (vickie@intercodeinc.com)

2015 International Building Code

Add new text as follows:

508.4.4.2 **Fire-resistance ratings.** The *fire-resistance ratings* in Table 508.4 shall not be permitted to be reduced to less than 2 hours in buildings of construction Types IIB, IIIB and VB in Risk Categories III and IV identified in Table 1604.5 where such buildings are any of the following:

1. Assigned to Seismic Design Category C or D in Table 1613.3.5(1).
2. Located in a flood hazard area established in accordance with Section 1612.3.
3. Located in a hurricane-prone region.

Reason: As hazard events, both naturally-occurring and man-made, are increasing in number and severity in the United States and around the world, the resilience of communities and the individual buildings within those communities is becoming of vital importance.
A National Institute of Building Sciences Publication (May, 2014) entitled "Moving Forward: Findings and Recommendations", states that "while a long history of building codes has laid the foundation for addressing the impacts of natural and man-made hazards, changes in the frequency and severity of events have brought new challenges — challenges requiring the engagement and support of policymakers. While building codes serve as the minimum requirements for life-safety in the building stock, basic life-safety protections do not fully address building performance requirements to achieve resilience."

Mitigation includes, among other things, fortifying buildings so that they are less likely to be severely damaged or completely destroyed during or immediately after a disaster. It is the key to recovery after a disaster. Mitigation allows individuals and communities to lessen post-disaster disruption and rebuild more quickly. States and cities have started implementing more stringent requirements in specific geographic areas they have designated as higher-risk. The purpose of this series of code changes proposed by Fire Safe North America is to encourage the debate in the code development process to identify what constitutes resilient buildings, and begin to identify issues that will become the basis for "new minimum requirements" for increased building resiliency.

Responding to the challenge of mitigating damage and resilient buildings is an admittedly complex topic. Fire Safe North America proposals are intended to reduce the total reliance of a community and its firefighters on automatic sprinkler systems in disaster-prone areas of the country where the water supply and/or power are likely to be interrupted, or are likely to have water supply system operational issues. The proposals, if approved, will fortify the building code requirements for the most vulnerable buildings to fire - Type IIB, IIIB, and VB construction, which are also classified as Risk Category III and IV in Table 1604.5, and in high-risk, disaster prone regions. The proposals modify the following code requirements in such buildings:

1. Reduce allowable area limits
2. Protect the path of egress by limiting travel distances
3. Protect the path of egress by protecting corridors
4. Require higher fire resistance ratings for occupancy separations
5. Require higher fire resistance ratings for building elements

These proposals are intended to be conservative so as to promote community resiliency and disaster mitigation by protecting essential buildings with both sprinkler protection AND fire resistance rated compartmentation. These proposals may be fairly considered to be the proverbial "belt-and suspenders" approach, requiring both sprinkler protection and increased fire resistance rated compartmentation in specific buildings in high risk areas for disasters.

Historically, the code has been written using the general assumption that automatic sprinklers will operate satisfactorily and there will be suitable power for such building operations. Code users design and build assuming that firefighters will be able to respond at their normal efficiencies. In some parts of the country, buildings impacted by disasters may remain without reliable water and/or power for a considerable period of time, well after the occurrence of the disaster. History has shown that increased incidents of fires after a disaster can be more destructive to life and property than the disaster itself. Total reliance on an uninterrupted power and water supply may not be an acceptable risk. It may also be an unacceptable risk to assume that firefighters will be able to respond at their normal efficiencies.

For example, more than 15% of the U.S. population lives in potential major earthquake areas. 41 states and territories have moderate to high risk. There is a real likelihood of power and water supplies being interrupted following a major seismic event, along with the potential for multiple simultaneous structure fires and also building-to-building fire spread. In October 17, 1989, a 7.1 earthquake in Santa Cruz Mountains was responsible for 26 fires in San Francisco, 60 miles from epicenter. There were 67 documented breaks in water mains which effectively eliminated water pressure in the area. On January 19, 1994, a 6.8 earthquake centered in Northridge, CA. There were approximately 100 fire ignitions, 30 to 50 of those were considered significant. The water supply systems in the area were damaged causing low pressure in water distribution. On January 17, 1995, a 6.8 (approx.) earthquake near Kobe, Japan caused 90 fires to start within minutes. 85 spread to adjacent buildings and 10 approached or reached conflagration status. 1,700 water line breaks occurred within a couple of hours. There were 7,000 buildings destroyed by fire alone.

In 1997, the Red River flooded Grand Forks, North Dakota, causing $3.7 billion in flood losses, and displaced thousands of families and businesses. Similar data of increased fire incidents are available in other flood and hurricane-prone areas.

Undoubtedly, this will increase the cost of construction in these specific buildings. However, a recent FEMA's 2010 report "Mitigation's Value to Society" statement described how mitigation is an investment that needs to be made. A recent study by the NIBS Multihazard Mitigation Council (MMC) identified that each dollar spent on mitigation saves an average of $4.00 in disaster recovery.

Links:
http://www.dhses.ny.gov/oem/mitigation/documents/mitigations-value-to-society.pdf

The two-volume NIBS MMC study report is available for free download at:
http://www.nibs.org/index.php/mmc/projects/nhms

Cost Impact: Will increase the cost of construction
This code change proposal will increase the cost of construction of some building types.

G 152-15 : 508.4.4.2 (New)-LOVELL5291

G 153-15

508.4.5 (New)

Proponent: Ronald Geren, RLGA Technical Services, LLC, representing Self (ron@specsandcodes.com)

2015 International Building Code

Add new text as follows:

508.4.5 Exterior walls. Portions of exterior walls of the same building, or multiple buildings on the same lot that are considered as one building in accordance with Exception 1 of Section 705.3 and face occupancies requiring not more than a 2-hour separation in accordance with Table 508.4 shall be separated by not less than 10 feet (3048 mm), measured at right angles, from the surfaces of the facing exterior walls. For occupancies requiring a 3-hour or greater separation, the separation distance shall be not less than 15 feet (4572 mm).

> **Exception:** Walls and openings protected in accordance with Section 705 based on an assumed lot line between them. The use of the assumed lot line shall only apply to those portions of exterior walls that have a fire separation distance distance less than the required minimum distance.

Reason: Per Section 508.4.4, occupancies that are adjacent to each other within a buildng require separation per Table 508.4. However, where exterior walls of the same building face each other and the occupancy groups within those portions of the building would require separation, then some kind of protection should be provided. As it currently stands, there are no restrictions on the distance, fire-resistance rating, or opening protection between facing exterior walls of occupancy groups that require separation.
This proposal follows similar separation requirement for exterior exit stairways and ramps per Section 1027.5, which requires a 10-foot fire separation distance between the exterior exit stairway or ramp and other portions of the building. Thus, this distance has the equivalency of a maximum 2-hour fire-resistance rating, since there is not a limitation on the number of stories connected by the exterior exit stairway or ramp. Similar protection requirements based on a 10-foot fire separation distance are found in Section 1021.4 for egress balconies and Section 1028.4.2 for egress courts.

Since some occupancies require a 3- or 4-hour occupancy separation, a greater distance is specified.

The exception allows the use of an imaginary lot line to determine exterior wall and opening protection for only thos portions of th exterior wall that have a fire separation distance less than the required minimums. This exception is considered since the imaginary lot line method can be applied to any building, regardless of construction type or the occupancy groups within.

Cost Impact: Will increase the cost of construction
This will have a minor increase in construction cost when applied to building designs that would have previously been acceptable with narrower fire separation distances. The cost increase can be avoided through design by ensuring the minimum fire separation distances specified are maintained between the opposing walls. Some jurisdictions have been enforcing the imaginary lot line for separation of exterior walls, whether they are the same building or not, when the occupancies of the opposing portions of the building require separation and the separated occupancies method is used. In these locations, there would be no cost impact.

G 153-15 : 508.4.5 (New)-GEREN5782

G 154-15

TABLE 509

Proponent: Jeffrey Betz, representing AT&T (jbetz@att.com)

2015 International Building Code

Revise as follows:

TABLE 509
INCIDENTAL USES

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Furnace room where any piece of equipment is over 400,000 Btu per hour input	1 hour or provide automatic sprinkler system
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower	1 hour or provide automatic sprinkler system
Refrigerant machinery room	1 hour or provide automatic sprinkler system
Hydrogen fuel gas rooms, not classified as Group H	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.
Incinerator rooms	2 hours and provide automatic sprinkler system
Paint shops, not classified as *Group* H, located in occupancies other than Group F	2 hours; or 1 hour and provide automatic sprinkler system
In Group E occupancies, laboratories and vocational shops not classified as Group H	1 hour or provide automatic sprinkler system
In Group I-2 occupancies, laboratories not classified as Group H	1 hour and provide automatic sprinkler system
In ambulatory care facilities, laboratories not classified as Group H	1 hour and provide automatic sprinkler system
Laundry rooms over 100 square feet	1 hour or provide automatic sprinkler system
In Group I-2, laundry rooms over 100 square feet	1 hour
Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces	1 hour
In Group I-2, physical plant maintenance shops	1 hour
In ambulatory care facilities or Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume of 10 cubic feet or greater	1 hour
In other than ambulatory care facilities and Group I-2 occupancies, waste and linen collection rooms over 100 square feet	1 hour or provide automatic sprinkler system
In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet	1 hour

Stationary storage battery systems in accordance with Section 609 of the *International Fire Code* and ~~having a liquid electrolyte capacity of more than 50 gallons for flooded lead-acid, nickel cadmium or VRLA, or more than 1,000 pounds for lithium-ion and lithium metal polymer~~ used for facility standby power, emergency power or uninterruptable power supplies	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.

For SI: 1 square foot = 0.0929 m^2, 1 pound per square inch (psi) = 6.9 kPa, 1 British thermal unit (Btu) per hour = 0.293 watts, 1 horsepower = 746 watts, 1 gallon = 3.785 L, 1 cubic foot = 0.0283 m^3.

Reason: This proposal links International Building Code Table 509 to the specific definitions, scope and section of the International Fire Code related to Stationary Storage Battery Systems. By using the definition and terms in the Internatioanl Fire Code section related to stationary storage battery systems this provides the ability to modify the various aspects of these systems in one code within one code cycle process. As new technology emerges and changes or additional types of batteries are added a change in the fire code requirement as to types of batteries and quantities will be automatically addressed for Table 509 of the International Building Code.

Bibliography: International Fire Code and Commentary, 2012, Page 6-32 through 6-35

Cost Impact: Will not increase the cost of construction
This proposal aligns the application of the International Buiilding Code (IBC) and International Fire Code (IFC) regarding stationary storage battery systems. By referring the application criteria (scope) to the International Fire Code for the additional and deletion of battery types and quantities in one source document and under one code cycle.

G 154-15 : T509 -BETZ4714

G 155-15

TABLE 509

Proponent: Jeffrey Betz, AT&T, representing AT&T (jbetz@att.com)

2015 International Building Code

Revise as follows:

TABLE 509
INCIDENTAL USES

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Furnace room where any piece of equipment is over 400,000 Btu per hour input	1 hour or provide automatic sprinkler system
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower	1 hour or provide automatic sprinkler system
Refrigerant machinery room	1 hour or provide automatic sprinkler system
Hydrogen fuel gas rooms, not classified as Group H	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.
Incinerator rooms	2 hours and provide automatic sprinkler system
Paint shops, not classified as Group H, located in occupancies other than Group F	2 hours; or 1 hour and provide automatic sprinkler system
In Group E occupancies, laboratories and vocational shops not classified as Group H	1 hour or provide automatic sprinkler system
In Group I-2 occupancies, laboratories not classified as Group H	1 hour and provide automatic sprinkler system
In ambulatory care facilities, laboratories not classified as Group H	1 hour and provide automatic sprinkler system
Laundry rooms over 100 square feet	1 hour or provide automatic sprinkler system
In Group I-2, laundry rooms over 100 square feet	1 hour
Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces	1 hour
In Group I-2, physical plant maintenance shops	1 hour
In ambulatory care facilities or Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume of 10 cubic feet or greater	1 hour
In other than ambulatory care facilities and Group I-2 occupancies, waste and linen collection rooms over 100 square feet	1 hour or provide automatic sprinkler system
In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet	1 hour

Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons for flooded lead-acid, nickel cadmium or VRLA, or more than 1,000 pounds for lithium-ion and lithium metal polymer used for facility standby power, emergency power or uninterruptable power supplies. Stationary storage battery systems shall be located within a room or space separated as required by this Table. Stationary storage battery systems are permitted to be located in the same room as equipment they support and power additional equipment in other areas of the building as designed.	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.

For SI: 1 square foot = 0.0929 m^2, 1 pound per square inch (psi) = 6.9 kPa, 1 British thermal unit (Btu) per hour = 0.293 watts, 1 horsepower = 746 watts, 1 gallon = 3.785 L, 1 cubic foot = 0.0283 m^3.

Reason: This proposal aligns the basic criteria of the International Building and International Fire Codes. The intent of the International Building Code is to provide a fire-resistance-rated separation from the remainder of the building. The International Fire Code (IFC) section 608 defines the requirements for STATIONARY STORAGE BATTERY SYSTEMS and directs the reader to section 608.4 stating "Room design and construction. Enclosure of stationary battery systems shall comply with International Building Code. Battery systems shall be allowed to be in the same room with the equipment they support." The International Fire Code Commentary for this section reads "This section requires that battery rooms meet the basic construction requirements of the IBC. Section and Table 509 of the IBC treat rooms housing stationary storage battery systems as incidental use areas based on the electrolyte capacity of the system. In that case, though no different occupancy group is assigned to it, the battery rooms fire-resistance rating must be 1 or 2 hours, depending on the occupancy group or groups from which it must be separated in the building in which it is located. The construction of the battery room must also comply with the material requirements of the IBC for the type of construction required for the building. Additionally, there is no requirement for separating the equipment that the battery system supports from the battery system itself". (Footnote 2012 International Fire Code and Commentary 608.4) This ongoing operational use is not addressed in the International Building Code and leads to confusion and misapplication which can be interpreted as a conflict between the International Building Code and International Fire Code. Many Authorities Having Jurisdiction use the International Building Code as the controlling document when a perceived conflict is identified. Thus, the current allowance for commingling of batteries and equipment may not be understood and consequently is therefore occasionally not permitted by Building Officials.
Stationary storage battery systems housed in either a telecommunications or information technology space are currently separated from the remaining spaces by the design requirement of these activities with a minimum of a 1 hour fire barrier. Both the telecommunications and information technology industries have collocated battery systems with equipment installations for many years without serious risk to the occupancy or occupants. The equipment rooms utilized in these industries are accessible only to authorize personnel. Battery systems for non-dedicated equipment spaces are required to be housed in a non-combustible, locked cabinet or other enclosure to prevent access to unauthorized personnel as directed within the International Fire Code. Stationary storage battery systems in occupied work centers are separately addressed in the International Fire Code. Thus the intention to separate the stationary battery systems is met by the requirements of Table 509. The prohibition of utilizing the power produced by a stationary battery system is contradictory to the intent of the separation environment. Code required fire barrier are not deleted or modified by this proposal. Fire barriers continue to protect the general public when the storage battery power supplied equipment spaces are accessible only to authorized personnel and meet the requirements of Table 509.
This code change proposal also incorporates modification to eliminate restricting the stationary storage battery systems power production only to the room that the batteries may be contained. The code currently inhibits the long term industry practice of utilizing stationary storage battery systems contained within existing equipment spaces to power similar equipment housed in other fire barrier separated equipment spaces within the building. Current technology and deployment incorporates distributed integrated power within the design of signal processing and server applications and this proposal supports industry design.

Bibliography: International Builidng Code and Commentary ICC 2012 page 5-43 and 44
International Fire Code and Commentary ICC 2012 6-32 through 6-35

Cost Impact: Will not increase the cost of construction
Clarifies current requirements found in teh International Fire Code. Reduces cost and resources for AHJ and applicant by directly defining the application of Table 509.

G 155-15 : T509-BETZ5050

G 156-15

TABLE 509

Proponent: Randall McCarver, representing CenturyLink and Verizon (randall.mccarver@ericsson.com)

2015 International Building Code

Revise as follows:

TABLE 509
INCIDENTAL USES

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Furnace room where any piece of equipment is over 400,000 Btu per hour input	1 hour or provide automatic sprinkler system
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower	1 hour or provide automatic sprinkler system
Refrigerant machinery room	1 hour or provide automatic sprinkler system
Hydrogen fuel gas rooms, not classified as Group H	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.
Incinerator rooms	2 hours and provide automatic sprinkler system
Paint shops, not classified as Group H, located in occupancies other than Group F	2 hours; or 1 hour and provide automatic sprinkler system
In Group E occupancies, laboratories and vocational shops not classified as Group H	1 hour or provide automatic sprinkler system
In Group I-2 occupancies, laboratories not classified as Group H	1 hour and provide automatic sprinkler system
In ambulatory care facilities, laboratories not classified as Group H	1 hour and provide automatic sprinkler system
Laundry rooms over 100 square feet	1 hour or provide automatic sprinkler system
In Group I-2, laundry rooms over 100 square feet	1 hour
Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces	1 hour
In Group I-2, physical plant maintenance shops	1 hour
In ambulatory care facilities or Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume of 10 cubic feet or greater	1 hour
In other than ambulatory care facilities and Group I-2 occupancies, waste and linen collection rooms over 100 square feet	1 hour or provide automatic sprinkler system
In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet	1 hour

A stationary~~Stationary~~ storage battery system ~~systems~~ having a liquid electrolyte capacity of more than 50 gallons for flooded lead-acid, nickel cadmium or VRLA, or more than 1,000 pounds for lithium-ion and lithium metal polymer used for facility standby power, emergency power or uninterruptable power supplies. Battery systems shall be allowed to be in the same room with the equipment they support.	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.

For SI: 1 square foot = 0.0929 m^2, 1 pound per square inch (psi) = 6.9 kPa, 1 British thermal unit (Btu) per hour = 0.293 watts, 1 horsepower = 746 watts, 1 gallon = 3.785 L, 1 cubic foot = 0.0283 m^3.

Reason: In locations where a battery system exceeding the limits in Table 509 is considered an incidental occupancy, there is a conflict with provisions of the IFC. IFC 608.4 specifically permits battery systems to be in the same room with the equipment they support. If a fire separation is required, it should be allowed to encompass the equipment served, also. This change makes it clear that the required separation can encompass that equipment. The text was revised to indicate that the limits apply to individual battery systems, not an aggregate of all battery systems in the incidental accessory occupancy. Any increased hazard from battery systems will occur in a single cell, not in the aggregate of all systems in an occupancy.

Cost Impact: Will not increase the cost of construction
This change provides clarification to ensure consistency with the IFC. No change in construction is required.

G 156-15 : T509-MCCARVER5046

G 157-15

TABLE 509, 509.5 (New), 716.5

Proponent: Jay Wallace, The Boeing Company, representing The Boeing Company (jay.s.wallace@boeing.com)

2015 International Building Code

Revise as follows:

TABLE 509
INCIDENTAL USES

ROOM OR AREA	PROVIDE SEPARATION AND/OR PROTECTION
Furnace room where any piece of equipment is over 400,000 Btu per hour input	1 hour or ~~provide~~ automatic sprinkler system[a]
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower	1 hour or ~~provide~~ automatic sprinkler system[a]
Refrigerant machinery room	1 hour or ~~provide~~ automatic sprinkler system[a]
Hydrogen fuel gas rooms, not classified as Group H	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies
Incinerator rooms	2 hours and ~~provide~~ automatic sprinkler system[a]
Paint shops, not classified as Group H, located in occupancies other than Group F	2 hours; or 1 hour and ~~provide~~ automatic sprinkler system[a]
In Group E occupancies, laboratories and vocational shops not classified as Group H	1 hour or ~~provide~~ automatic sprinkler system[a]
In Group I-2 occupancies, laboratories not classified as Group H	1 hour and ~~provide~~ automatic sprinkler system[a]
In ambulatory care facilities, laboratories not classified as Group H	1 hour and ~~provide~~ automatic sprinkler system[a]
Laundry rooms over 100 square feet	1 hour or ~~provide~~ automatic sprinkler system[a]
In Group I-2, laundry rooms over 100 square feet	1 hour
Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces	1 hour
In Group I-2, physical plant maintenance shops	1 hour
In ambulatory care facilities or Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume of 10 cubic feet or greater	1 hour
In other than ambulatory care facilities and Group I-2 occupancies, waste and linen collection rooms over 100 square feet	1 hour or ~~provide~~ automatic sprinkler system[a]
In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet	1 hour

Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons for flooded lead-acid, nickel cadmium or VRLA, or more than 1,000 pounds for lithium-ion and lithium metal polymer used for facility standby power, emergency power or uninterruptable power supplies	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.
Electrical dry-type transformer rated over 112 ½ kVA Exception: Where transformers with Class 155 or higher insulation systems are separated from combustible material by a fire-resistant, heat-insulating barrier or by not less than 6 feet horizontally and 12 feet vertically or completely enclosed except for ventilating openings.	1 hour [d]
Electrical dry-type transformer rated over 35,000 volts.	1 hour and automatic sprinkler system [a b d]
Electrical oil-insulated transformer of any rating.	1-hour and automatic sprinkler system and oil containment serving all if multiple transformers; sized to contain the volume of oil in the largest unit [a b c d]

a. Automatic sprinkler system in accordance with Seciton 903.3.1.1.

b. An alternative automatic fire extinguishing system provided in lieu of an automatic sprinkler system in accordance with Section 903.1.1.

c. See the National Electric Code (NFPA 70) for detailed construction requirements and exceptions regarding oil and other liquid insulated transformers.

d. See additional requirements in Section 509.5.

For SI: 1 square foot = 0.0929 m^2, 1 pound per square inch (psi) = 6.9 kPa, 1 British thermal unit (Btu) per hour = 0.293 watts, 1 horsepower = 746 watts, 1 gallon = 3.785 L, 1 cubic foot = 0.0283 m^3.

Add new text as follows:

509.5 Electrical room construction. Rooms containing transformers shall be in accordance with Section 1010.1.10 and with this section.

1. Where Table 509 only specifies separation without protection for rooms containing electrical transformers, the room shall be in accordance with the following:

1.1. Ventilation openings in surrounding building exterior walls or roof/ceiling construction shall be provided with an open area of not less than 3 square inches for each kVA of transformer capacity or not less than 1 square foot, whichever is greater. Ventilation openings shall be in accordance with Table 716.5 and protected wtih screens, grating or louvers. The ventilation openings shall be located in accordance with one of the following:

1.1.1. Provide 100 percent of ventilation openings near the ceiling of the electrical room; or

1.1.2. Proivde half of the ventilation openings at the floor and the balance of the openings near the ceiling of the electrical room.

1.2. Electrical rooms shall be provided at the exterior of the building to allow natural ventilation in accordance with Item 1, or shall be provided with mechanical ventilation located and sized to effectively control the transformer full load losses and limit the termperature rise in accordance with the transformer rating.

1.3. Where the room is located at slab on grade condition, a concrete slab not less than 4 inches thick shall be provided.

1.4. Doors from the electrical room shall sw2ing in the diretion of egress travel away from teh electrical room. Doors shall be self-closing to a latched and locked position and shall be provided with panic hardware.

1.5. Pipes and ducts, other than those that service the electrical room, shall not pass through an electrical room.

2. Where table 509 specifies both separation and protection for rooms containing electrical transformers, the room shall be in accordance with Item 1 and the following:

2.1. the room shall be separated and protected as specified in Table 509 or it shall be located in an enclosure constructed of concrete or similar materials providing not less than three hour fire-resistance-rated construction with opening protectives provided in accordance with Table 716.5.

TABLE 716.5
OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Fire walls and fire barriers having a required fire-resistance rating greater than 1 hour	4	3	See Note b	D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	See Note b	D-H-W-180	Not Permitted	3	Not Permitted	W-180
	2	1 1/2	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
	1 1/2	1 1/2	100 sq. in.	≤100 sq. in. = D-H-90 >100 sq. in.=D-H-W-90	Not Permitted	1 1/2	Not Permitted	W-90
Enclosures for shafts, interior exit stairways and interior exit ramps.	2	1 1/2	100 sq. in.	≤100 sq. in. = D-H-90 > 100 sq. in.=D-H-T-W-90	Not Permitted	2	Not Permitted	W-120
Horizontal exits in fire walls[e]	4	3	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-240	Not Permitted	4	Not Permitted	W-240
	3	3[a]	100 sq. in.	≤100 sq. in. = D-H-180 > 100 sq. in.=D-H-W-180	Not Permitted	3	Not Permitted	W-180
Fire barriers having a required fire-resistance rating of 1 hour: Enclosures for shafts,exit access stairways, exit access ramps, interior exit stairways, ~~and~~ interior exit ramps; electrical room enclosure and exit passageway walls	1	1	100 sq. in.[c]	≤100 sq. in. = D-H-60 >100 sq. in.= D-H-T-W-60	Not Permitted	1	Not Permitted	W-60
					Fire protection			
Other fire barriers	1	3/4	Maximum size tested	D-H	3/4		D-H	
Fire partitions: Corridor walls	1	1/3[b]	Maximum size tested	D-20	3/4[b]		D-H-OH-45	
	0.5	1/3[b]	Maximum size tested	D-20	1/3		D-H-OH-20	

Other fire partitions	1	3/4	Maximum size tested	D-H-45	3/4		D-H-45	
	0.5	1/3	Maximum size tested	D-H-20	1/3		D-H-20	

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING (hours)	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING (hours)	DOOR VISION PANEL SIZE[b]	FIRE-RATED GLAZING MARKING DOOR VISION PANEL[d]	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING (hours)		FIRE-RATED GLAZING MARKING SIDELIGHT/TRANSOM PANEL	
					Fire protection	Fire resistance	Fire protection	Fire resistance
Exterior walls	3	1 1/2	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in = D-H-W-90	Not Permitted	3	Not Permitted	W-180
	2	1 1/2	100 sq. in.[b]	≤100 sq. in. = D-H-90 >100 sq. in.= D-H-W-90	Not Permitted	2	Not Permitted	W-120
					Fire protection			
	1	3/4	Maximum size tested	D-H-45	3/4		D-H-45	
Smoke barriers					Fire protection			
	1	1/3	Maximum size tested	D-20	3/4		D-H-OH-45	

For SI: 1 square inch = 645.2 mm.

a. Two doors, each with a fire protection rating of 1 1/2 hours, installed on opposite sides of the same opening in a fire wall, shall be deemed equivalent in fire protection rating to one 3-hour fire door.

b. Fire-resistance-rated glazing tested to ASTM E 119 in accordance with Section 716.2 shall be permitted, in the maximum size tested.

c. Except where the building is equipped throughout with an automatic sprinkler and the fire-rated glazing meets the criteria established in Section 716.5.5.

d. Under the column heading "Fire-rated glazing marking door vision panel," W refers to the fire-resistance rating of the glazing, not the frame.

e. See Section 716.5.8.1.2.1.

Reason: Construction requirements for electrical room floors, walls, ceilings, openings, hardware etc are contained in the National Electrical Code (NFPA 70). The terms used are not the same as those in the IBC. The differences can cause confusion for the design professional which can result in costly mistakes or unecessary features. This proposal brings the building related requirements in the NEC into the IBC in terms consistent with the rest of the building element nomenclature to add clarity and consistency. While editing Table 509 the term "provide" was deleted from its positions before "automatic sprinkler system" and inserted at the top of the table so that all enclosures and protection would be provided as intended by the table.

For the automatic sprinkler system requirement, a footnote was added for consistency with the rest of the IBC regarding automatic sprinkler systems.

Cost Impact: Will not increase the cost of construction
There is no intended change in construction requirements. Hopefully this proposal will clarify some confusing language and reduce costs.

G 157-15 : T509-WALLACE5085

G 158-15

509.3

Proponent: Stephen Thomas, Colorado Code Consulting, LLC, representing Colorado Chapter ICC (sthomas@coloradocode.net)

2015 International Building Code

Delete without substitution:

~~**509.3 Area limitations.** Incidental uses shall not occupy more than 10 percent of the *building area* of the *story* in which they are located.~~

Reason: This section is unenforceable. Many incidental uses exceed 10% of the floor area of the story they are located in. In some cases the entire building can be an incidental use. For example, a heating plant for a hospital will have boilers that exceed the limits of Table 509, but are located in a single building. Another example is the location of laboratories and vocational classrooms in a high school. It is very common to have these areas exceed 10% of the area of the story that they are located in. The interpretation from ICC is to classify these areas as a different occupancy. This is contrary to the requirements of Section 509.2. It states "Incidental uses shall not be individually classified in accordance with Section 302.1". If you do classify the chemistry laboratory as an occupancy, it would be classified as a Group E occupancy (assuming the amount of chemicals do not exceed the MAQ's in Section 307.1). Therefore, if the lab exceeds 10% of the story area, there would be no separation between the lab and an adjacent classroom. However, if it was less than 10%, a separation would be required. This doesn't make sense. By deleting the area limitation, this problem is resolved and a separation would be required regardless of the size.

Bibliography: None

Cost Impact: Will not increase the cost of construction
There is no cost impact from this change. This change is a clarification of th existing language back to the way it was in the 2006 IBC.

G 158-15 : 509.3-THOMAS3647

G 159-15

TABLE 509, 509.1, 509.2, 509.3, 509.4, 509.4.1, 509.4.2, 509.4.2.1

Proponent: Stephen Thomas, Colorado Code Consulting, LLC, representing Colorado Chapter (sthomas@coloradocode.net)

2015 International Building Code

Revise as follows:

~~509~~ 427 INCIDENTAL USES

~~509.1~~ 427.1 General. Incidental uses located within single occupancy or mixed occupancy buildings shall comply with the provisions of this section. Incidental uses are ancillary functions associated with a given occupancy that generally pose a greater level of risk to that occupancy and are limited to those uses listed in Table ~~509~~ 427.1.

Exception: Incidental uses within and serving a *dwelling unit* are not required to comply with this section.

TABLE ~~509~~ 427.1
INCIDENTAL USES

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Furnace room where any piece of equipment is over 400,000 Btu per hour input	1 hour or provide automatic sprinkler system
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower	1 hour or provide automatic sprinkler system
Refrigerant machinery room	1 hour or provide automatic sprinkler system
Hydrogen fuel gas rooms, not classified as Group H	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.
Incinerator rooms	2 hours and provide automatic sprinkler system
Paint shops, not classified as Group H, located in occupancies other than Group F	2 hours; or 1 hour and provide automatic sprinkler system
In Group E occupancies, laboratories and vocational shops not classified as Group H	1 hour or provide automatic sprinkler system
In Group I-2 occupancies, laboratories not classified as Group H	1 hour and provide automatic sprinkler system
In ambulatory care facilities, laboratories not classified as Group H	1 hour and provide automatic sprinkler system
Laundry rooms over 100 square feet	1 hour or provide automatic sprinkler system
In Group I-2, laundry rooms over 100 square feet	1 hour
Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces	1 hour
In Group I-2, physical plant maintenance shops	1 hour
In ambulatory care facilities or Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume of 10 cubic feet or greater	1 hour
In other than ambulatory care facilities and Group I-2 occupancies, waste and linen collection rooms over 100 square feet	1 hour or provide automatic sprinkler system

In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet	1 hour
Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons for flooded lead-acid, nickel cadmium or VRLA, or more than 1,000 pounds for lithium-ion and lithium metal polymer used for facility standby power, emergency power or uninterruptable power supplies	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.

For SI: 1 square foot = 0.0929 m^2, 1 pound per square inch (psi) = 6.9 kPa, 1 British thermal unit (Btu) per hour = 0.293 watts, 1 horsepower = 746 watts, 1 gallon = 3.785 L, 1 cubic foot = 0.0283 m^3.

~~509.2~~ 427.2 Occupancy classification. Incidental uses shall not be individually classified in accordance with Section 302.1. Incidental uses shall be included in the building occupancies within which they are located.

~~509.3~~ 427.3 Area limitations. Incidental uses shall not occupy more than 10 percent of the *building area* of the *story* in which they are located.

~~509.4~~ 427.4 Separation and protection. The incidental uses listed in Table ~~509~~427.1 shall be separated from the remainder of the building or equipped with an *automatic sprinkler system*, or both, in accordance with the provisions of that table.

~~509.4.1~~ 427.4.1 Separation. Where Table ~~509~~427.1 specifies a fire-resistance-rated separation, the incidental uses shall be separated from the remainder of the *building* by a *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both. Construction supporting 1-hour *fire barriers* or *horizontal assemblies* used for incidental use separations in buildings of Type IIB, IIIB and VB construction is not required to be fire-resistance rated unless required by other sections of this code.

~~509.4.2~~ 427.4.2 Protection. Where Table ~~509~~427.1 permits an *automatic sprinkler system* without a *fire barrier*, the incidental uses shall be separated from the remainder of the building by construction capable of resisting the passage of smoke. The walls shall extend from the top of the foundation or floor assembly below to the underside of the ceiling that is a component of a fire-resistance-rated floor assembly or roof assembly above or to the underside of the floor or roof sheathing, deck or slab above. Doors shall be self- or automatic-closing upon detection of smoke in accordance with Section 716.5.9.3. Doors shall not have air transfer openings and shall not be undercut in excess of the clearance permitted in accordance with NFPA 80. Walls surrounding the incidental use shall not have air transfer openings unless provided with smoke dampers in accordance with Section 710.8.

~~509.4.2.1~~ 427.4.2.1 Protection limitation. Where an automatic sprinkler system is provided in accordance with Table ~~509~~ 427.1, only the space occupied by the incidental use need be equipped with such a system.

Reason: This change is intended to relocate the incidental use requirements to Chapter 4 of the IBC. Incidental uses are not occupancies. Therefore, they do not belong in the occupancy chapter. They are areas in a building that have a higher level of risk and are separated from the rest of the building. By placing the requirements in Chapter 4, they are then considered special uses and will eliminate the confusion of whether they are occupancies or not. We believe that this will provide better clarification for these areas in a building that have special requirements. The title of Chapter 4 is Special Detailed Requirements Based on Use and Occupancy. The location of these requirements is more appropriate in this chapter.

Cost Impact: Will not increase the cost of construction
This change is a relocation of the requirements. There is no technical change that will affect the cost of construction.

G 159-15 : CHAPTER 5-THOMAS4425

G 160-15

510.2

Proponent: Marshall Klein, representing NMHC

2015 International Building Code

Revise as follows:

510.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where all of the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a *fire-resistance rating* of not less than 3 hours. The horizontal assembly shall not include vertical offsets except where the offset assemblies and their supporting structures have a fire-resistance rating of not less than 3 hours..
2. The building below the *horizontal assembly* is of Type IA construction.
3. *Shaft*, *stairway*, *ramp* and escalator enclosures through the *horizontal assembly* shall have not less than a 2-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5.

   Exception: Where the enclosure walls below the *horizontal assembly* have not less than a 3-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5, the enclosure walls extending above the *horizontal assembly* shall be permitted to have a 1-hour *fire-resistance rating*, provided:

   1. The building above the *horizontal assembly* is not required to be of Type I construction;
   2. The enclosure connects fewer than four *stories*; and
   3. The enclosure opening protectives above the *horizontal assembly* have a *fire protection rating* of not less than 1 hour.
4. The building or buildings above the *horizontal assembly* shall be permitted to have multiple Group A occupancy uses, each with an *occupant load* of less 300, or Group B, M, R or S occupancies.
5. The building below the *horizontal assembly* shall be protected throughout by an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, and shall be permitted to be any occupancy allowed by this code except Group H.
6. The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section 504.3 for the building having the smaller allowable height as measured from the *grade plane*.

Reason: It is very common for projects built under the provisions of Section 510.2 to include vertical offsets to accommodate elevation changes for a particular site or different ceiling heights within a story. Currently, the code provides no guidance on how to deal with these vertical offset assemblies, and the designer and code official are left to handle them as alternative methods or modifications in accordance with Chapter 1. This change will provide appropriate regulations for ensuring that any vertical offset maintains a proper and continuous fire rating for both the horizontal and vertical portions of the separation, plus it ensures that the supporting structure for a vertical offset has an equivalent fire-resistance rating.

It is worth noting that the code deals with this issue in reverse for firewalls by permitting horizontal offsets in those vertical assemblies, as described in Section 706.1 of the 2012 IBC Commentary, which states "...offsetting two vertical sections of firewalls is permissible as long as the required fire resistance rating and structual stability are maintained."

Cost Impact: Will not increase the cost of construction

There should be no impact on the cost of construction because the intent of this proposal is simply to state how the current provisions should be applied. However, there will be a decrease in administrative costs for cases where an alternative method or modification would have previously been necessary as part of the complaince path.

G 160-15 : 510.2-KLEIN4223

G 161-15

510.2

Proponent: Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com)

2015 International Building Code

Revise as follows:

510.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where all of the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a *fire-resistance rating* of not less than 3 hours. <u>The horizontal assembly shall be of Type 1 construction.</u>
2. The building below the *horizontal assembly* is of Type IA construction.
3. *Shaft*, *stairway*, *ramp* and escalator enclosures through the *horizontal assembly* shall have not less than a 2-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5.

   Exception: Where the enclosure walls below the *horizontal assembly* have not less than a 3-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5, the enclosure walls extending above the *horizontal assembly* shall be permitted to have a 1-hour *fire-resistance rating*, provided:

   1. The building above the *horizontal assembly* is not required to be of Type I construction;
   2. The enclosure connects fewer than four *stories*; and
   3. The enclosure opening protectives above the *horizontal assembly* have a *fire protection rating* of not less than 1 hour.
4. The building or buildings above the *horizontal assembly* shall be permitted to have multiple Group A occupancy uses, each with an *occupant load* of less 300, or Group B, M, R or S occupancies.
5. The building below the *horizontal assembly* shall be protected throughout by an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, and shall be permitted to be any occupancy allowed by this code except Group H.
6. The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section 504.3 for the building having the smaller allowable height as measured from the *grade plane*.

Reason: Existing language is unclear and can be interpreted to only require the greater type of construction below the 3 hour separation. The addition of the sentence to Item 1 makes it clear that the 3 hour horizontal assembly can not be constructed out of a type of construction that is different than the lower building.

Cost Impact: Will not increase the cost of construction
This code change does not create a new requirement. It clarifies existing code language to prevent misinterpretation of the code

G 161-15 : 510.2-MAIEL5410

G 162-15

510.2

Proponent: Mark Nowak, representing Steel Framing Alliance (mnowak@steelframing.org)

2015 International Building Code

Revise as follows:

510.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where all of the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a *fire-resistance rating* of not less than 3 hours.
2. The building below the *horizontal assembly* is of Type IA construction.
3. *Shaft*, *stairway*, *ramp* and escalator enclosures through the *horizontal assembly* shall have not less than a 2-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5.

    Exception: Where the enclosure walls below the *horizontal assembly* have not less than a 3-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5, the enclosure walls extending above the *horizontal assembly* shall be permitted to have a 1-hour *fire-resistance rating*, provided:

    1. The building above the *horizontal assembly* is not required to be of Type I construction;
    2. The enclosure connects fewer than four *stories*; and
    3. The enclosure opening protectives above the *horizontal assembly* have a *fire protection rating* of not less than 1 hour.
4. The building or buildings above the *horizontal assembly* shall be permitted to have multiple Group A occupancy uses, each with an *occupant load* of less 300, or Group B, M, R or S occupancies.
5. The building below the *horizontal assembly* shall be protected throughout by an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, and shall be permitted to be any occupancy allowed by this code except Group H.
6. The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section 504.3 for the building having the smaller allowable height as measured from the *grade plane*.
7. <u>Type V buildings with combustible structural elements above the horizontal separation shall be separated from lot lines and buildings on the same lot by not less than 50 feet.</u>

Reason: This proposal will correct an inconsistency in the code that currently permits a shorter separation distance to adjacent buildings or lot lines for buildings with combustible structural elements versus similar sized Type IIA noncombustible buildings. The code currently requires Type IIA residential buildings, constructed with non-combustible structural elements, to be separated by a minimum of 50 feet in Section 510.6 but no such separation is required for combustible Type V construction in Section 510.2 despite the higher risk with combustible construction.
More builders and designers are using Section 510 of the code to extend the allowable height and stories of residential buildings that use combustible structural framing. Marketing efforts such as WoodWorks, a program with support of the major wood and timber associations, government agencies, and other partners, continue to promote the use of combustible framing in mid-rise residential and other structures through Section 510 of the code. It is questionable that the code ever intended combustible framing to be used at heights now being constructed -- the allowable heights have crept upward with allowances for sprinkler systems added since the requirements in Section 510 first entered buildings codes.

Fires from mid-rise Type V buildings with combustible structural elements are epidemic and catastrophic yet there is little protection required of them relative to their risk versus other types of construction. This proposal will correct this deficiency in the code to better protect nearby buildings and provide firefighters clearance between buildings to address fires during and after construction. The 50 foot separation is a minimum requirement that will ensure at least the same level of protection for buildings with combustible structures as for similar Type IIA buildings when additional height is obtained though use of the special provisions in Section 510 of the code. The 50 foot distance in this proposal extends the precedent set in the code for buildings with lower risk (Type IIA) of similar size to the higher-risk combustible framing used in Type V buildings under Section 510 of the code.

In addition to providing a separation for finished buildings, the proposed 50 foot distance will also improve the ability of firefighters to address fires during construction. In just the past few years, a significant number of major fires throughout the United States in buildings under construction have occurred in four story and higher buildings that have used combustible framing members. During the construction phase, these buildings are extremely vulnerable due to the lack of operational active and passive fire resistance. These fires have damaged nearby properties, required major street closures including interstates, and occupied fire fighting resources to the extent that other areas were left under-protected for extended periods. As recently as December of 2014, a major fire in Los Angeles with five stories of wood framing over a two story concrete podium not only resulted in millions of dollars in damage to the building under construction, but also damaged adjacent buildings. The seven-story apartment building known as the DaVinci was a complete loss after the fire that was fueled by the five stories of wood frame construction. More than 250 firefighters were dispatched to the scene. Flames were visible for miles and the structure's wooden frame forced the closure of northbound Harbor (110) Freeway. Computers and cubicles melted in neighboring buildings. Hundreds of thick windows cracked as well. This is typical of the risk that these buildings pose to themselves and surrounding properties. Some examples of other larger recent fires that illustrate the risk of combustible framing in mid-rise buildings include:

1. Monroe Apartments, Portland, OR August 8, 2013
2. Student Apartments, Kingston, Ontario, CAN December 17, 2013
3. 550 East and 500 South, Salt Lake City, UT February 9, 2014
4. Commercial Building, Roxbury, MA March 3, 2014
5. Mission Bay Project, San Francisco, CA March 11, 2014
6. Axis Apartments, Houston, TX, March 25, 2014
7. Beacon Street, Boston, MA, March 27, 2014
8. Gables Upper Rock, Rockville, MD, April 1, 2014
9. SE Tech Center Drive, Vancouver, WA, June 19, 2014
10. Victoria Commons, Kitchener, Ontario, CAN, July 22, 2014
11. Apollo Way, Madison, WI, August 8, 2014

Cost Impact: Will increase the cost of construction
This proposal will impact the cost of construction for some buildings on small lots or in urban or other high density areas where the separation distance is especially important for increased safety. Depending on the size of the lot and proposed building, some buildings may not be able to meet the separation distance and will need to be reduced in height or number of stories. In some cases, non-combustible construction could be used to protect the building if the setback cannot be achieved. Any added costs in these few buildings can be offset by the added safety and lower insurance costs throughout construction and the life of the structure. Building with reasonable separation distances will also be offset by the avoided costs of rebuilding after fires and avoidance of damage to nearby properties and occupants.

G 163-15

510.2, TABLE 510.2 (New)

Proponent: Dennis Richardson, representing American Wood Council (drichardson@awc.org)

2015 International Building Code

Revise as follows:

510.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where all of the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a *fire-resistance rating* of not less than 3 hours.
2. The building below the *horizontal assembly* is of Type IA construction or Type IV construction protected as required in Table 510.2.
3. *Shaft*, *stairway*, *ramp* and escalator enclosures through the *horizontal assembly* shall have not less than a 2-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5.

    Exception: Where the enclosure walls below the *horizontal assembly* have not less than a 3-hour *fire-resistance rating* with opening protectives in accordance with Section 716.5, the enclosure walls extending above the *horizontal assembly* shall be permitted to have a 1-hour *fire-resistance rating*, provided:
    1. The building above the *horizontal assembly* is not required to be of Type I construction;
    2. The enclosure connects fewer than four *stories*; and
    3. The enclosure opening protectives above the *horizontal assembly* have a *fire protection rating* of not less than 1 hour.
4. The building or buildings above the *horizontal assembly* shall be permitted to have multiple Group A occupancy uses, each with an *occupant load* of less 300, or Group B, M, R or S occupancies.
5. The building below the *horizontal assembly* shall be protected throughout by an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, and shall be permitted to be any occupancy allowed by this code except Group H.
6. The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section 504.3 for the building having the smaller allowable height as measured from the *grade plane*.

Add new text as follows:

TABLE 510.2
TYPE IV BUILDING BELOW, PROTECTION CRITERIA

	Required layers of 5/8 inch type X gypsum board for protection based on Occupancy or Fire Area Occupancy Conditions: [a, b]		
Type IV (HT) building element:	**A, B, E, F-2, I, R, S-2 occupancies**	**F-1, M, S-1 occupancies**	**F-1, M, S-1 occupancies containing any of he following:** **1. The manufacture, storage or display of upholstered furniture or mattresses exceeds 2500 square feet;** **2. Woodworking operations in excess of 2500 square feet;** **3 Repair garages greater than 10,000 square feet or located in basements;** **4. Repair or storage of commercial vehicles greater than 5000 square feet;** **5. Bulk storage of tires exceeding 20,000 cubic feet**
Interior vertical surface of heavy timber beams, columns, and CLT walls	2	3	4
Interior horizontal or sloping surface of heavy timber beams and CLT ceilings	3	4	5
CLT exterior wall surface; FSD < 10 feet	2	2	2
CLT exterior wall surface; 10 ≤ feet FSD < 30 feet	1	1	1
CLT exterior wall surface; FSD ≥ 30 feet	Section 602.4	Section 602.4	Section 602.4

CLT = Cross laminated timber; FSD - fire separation distance. For SI: 1 foot = 304.8 mm; 1 square foot = 0.0929 m^2; 1 cubic foot = 0.028 m^3

a. Heavy timber columns and beams that are designed to be 2 hour fire resistance rated as exposed wood members, as allowed by Section 722.1 and the NDS Chapter 16, are permitted to be considered 3 hour fire resistance rated when further encapsulated as incorporated in this table.

b. Wall and ceiling assemblies with multiple layers of gypsum board shall be permitted to be furred with noncombustible or fire retardant treated lumber furring provided the cavity is filled with securely attached mineral wool insulation and at least one layer of gypsum board is directly attached to the heavy timber structure. Multiple layers of gypsum board shall be permitted to be secured to furring as required in Section 722.5.1.2.1 ,or Figure 722.5.1(3) for columns and in Section 722.3.2.5 for walls. Attachment of multi-layer gypsum wallboard to ceilings shall be permitted to be as required for two layer assemblies attached to

<u>resilient channels in Table 721.1(3) and the base layer or layers shall be permitted to be attached directly to the type IV structure as required by item 21 of Table 721.1(3). Other attachment shall be permitted to be used if specified by the manufacturer and approved.</u>

Reason: There has been considerable interest in the utilization of wood for urban infill residential projects where land costs are at a premium and there is a need to utilize the full extent of the allowable height to incorporate housing over commercial uses below. G133 in the 2015 IBC allows type IA three hour podiums to be more than one story. That code change was successful as proponents pointed out that many jurisdictions already allow this practice approving multi-story podiums through alternate methods of construction. The three-hour separation at the top of the lower building must be supported by three-hour construction to the foundation. Another code change lessened the occupancy restrictions on the three-hour type IA lower building. These two changes allow significant retail and commercial mixed use projects with larger commercial occupancies below while maintaining light frame residential uses above.

The provisions for 510.2 are the most stringent in the code as the podium or pedestal is currently required to both be noncombustible and provide both 3 hour separation and support of the structure up above. Many have referred to it as a horizontal fire wall since fire walls from the structure above are not required to extend into the structure below and different types of construction can be utilized in the structure above and below.

This code change proposes to allow Type IV heavy timber construction below that is 3 hour fire reistance rated instead of the noncombustible podium.

Cross Laminated Timber has been manufactured for over 30 years in Europe and has just recently caught hold on the American Continent where some major structures are under way in Canada and smaller buildings are being built in the US. In Europe buildings of 8 to 10 stories and above are regularly constructed. The following link gives examples of CLT buildings throughout the world. http://www.rethinkwood.com/tall-wood-survey

Basically 2x nominal lumber is laminated in alternate 90 degree directions forming a solid billet of wood from 4.5 inches to 18 inches in thickness perpendicular to grain and in-plane dimensions of up to 9 feet by 65 feet. This material is extremely strong and stiff particularly in the plane direction where both sheet directions have parallel to grain laminated lumber elements. Because of this two way parallel grain it is dimensionally stable in the 9 foot and 65 foot direction.

CLT was approved for use in the 2015 IBC and the design standard can be found in Section 2303.1.4. As part of that public comment code submittal an E119 test was provided showing a five layer CLT wall loaded with 87,000 lbs. and with one layer of 5/8" type X gypsum board on each side. The test resulted in a three hour fire resistance rating and was stopped when fire came through near an edge of the wall panel. Manufactures have run additional tests since then in a variety of configurations.

The following link provides access to additional information regarding this or other code changes proposed by American Wood Council.
http://www.awc.org/Code-Officials/2015-IBC-Code-Changes/

Recently, the 2015 NDS was published which provides for calculated fire resistance of CLT as well as other exposed timber. Chapter 16 of the NDS has been recognized for years in the IBC as a procedure whereby exposed glulam and timber beams and columns can be calculated to provide fire resistance up to 2 hours. Newly updated Technical Report 10 is available on the AWC website providing more detail of this method. Fire resistance rating of exposed wood occurs because the exterior of the wood chars and insulates the interior of the wood member. The member is designed and detailed to meet the required structural performance with the outer char layer sacrificed to provide protection from heat and fire. The 2015 NDS extends this calculation method to CLT. Members with calculated fire resistance of exposed wood can be provided with further fire resistance rating by providing additional protection of that member with gypsum board. Recent tests show the horizontal surfaces of a timber beam to be protected for approximately 30 minutes for each 5/8" layer of gypsum board applied on the horizontal beam bottom and and 40 minutes for each layer applied vertically on both sides. Similar timeframes are added to CLT wall and floor ceiling materials when gypsum is applied. This is not much different, in the case of walls, to a method for calculating the fire resistance rating of concrete walls that are further protected with gypsum board found in IBC Section 722.2.1.4.

All building materials have some form of "bad behavior". Some other materials significantly loose strength when subjected to elevated temperatures and must be protected. Many other materials may suffer significant distortions causing structural failure due to uneven heating of some portions of the structure when subjected to a compartment fire while other portions of the structure remain at room temperature. Still other bad behaviors include brittle spalling of material when subjected to heat.

Heavy timber wood construction has the advantage of remaining relatively dimensionally stable as the wood chars and is not a good conductor of heat. Wood also retains its strength in the remaining section as large members char to around exposed surfaces. The main issue raised about wood is the potential to contribute to the fire as additional fuel. The code relies on the limitation of noncombustible materials in the definition of Type IA construction to limit the potential of the structure to contribute to the fire. This is especially critical in taller major structures and podium type buildings supporting other buildings.

In order to obtain similar performance regarding the potential contribution of wood to a fire, this code change proposal gives the requirements for additional gypsum board protection to delay the onset of the fire causing the wood to char and contribute to combustion. Although the building is required have NFPA 13 sprinklers throughout that is not considered in the design and provides a belt and double suspender approach to ensuring safety while protecting the heavy timber structure and gypsum board from the effects of common nuisance fires.

Table 510.2 is provided which specifies increased protection of the proposed heavy timber structure based on the potential fire load of the occupancy. Fire area requirements in certain occupancies with additional combustible material typically call for reduced fire area size or sprinklers in section 903 due additional fire load. These are also provided with additional layers of gypsum board keeping the CLT cool and delaying the onset of wood contribution to the fire load in these fire areas with up to 4 layers of 5/8" type X gypsum board on walls and 5 layers on the ceilings. This protection can push the fire resistance rating performance in an E119 test upwards of 4 to 5 hours or more with a four layers of gypsum on a CLT wall. The heavy amount of additional gypsum board provided in this proposal for podiums is used to limit the probability of contribution of the wood structure to a fire also serves to provide a substantial margin of safety against structural failure when compared with other materials. Once the wood structure starts to char, it still has a large margin time where the strength of the material is not affected.

It is worthy to note that not all fires are equal and the only time the E119 time and temperature curve is standard is when in the controlled environment of a test furnace. Actual time temperature curves are affected by a variety of factors including fire load, insulation of compartment, ventilation, and configuration. All materials are affected differently some leading to brittle failure or sudden onset of strength loss. The actual performance of any material is affected by specific material characteristics and fire conditions.

The E119 test while not intended to measure contribution of the tested material to the fire does provide an apple to apple measure of performance of measurable characteristics of test assemblies subjected to the same conditions. By significantly delaying or eliminating the contribution of the heavy timber with heavy gypsum board protection, this apple to apple comparison is made more consistent. Typical fires may actually have higher spiking of temperatures well above the E119 levels with decay in temperature as the fire progresses and decays. E119 tests also may not predict the performance of materials where the strength or dimensions are temperature sensitive. Heavy timber tends to remain stable in actual fire conditions and the main adverse effect of the early spike in temperature is slightly faster char rates but followed by slower char rates when the fire decays. The predictability, strength and dimensional stability of highly protected heavy timber, is not nearly as susceptible to non-standard fires as may be with other materials.

In Section 510.2 the three hour type IA structure below is unlimited in size. This proposal relies on the allowable area of type IV construction in the building below and is more conservative since the 3 hour building below would be required to be limited as allowed for type IV or divided by three hour fire walls if the allowable area of the lower building exceeds the allowable area for type IV construction.

This code proposal is a first attempt at utilizing massive timber in a new way. Because of that, the level of gypsum protection is conservative based on fire load. This is in addition to the behavior of wood char in heavy timber to provide reliable structural performance and in addition to the installation of an NFPA 13 sprinkler system.

Cost Impact: Will not increase the cost of construction
This code change provides a new option for construction that is not currently available.

G 163-15 : 510.2-RICHARDSON4776

G 164-15

510.5, 708.3, 711.2.3, 711.2.4.1, 711.2.4.3

Proponent: Stephen Skalko, representing Masonry Alliance For Codes and Standards (svskalko@cox.net)

2015 International Building Code

Revise as follows:

510.5 Group R-1 and R-2 buildings of Type IIIA construction. The height limitation for buildings of Type IIIA construction in Groups R-1 and R-2 shall be increased to six *stories* and 75 feet (22 860 mm) where the first floor assembly above the *basement* has a *fire-resistance rating* of not less than 3 hours and the ~~floor area is subdivided by~~ *dwelling unit* and *sleeping unit* separations are a minimum of 2-hour fire-resistance-rated *fire* barrier walls ~~into areas of not more than 3,000 square feet (279 m²)~~.

708.3 Fire-resistance rating. Fire partitions shall have a *fire-resistance rating* in accordance with the following

1. Not less than 2-hour for Group I-1, R-1 and R-2 occupancies in buildings of ~~not~~ Type III, IV and V construction that are 4 or more stories in height.
2. Not less than 1 hour except for buildings covered in Item 1 above.

Exceptions:

1. Corridor walls permitted to have a $^1/_2$-hour *fire-resistance rating* by Table 1020.1.
2. ~~*Dwelling unit* and *sleeping unit* separations in buildings of Type IIB, IIIB and VB construction shall have *fire-resistance ratings* of not less than $^1/_2$ hour in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~

711.2.3 Supporting construction. The supporting construction shall be protected to afford the required fire-resistance rating of the horizontal assembly supported.

Exception: In buildings of Type IIB, IIIB or VB construction, the construction supporting the horizontal assembly is not required to be fire-resistance rated at the following:

1. Horizontal assemblies at the separations of incidental uses as specified by Table 509 provided the required fire-resistance rating does not exceed 1 hour.
2. ~~Horizontal assemblies at the separations of dwelling units and sleeping units as required by Section 420.3.~~

~~3.~~ 2. Horizontal assemblies at smoke barriers constructed in accordance with Section 709.

711.2.4.1 Separating mixed occupancies. Where the horizontal assembly separates mixed occupancies, the assembly shall have a fire-resistance rating of not less than that required by the following:

1. Section 508.4 based on the occupancies being separated.
2. Not less than 2-hours for Group I-1, R-1, and R-2 occupancies in buildings of Type III, IV or V construction that are more than 4 stories in height.

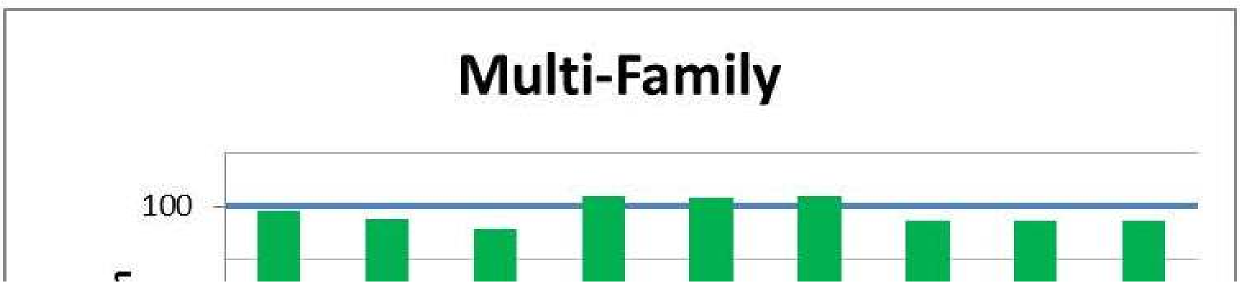
711.2.4.3 Dwelling units and sleeping units. Horizontal assemblies serving as dwelling or sleeping unit separations in accordance with Section 420.3 shall be not less than the following:

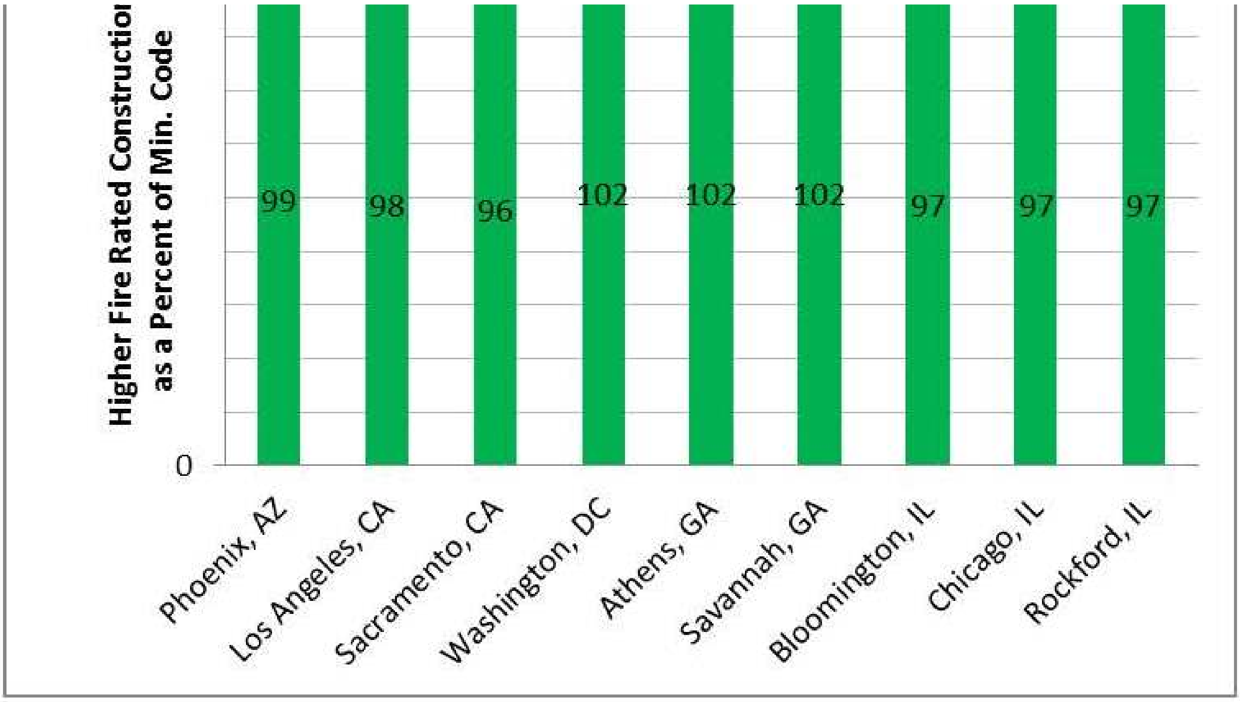
1. One-hour fire-resistance-rated construction, or
2. Two-hour fire resistance rated construction for Group I-1, R-1 and R-2 occupancies in buildings of Type III, IV and V construction that are 4 or more stories in height.

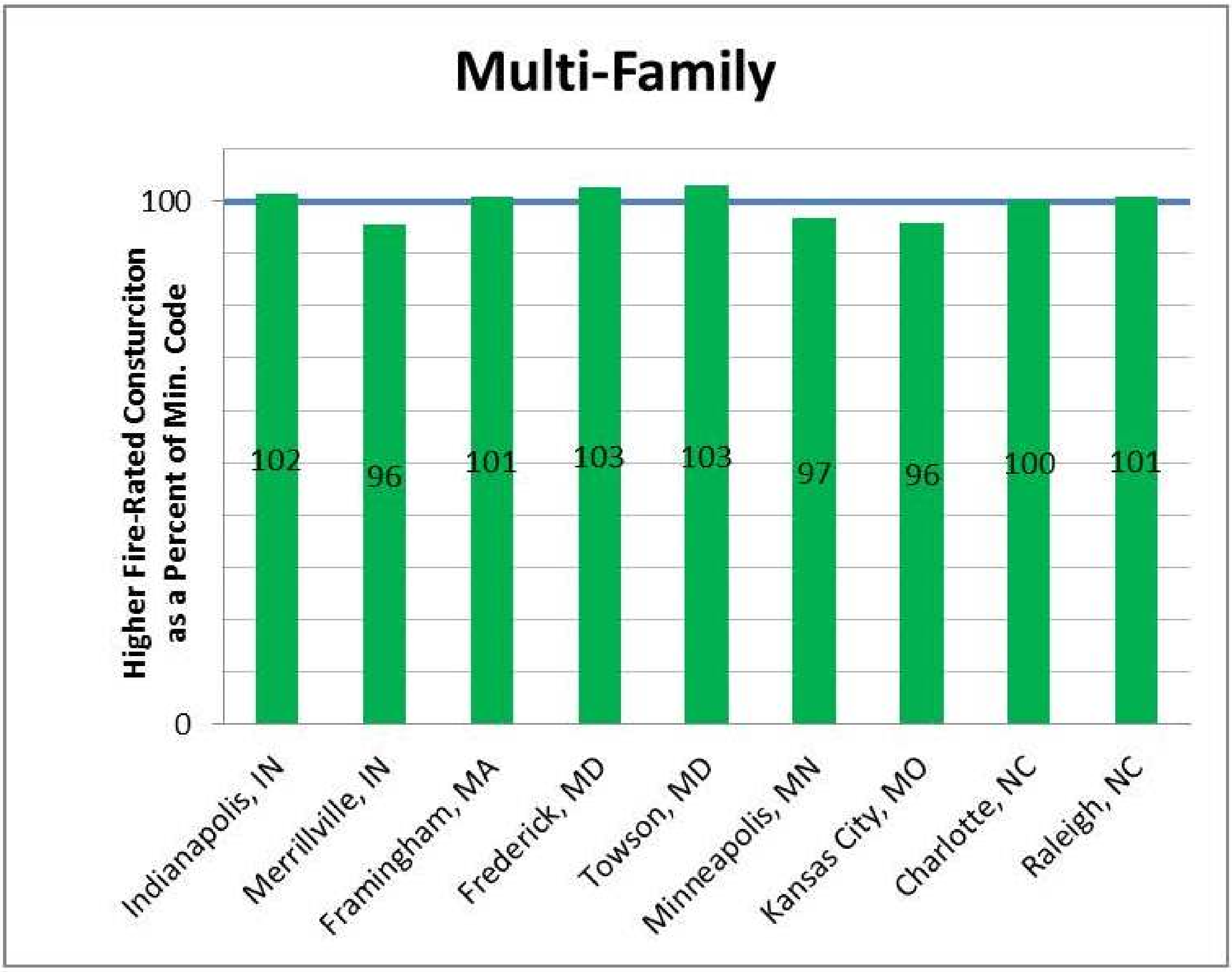
~~**Exception:** Horizontal assemblies separating dwelling units and sleeping units shall be not less than $^1/_2$ hour fire-resistance-rated construction in a building of Type IIB, IIIB and VB construction, where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~

Reason: Though the loss of life from fires affecting Group I-1, R-1 and R-2 occupancies is not high the amount of property damage continues to remain high. Section 101.3 of the code states the intent of the building code includes safety to property from fire. To reduce property loss this proposal modifies the requirements for Group I-1, R-1and R-2 occupancies of Types III, IV and V construction 4 or more stories in height to require these buildings to be constructed with fire rated separations between sleeping and dwelling units with a minimum of 2-hour fire resistance rating. The increase in the fire resistance provides a much higher degree of protection to property in the event of a fire in these taller buildings with combustible construction. In addition, when occupants in these types of buildings are sleeping they are less likely to be aware of conditions around them. Fires occurring during these times pose a high risk to the occupants. This increase in the fire resistance also provides a higher degree of protection to sleeping occupants in reducing the spread of fire.

Insert for Cost Statement to Group I-1, R-1 and R-2 code change by the Masonry Alliance for Codes and Standards.







Bibliography: [1]Haas Architects Engineers: A multi-disciplinary architectural and engineering firm located in State College, Pennsylvania with a thirty year history of client centered service including commercial, single and multi-family residential, retail, and sports based projects.

[2]Tim E. Knisely; Senior fire and commercial housing inspector for the Centre Region Code Administration, in State College, Pennsylvania. Mr. Knisely holds a certification as a registered Building Code Official in the Commonwealth of Pennsylvania and holds more than eight certifications from the International Code Council. In addition, Mr. Knisely has been involved in the fire service for more than 20 years.

[3]Poole Anderson Construction; One of the largest building contractors in Central Pennsylvania with a 75 year history and an annual construction volume exceeding 60,000,000

dollars.

Cost Impact: Will increase the cost of construction
The code change proposal may or may not increase the cost of construction. Independent third party studies of rectangular 4-story Type V multi-family dwellings indicate that the cost differential ranges between minus 3% to plus 3% for the most significant cost impact associated with designs that may shift buildings such as those affected by this proposal from Type V construction to other Types of construction due to the increased fire resistance of the dwelling unit separations.

A multi-family residential structure should be schematically designed to meet all of the requirements of the International Building Code to accurately evaluate the relative construction cost. Once designed, the cost comparison buildings were reviewed for code compliance, and cost estimates prepared. The study was conducted by:

Architect & Engineer: Haas Architects Engineers1

Code Official: Tim E. Knisely2

Cost Estimation : Poole Anderson Construction3

The building model chosen for the project was a 4 story multi-family residential structure encompassing approximately 25,000 gross square feet of building area per floor. The cost comparisons are based on the proposed target building assembled using a typical mix of one and two bedroom dwelling units

The following construction types and alternates were included in the evaluation:

Conventional Type V framing with Type V floor system

Alternate: Conventional Type VA framing with Type VA floor system

Non-combustible framing with fire-rated non-combustible floors (concrete slab on steel deck)

Fire-rated load bearing non-combustible construction with fire rated non-combustible floor system (concrete block and precast plank)

The cost estimate for each building model included the complete fit out of each building with the exception of movable appliances and furniture. For more details on the specific criteria visit: www.psfscac.org.

The following charts show the cost comparisons between a multifamily building constructed in accordance with the minimum fire resistive provisions of the code for Type V construction and the other construction systems that would be expected to meet the increased fire resistance.

G 164-15 : 510.5-SKALKO5485

G 165-15

510.12 (New)

Proponent: Dennis Richardson, representing American Wood Council (drichardson@awc.org)

2015 International Building Code

Add new text as follows:

510.12 Group R-1 and R-2 buildings of Type IV HT construction. The height and story limitations for buildings of Type IV HT construction in Groups R-1 and R-2 shall be increased to nine stories and 100 feet (30 480 mm) provided all of the following are met:

1. The heavy timber construction shall be not less than 2 hour fire resistance rated and protected with a minimum of one layer of 5/8 inch type X gypsum board on all interior wall surfaces and a minimum of two layers of 5/8 inch type X gypsum board on the ceiling side of all horizontal assemblies.
2. The building has a fire separation distance of not less than 50 feet (15 240 mm).
3. The exits are segregated in an area enclosed by a cross laminated timber 2 hour fire-resistance-rated walls protected with two layers of 5/8 inch type X gypsum board or equivalent on the room side of all walls adjacent to the enclosure.
4. Wall and ceiling assemblies with multiple layers of gypsum board shall be permitted to be furred with noncombustible or fire retardant treated wood furring provided the cavity is filled with securely attached mineral wool insulation and at least one layer of gypsum board is directly attached to the heavy timber structure. Multiple layers of gypsum board shall be permitted to be secured to furring as required in Section 722.5.1.2.1 or Figure 722.5.1(3) for columns and in Section 722.3.2.5 for walls. Attachment of multi layer gypsum wallboard to ceilings shall be permitted to be as required for single assemblies attached to resilient channels in Table 721.1(3) and the base layer or layers shall be permitted to be attached directly to the Type IV structure as required by item 21 of Table 721.1(3). Other attachment shall be permitted to be used if specified by the manufacturer and approved.
5. Buildings of Type IV construction shall be permitted to be located over a building with multiple occupancy groups meeting the provisions of Section 510.2.

Reason: Reason: Mass timber products such as cross-laminated timber (CLT) provide the structural and fire resistance capabilities necessary for taller buildings. This proposal closely follows the special occupancy for Type IIA structures in 510.6 as a model. Existing section 510.6 allows 1 fire resistance rated light frame steel buildings to be up to 9 stories and 100 feet tall when surrounded by 50 feet. This proposal goes to the same height and number of stories but requires additional fire resistance (2 hours instead of 1 hour throughout). The CLT is provided with minimum protection throughout the inside with 5/8" type X gypsum (one layer at all interior walls and two layers at all ceilings) and the overall assembly must meet the 2 hour E119 fire resistance test. In addition to the mass timber protected with type X gypsum board, the building is provided with an NFPA 13 sprinkler system throughout and is surrounded by yards of 50 feet. The entire fire and life safety "package" is at least equivalent to what is currently specified in 510.6.
The current section 510.6 applying to one hour type II construction requires stairways to be segregated into areas separated by a two hour fire wall. Although the existing language for 510.6 is somewhat unclear, this can be accomplished in the current 510.6 with a two hour fire wall separating the one hour type II building into two fire areas, each with stairways or with separate fire walls at each exit enclosure.
A fire wall is not necessary with this proposal since the entire building is two hour fire resistance rated construction. Stairways are provided with additional protection with a second layer of 5/8" type x gypsum board on the fire side of rooms adjacent to the stairways. Provisions are included to allow the installation of resilient channels and spaces filled with insulation for sound attenuation. Additionally it is noted this building may incorporate a 3 hour separation below if additional occupancies are to be housed in a podium below.
This code change helps address concerns about climate change by allowing a taller building to utilize cross laminated timber which sequesters carbon and has low embodied energy. There is much focus on the future utilization of this building system. The following link gives examples of CLT buildings throughout the world.
http://www.rethinkwood.com/tall-wood-survey
In addition the following link provides access to any additional information regarding this or other code changes proposed by American Wood Council.
http://www.awc.org/Code-Officials/2015-IBC-Code-Changes/

Cost Impact: Will not increase the cost of construction
This new code section provides a new option for construction that is not currently available.

G 165-15 : 510.12 (New)-RICHARDSON4889

G 166-15

511.1 (New), 511.2 (New), 511.3 (New), 511.4 (New)

Proponent: Carl Wren, City of Austin, Texas, representing City of Austin, Texas; Planning and Development Review Department and the Austin Fire Department (carl.wren@austintexas.gov)

2015 International Building Code

Add new text as follows:

SECTION 511—OCCUPIED ROOFS

511.1 General. Buildings with occupied roofs shall comply with this section and with Sections 903.2.1.6 and 1006.3, as applicable.

511.2 Enclosure of occupied roof. Occupied roofs, rooftops, and rooftop decks that are provided with walls or overhead weather protection, whether permanent or temporary, shall be considered a story for the purpose of determining the required construction type for the structure or building, for applying the requirements of Section 403, for applying Chapter 10, and for applying the thresholds for fire safety features required by Sections 903, 905, and 907.

Exceptions:
1. A parapet complying with Section 705.11 and less than 59 inches in height shall not be considered a wall for the purposes of this section.
2. Occupied roofs with temporary weather protection need not be considered a story when compliant with the fire code and approved by the fire code official for specific events conducted for less than 30 days each and the aggregate duration of such events is less than 90 days per 12 month period.

511.3 Fall protection. Occupied roofs and rooftops shall be provided with guards in accordance with Section 1015.

511.4 Interstitial spaces. Where decks or other walking surfaces are constructed above a roof to facilitate rooftop occupancy, the space between the roof/ceiling assembly and the deck or surface shall be constructed in a manner that precludes the accumulation of materials between the roof/ceiling assembly and the deck or walking surface and that prevents the introduction of ignition sources to the space.

Reason: Rooftop occupancies are becoming more and more common and the installation of weather protection is creating new or expanded building areas and occupancies. Some of the issues have been addressed in the 2015 code in section 903.2.1.6 and in section 1006.3, but the issue of increased building heights and added occupancies is more prevalent and more varied than the current code can adequately address.
The exceptions to proposed section 511.2 would allow for flexibility in dealing with unplanned and unexpected circumstances that might cause a truly short term need for weather protection of a roof while still requiring appropriate protection of occupancies that will be ongoing and create internal spaces on rooftops.

Cost Impact: Will increase the cost of construction
The proponent wished to say that the code change would not increase construction costs, but the change really addresses measures and practices being used that actually create additional building area. One cannot necessarily build code compliant walls and ceilings for the same price as setting up tents or membrane structures on the tops of multi-story buildings that would not normally be allowed to include combustible construction. This code change simply acknowledges that these areas need to be treated as enclosed spaces and this will of necessity increase some construction costs.

G 166-15 : 511 (New)-WREN5657

G 167-15

TABLE 601

Proponent: Jonathan Humble, American Iron and Steel Institute, representing American Iron and Steel Institute (jhumble@steel.org)

2015 International Building Code

Revise as follows:

TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A	B	A	B	HT	A	B
Primary structural frame[f] (see Section 202)	3[a, b]	2[a, b]	1[b]	0	1[b]	0	HT	1[b]	0
Bearing walls Exterior[e, f] Interior	3 3[a]	2 2[a]	1 1	0 0	2 1	2 0	2 1/HT	1 1	0 0
Nonbearing walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior[d]	0	0	0	0	0	0	See Section 602.4.6	0	0
Floor construction and associated secondary members (see Section 202)	2	2	1	0	1	0	HT	1	0
Roof construction and associated secondary members (see Section 202)	1 1/2[b]	1[b,c]	1[b,c]	0[c]	1[b,c]	0	HT	1[b,c]	0

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members in roof construction shall not be required, including protection of primary structural frame members, roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.

d. Not less than the fire-resistance rating required by other sections of this code.

e. Not less than the fire-resistance rating based on fire separation distance (see Table 602).

f. Not less than the fire-resistance rating as referenced in Section 704.10.

Reason: This proposal has been submitted to address multiple interpretations of Table 601 Footnote "b." We have found that although the code membership has supported the exemption for fire protection of structural members 20 feet or more above any floor immediately below that framing, we have found that other entities are interpreting that the primary structural frame is not included in this exemption.
This proposal is designed to address that impact by modifying two aspects of Table 601. The first; to add the reference to footnote "b" to the primary structural frame row of fire resistance requirements, and two; to modify Footnote "b" by adding the phases "in roof construction" and "primary structural frame members" to the current list of items now shown.

Multiple attempts have been made in the past to restrict the original intent, however they have all been disapproved. The most recent was code change G139-12. The code development committee's response stated: "The proposal was disapproved as it is the intent of the footnote to allow all structural members to be unprotected. This proposal would only exempt the secondary members." The committee's disapproval of G139-12 was further upheld by the ICC membership during the Final Action Hearings in Portland, OR, October 2012. The public comment to G139-12 challenging the committee's decision was also disapproved by ICC membership.

Further, the reference of structural members applying to all structural members is further reinforced by the definition of "Primary Structural Frame" in Section 202, where it states in the charging sentence the following: "Primary structural frame. The primary structural frame shall include all of the following structural members…."

These responses to the proposals, along with reasons by the code development committees, and upheld by the ICC membership, are part of the ICC formal public record and constitute the formal position of the ICC on the issue.

Cost Impact: Will not increase the cost of construction
This proposal clarifies the intent of footnote "b" of the Table.

G 167-15 : T601-HUMBLE4725

G 168-15

TABLE 602

Proponent: Rick Lupton, representing City of Seattle, Dept of Planning & Development (rick.lupton@seattle.gov)

2015 International Building Code

Revise as follows:

TABLE 602
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE[a, d, g]

FIRE SEPARATION DISTANCE = X (feet)	TYPE OF CONSTRUCTION	OCCUPANCY GROUP H[e]	OCCUPANCY GROUP F-1, M, S-1[f]	OCCUPANCY GROUP A, B, E, F-2, I, <u>R[i]</u>, S-2, U[h]
X < 5[b]	All	3	2	1
5 ≤ X < 10	IA Others	3 2	2 1	1 1
10 ≤ X < 30	IA, IB IIB, VB Others	2 1 1	1 0 1	1[c] 0 1[c]
X ≥ 30	All	0	0	0

For SI: 1 foot = 304.8 mm.

a. Load-bearing exterior walls shall also comply with the fire-resistance rating requirements of Table 601.

b. See Section 706.1.1 for party walls.

c. Open parking garages complying with Section 406 shall not be required to have a fire-resistance rating.

d. The fire-resistance rating of an exterior wall is determined based upon the fire separation distance of the exterior wall and the story in which the wall is located.

e. For special requirements for Group H occupancies, see Section 415.6.

f. For special requirements for Group S aircraft hangars, see Section 412.4.1.

g. Where Table 705.8 permits nonbearing exterior walls with unlimited area of unprotected openings, the required fire-resistance rating for the exterior walls is 0 hours.

h.For a building containing only a Group U occupancy private garage or carport, the exterior wall shall not be required to have a fire-resistance rating where the fire separation distance is 5 feet (1523 mm) or greater.

<u>i. For a Group R-3 building of Type II-B or Type V-B construction, the exterior wall shall not be required to have a fire-resistance rating where the fire separation distance is 5 feet (1523 mm) or greater.</u>

Reason: This change is intended to clarify exterior wall protection for Group R-3 occupancies of Type II-B and Type V-B construction. Where Table 705.8 allows unlimited area of unprotected openings, a fire resistive rating at non-bearing exterior walls is not required per Table 602, footnote h. The appropriate application to R-3 occupancies can be easily missed because unlimited area of unprotected openings for Group R-3 occupancies, where the fire separation distance is 5 feet or greater, is permitted per footnote f of Table 705.8, rather than in the table itself. In addition, bearing walls of Type II-B and Type V-B construction are not required to be rated in accordance with Table 601. As a result, Table 602 is the controlling table for bearing and non-bearing walls in those types of construction. By adding this footnote to Table 602 it is clear that a fire-resistive rating is not required at exterior walls of Type II-B or Type V-B Group R-3 buildings where the fire separation is 5 feet or greater.

Cost Impact: Will not increase the cost of construction
The proposed change is a clarification of existing requirements and so does not result in any cost increase.

G 168-15 : T602-LUPTON4763

G 169-15

TABLE 601

Proponent: Paul Coats, PE CBO, representing American Wood Council (pcoats@awc.org)

2015 International Building Code

Revise as follows:

TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A	B	A	B	HT	A	B
Primary structural frame[f] (see Section 202)	3[a]	2[a]	1	0	1	0	HT	1	0
Bearing walls Exterior[e, f] Interior	 3 3[a]	 2 2[a]	 1 1	 0 0	 2[g] 1	 2[g] 0	 2[g] 1/HT	 1 1	 0 0
Nonbearing walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior[d]	0	0	0	0	0	0	See Section 602.4.6	0	0
Floor construction and associated secondary members (see Section 202)	2	2	1	0	1	0	HT	1	0
Roof construction and associated secondary members (see Section 202)	1 1/2[b]	1[b,c]	1[b,c]	0[c]	1[b,c]	0	HT	1[b,c]	0

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.

d. Not less than the fire-resistance rating required by other sections of this code.

e. Not less than the fire-resistance rating based on fire separation distance (see Table 602).

f. Not less than the fire-resistance rating as referenced in Section 704.10.

g. Shall be permitted to be 1 hour where the building is provided with an automatic sprinkler system in accordance with Section 903.1.1 and has a fire separation distance of not less than 30 feet on all sides.

Reason: Exterior wall ratings for Type III and IV construction address the hazards associated with exposure to other buildings. When there is no exposure to other buildings, it is difficult to identify a purpose for the two-hour rating of exterior walls when the rest of the structure can be one-hour or even unrated. The requirement for the two-hour rating itself, in platform construction, has caused some designers and jurisdictions to require special protection details and connections at the intersection of floor and wall construction in attempts to maintain a continuity of the rating for the exterior wall. But when there is no exposure to other buildings, this results only in protecting the exterior wall from the interior of the building, which serves no purpose and could jeopardize the overall performance of floors under fire conditions by requiring special connections that leave the floor vulnerable for the sake of protecting the wall.
The proposed required sprinkler system, in addition to the fire separation distance, will serve for better and more practical fire safety in the majority of Type III and IV buildings. The 30-foot fire separation distance is the distance at which Table 602 allows unrated walls for all occupancies; the sprinkler protection is a full NFPA 13 system.

Additional information related to this proposal may be posted at http://www.awc.org/Code-Officials/2015-IBC-Code-Changes/

Cost Impact: Will not increase the cost of construction
Will save cost without sacrificing safety.

G 169-15 : T601-COATS4697

G 170-15

602.1, TABLE 601, 602.2, 602.3, TABLE 602.4, 602.4, 602.4.1, 602.4.2, 602.4.3, 602.4.4, 602.4.5, 602.4.6, 602.4.6.1, 602.4.6.2, 602.4.7, 602.4.8, 602.4.8.1, 602.4.8.2, 602.4.9, 602.5, 602.2 (New), 603, 603.1, 603.1.1, 603.1.2, 603.1.3

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

602.1 General. Buildings and structures erected or to be erected, altered or extended in height or area shall be classified ~~in one of the five~~as Type I, II, III, IV, or V construction~~ types defined in Sections 602.2 through 602.5~~. The building elements shall be constructed of materials as required for the type of construction in accordance with Sections 602.1.1 through 602.1.5 and shall have a *fire-resistance rating* not less than that specified in Table 601 and exterior walls shall have a *fire-resistance rating* not less than that specified in Table 602. Where required to have a *fire-resistance rating* by Table 601, building elements shall comply with the applicable provisions of Section 703.2. The protection of openings, ducts and air transfer openings in building elements shall not be required unless required by other provisions of this code.

TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A	B	A	B	HT	A	B
Primary structural frame[f] (see Section 202)	3[a]	2[a]	1	0	1	0	HT	1	0
Bearing walls Exterior[e, f] Interior	 3 3[a]	 2 2[a]	 1 1	 0 0	 2 1	 2 0	 2 1/HT	 1 1	 0 0
Nonbearing walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior[d]	0	0	0	0	0	0	See Section ~~602.4.6~~ 602.4.1.6	0	0
Floor construction and associated secondary members (see Section 202)	2	2	1	0	1	0	HT	1	0
Roof construction and associated secondary members (see Section 202)	1 1/2[b]	1[b,c]	1[b,c]	0[c]	1[b,c]	0	HT	1[b,c]	0

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.

d. Not less than the fire-resistance rating required by other sections of this code.

e. Not less than the fire-resistance rating based on fire separation distance (see Table 602).

f. Not less than the fire-resistance rating as referenced in Section 704.10.

~~602.2~~602.1.2 Types I and II. Types I and II construction are those types of construction in which the building elements listed in Table 601 ~~are~~shall be constructed of noncombustible materials~~, except as~~. Combustible materials are permitted in accordance with Section ~~603~~602.2 and elsewhere in this code.

~~602.3~~602.1.3 Type III. Type III construction is that type of construction in which the exterior walls ~~are~~shall be constructed of noncombustible materials and the interior building elements are of any material permitted by this code.~~*Fire-retardant-treated wood* framing complying~~ Combustible materials within exterior walls are permitted in accordance with Section ~~2303.2 shall be permitted within *exterior wall* assemblies of a 2-hour rating or less.~~602.2 and elsewhere in this code.

TABLE ~~602.4~~ 602.1.3
WOOD MEMBER SIZE EQUIVALENCIES

MINIMUM NOMINAL SOLID SAWN SIZE		MINIMUM GLUED-LAMINATED NET SIZE		MINIMUM STRUCTURAL COMPOSITE LUMBER NET SIZE	
Width, inch	Depth, inch	Width, inch	Depth, inch	Width, inch	Depth, inch
8	8	6 3/4	8 1/4	7	7 1/2
6	10	5	10 1/2	5 1/4	9 1/2
6	8	5	8 1/4	5 1/4	7 1/2
6	6	5	6	5 1/4	5 1/2
4	6	3	6 7/8	3 1/2	5 1/2

For SI:1 inch = 25.4 mm.

~~602.4~~602.1.4 Type IV. Type IV construction (Heavy Timber, HT) is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid or laminated wood without concealed spaces. The details of Type IV construction shall comply with the provisions of this section and Section ~~2304.11. Exterior walls complying with Section 602.4.1 or 602.4.2 shall be permitted~~2304.10. Minimum solid sawn nominal dimensions are required for structures built using Type IV construction (HT) in accordance with this section. For gluedlaminated members and structural composite lumber (SCL) members, the equivalent net finished width and depths corresponding to the minimum nominal width and depths of solid sawn lumber are required as specified in Table ~~602.4.~~603.1.3.*Cross-laminated timber* (CLT) dimensions used in this section are actual dimensions. Combustible materials in exterior walls are permitted in accordance with Section 602.2 and elsewhere in this code.

~~**602.4.1 Fire-retardant-treated wood in exterior walls.** *Fire-retardant-treated wood* framing complying with Section 2303.2 shall be permitted within exterior wall assemblies with a 2-hour rating or less.~~

~~**602.4.2 Cross-laminated timber in exterior walls.** *Cross-laminated timber* complying with Section 2303.1.4 shall be permitted within exterior wall assemblies with a 2-hour rating or less, provided the exterior surface of the cross-laminated timber is protected by one the following:~~

1. ~~*Fire-retardant-treated wood* sheathing complying with Section 2303.2 and not less than 15/32 inch (12 mm) thick;~~
2. ~~*Gypsum board* not less than 1/2 inch (12.7 mm) thick; or~~
3. ~~A noncombustible material.~~

~~602.4.3~~602.1.4.1 Columns. Wood columns shall be sawn or glued laminated and shall be not less than 8 inches (203 mm), nominal, in any dimension where supporting floor loads and not less than 6 inches (152 mm) nominal in width and not less than 8 inches (203 mm) nominal in depth where supporting roof and ceiling loads only. Columns shall be continuous or superimposed and connected in an *approved* manner. Protection in accordance with Section 704.2 is not required.

~~602.4.4~~602.1.4.2 Floor framing. *No change to text.*

~~602.4.5~~602.1.4.3 Roof framing. Wood-frame or glued-laminated arches for roof construction, which spring from the floor line or from grade and do not support floor loads, shall have members not less than 6 inches (152 mm) nominal in width and have not less than 8 inches (203 mm) nominal in depth for the lower half of the height and not less than 6 inches (152 mm) nominal in depth for the upper half. Framed or glued-laminated arches for roof construction that spring from the top of walls or wall abutments, framed timber trusses and other roof framing, which do not support floor loads, shall have members not less than 4 inches (102 mm) nominal in width and not less than 6 inches (152 mm) nominal in depth. Spaced members shall be permitted to be composed of two or more pieces not less than 3 inches (76 mm) nominal in thickness where blocked solidly throughout their intervening spaces or where spaces are tightly closed by a continuous wood cover plate of not less than 2 inches (51 mm) nominal in thickness secured to the underside of the members. Splice plates shall be not less than 3 inches (76 mm) nominal in thickness. Where protected by *approved* automatic sprinklers under the roof deck, framing members shall be not less than 3 inches (76 mm) nominal in width.

~~602.4.6~~602.1.4.4 Floors. *No change to text.*

~~602.4.6.1~~602.1.4.4.1 Sawn or glued-laminated plank floors. Sawn or glued-laminated plank floors shall be one of the following:

1. Sawn or glued-laminated planks, splined or tongue-and-groove, of not less than 3 inches (76 mm) nominal in thickness covered with 1-inch (25 mm) nominal dimension tongue-and-groove flooring, laid crosswise or diagonally, 15/32-inch (12 mm) wood structural panel or 1/2-inch (12.7 mm) particleboard.
2. Planks not less than 4 inches (102 mm) nominal in width set on edge close together and well spiked and covered with 1-inch (25 mm) nominal dimension flooring or 15/32-inch (12 mm) wood structural panel or 1/2-inch (12.7 mm) particleboard.

The lumber shall be laid so that no continuous line of joints will occur except at points of support. Floors shall not extend closer than 1/2 inch (12.7 mm) to walls. Such 1/2-inch (12.7 mm) space shall be covered by a molding fastened to the wall and so arranged that it will not obstruct the swelling or shrinkage movements of the floor. Corbelling of masonry walls under the floor shall be permitted to be used in place of molding.

~~602.4.6.2~~602.1.4.4.2 Cross-laminated timber floors. *Cross-laminated timber* shall be not less than 4 inches (102 mm) in thickness. *Cross-laminated timber* shall be continuous from support to support and mechanically fastened to one another. *Cross-laminated timber* shall be permitted to be connected to walls without a shrinkage gap providing swelling or shrinking is considered in the design. Corbelling of masonry walls under the floor shall be permitted to be used.

~~**602.4.7**~~**602.1.4.5 Roofs.** Roofs shall be without concealed spaces and wood roof decks shall be sawn or glued laminated, splined or tongue-and-groove plank, not less than 2 inches (51 mm) nominal in thickness; $1^{1}/_{8}$-inch-thick (32 mm) wood structural panel (exterior glue); planks not less than 3 inches (76 mm) nominal in width, set on edge close together and laid as required for floors; or of cross-laminated timber. Other types of decking shall be permitted to be used if providing equivalent fire resistance and structural properties.

Cross-laminated timber roofs shall be not less than 3 inches (76 mm) nominal in thickness and shall be continuous from support to support and mechanically fastened to one another.

~~**602.4.8 Partitions and walls.** Partitions and walls shall comply with Section 602.4.8.1 or 602.4.8.2.~~

~~**602.4.8.1**~~**602.1.4.6 Interior walls and partitions.** *No change to text.*

~~**602.4.8.2 Exterior walls.** Exterior walls shall be of one of the following:~~

1. ~~Noncombustible materials.~~
2. ~~Not less than 6 inches (152 mm) in thickness and constructed of one of the following:~~
   - ~~2.1. *Fire-retardant-treated wood* in accordance with Section 2303.2 and complying with Section 602.4.1.~~
   - ~~2.2. *Cross-laminated timber* complying with Section 602.4.2.~~

~~**602.4.9**~~**602.1.4.7 Exterior structural members.** *No change to text.*

~~**602.5**~~**602.1.5 Type V.** Type V construction is that type of construction in which the structural elements, *exterior walls* and interior walls are of any materials permitted by this code.

602.2 Allowable uses of combustible materials. Building elements in Type I and II Construction and within exterior walls in Types III and IV Construction shall be permitted to be constructed of combustible materials in accordance with the following applications:

1. *Fire-retardant-treated wood* framing complying with Section 2303.2 shall be permitted as follows:
   - 1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less in Types I and II construction.
   - 1.2. Nonbearing *exterior walls* where fire-resistance rated construction is not required in Types I and II construction.
   - 1.3. Roof construction, including girders, trusses, framing and decking in Types I and II construction.

     Exception: In buildings of Type IA construction exceeding two *stories* above *grade plane*, *fire-retardant- treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).
   - 1.4 Within exterior wall assemblies for Type III construction where the fireresistance rating of the wall assemblies are 2 hours or less.
   - 1.5 Within exterior wall assemblies for Type IV construction where the fireresistance rating of the wall assemblies are 2 hours or less and the thickness is not less than 6 inches.
2. In Type IV Construction, *Cross-laminated timber* complying with Section 2303.1.4 shall be permitted within exterior wall assemblies with a 2-hour rating or less, provided the exterior surface of the cross-laminated timber is protected by one the following:
   - 2.1. *Fire retardant treated wood* sheathing complying with 2303.2 and not less than 15/32 inch (12 mm) thick;
   - 2.2. *Gypsum board* not less than ½ inch (12.7 mm) thick; or
   - 2.3. A noncombustible material.
3. Millwork such as doors, door frames, window sashes and frames.
4. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.
5. In Types I, II, and III construction partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated wood*, 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.
6. Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively.
7. Blocking such as for handrails, millwork, cabinets and window and door frames.
8. Mastics and caulking materials applied to provide flexible seals between components of *exterior wall* construction.
9. Heavy timber as permitted by Note c to Table 601 and Sections 602.1.4.5 and 1406.3.
10. Aggregates, component materials and admixtures as permitted by Section 703.2.2.
11. Sprayed fire-resistant materials and intumescent and mastic fire-resistant coatings, determined on the basis of *fire-resistance* tests in accordance with Section 703.2 and installed in accordance with Sections 1705.13 and 1705.14, respectively.
12. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.
13. Wall construction of freezers and coolers of less than 1000 square feet (92.9 m2) in floor area, lined on both sides with noncombustible materials and the building is protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

Delete without substitution:

~~**SECTION603**~~

~~**COMBUSTIBLE MATERIAL IN TYPES I AND II CONSTRUCTION**~~

~~**603.1 Allowable materials. Combustible materials shall be permitted in buildings of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:**~~

1. ~~*Fire-retardant-treated wood* shall be permitted in:~~
   - ~~1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less.~~
   - ~~1.2. Nonbearing *exterior walls* where fire-resistance-rated construction is not required.~~
   - ~~1.3. Roof construction, including girders, trusses, framing and decking.~~

     ~~**Exception:** In buildings of Type IA construction exceeding two *stories abovegrade plane*, *fire-retardant-treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).~~

2. ~~Thermal and acoustical insulation, other than foam plastics, having a *flame spread index* of not more than 25.~~

~~Exceptions:~~

1. ~~Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a *flame spread index* of not more than 100.~~
2. ~~Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a *flame spread index* of not more than 200.~~

3. ~~Foam plastics in accordance with Chapter 26.~~
4. ~~Roof coverings that have an A, B or C classification.~~
5. ~~*Interior floor finish* and floor covering materials installed in accordance with Section 804.~~
6. ~~Millwork such as doors, door frames, window sashes and frames.~~
7. ~~*Interior wall and ceiling finishes* installed in accordance with Sections 801 and 803.~~
8. ~~*Trim* installed in accordance with Section 806.~~
9. ~~Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.~~
10. ~~Finish flooring installed in accordance with Section 805.~~
11. ~~Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated wood*, 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.~~
12. ~~Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively.~~
13. ~~Combustible *exterior wallcoverings*, balconies and similar projections and bay or oriel windows in accordance with Chapter 14.~~
14. ~~Blocking such as for handrails, millwork, cabinets and window and door frames.~~
15. ~~Light-transmitting plastics as permitted by Chapter 26.~~
16. ~~Mastics and caulking materials applied to provide flexible seals between components of *exterior wall* construction.~~
17. ~~Exterior plastic veneer installed in accordance with Section 2605.2.~~
18. ~~Nailing or furring strips as permitted by Section 803.11.~~
19. ~~Heavy timber as permitted by Note c to Table 601 and Sections 602.4.7 and 1406.3.~~
20. ~~Aggregates, component materials and admixtures as permitted by Section 703.2.2.~~
21. ~~Sprayed fire-resistant materials and intumescent and mastic fire-resistant coatings, determined on the basis of *fire resistance* tests in accordance with Section 703.2 and installed in accordance with Sections 1705.14 and 1705.15, respectively.~~
22. ~~Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.~~
23. ~~Materials used to protect joints in fire-resistance-rated assemblies in accordance with Section 715.~~
24. ~~Materials allowed in the concealed spaces of buildings of Types I and II construction in accordance with Section 718.5.~~
25. ~~Materials exposed within plenums complying with Section 602 of the *International Mechanical Code.*~~
26. ~~Wall construction of freezers and coolers of less than 1,000 square feet (92.9 m^2), in size, lined on both sides with noncombustible materials and the building is protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.~~

~~**603.1.1 Ducts.** The use of nonmetallic ducts shall be permitted where installed in accordance with the limitations of the *International Mechanical Code.*~~

~~**603.1.2 Piping.** The use of combustible piping materials shall be permitted where installed in accordance with the limitations of the *International Mechanical Code* and the *International Plumbing Code.*~~

~~**603.1.3 Electrical.** The use of electrical wiring methods with combustible insulation, tubing, raceways and related components shall be permitted where installed in accordance with the limitations of this code.~~

Reason: The purpose of this code change proposal is to remove the extraneous, unnecessary information from Chapter 6 that only serves to confuse users of this Code. Section 603 provides an incomplete laundry list of combustible materials that are allowed in Types I and II construction. However, Section 602.2 states that the building elements of buildings of Type I and II construction are required to be noncombustible except as permitted in Section 603, and elsewhere in this code. Of the 29 items listed in Section 603, only 12 of them are materials that could be components of the building elements in Table 601. The remaining materials listed are also discussed in detail in other parts of the code regarding the limitations of their use in various types of construction. For instance, roof coverings are listed in item no. 4, that have a Class A, B, or C classification. Section 1505 provides in detail where roof coverings of different classifications are required in various types of construction. Why then, is this provision contained in Section 603? Roof coverings are not part of a building element listed in Table 601. Item no. 4 in Section 603.1 tells the user of the code nothing. Are the items in Section 603 the only combustible materials allowed in Types I and II Construction? This is a frequently confused point. For instance, Photovoltaic Rooftop panels and modules are permitted, as stated in Section 1510. But they are not listed in Section 603. Are they therefore only allowed in Types III, IV, and V construction? With this in mind, Section 603 is proposed for deletion, and only the items in Section 603 that can be part of the structural elements in Table 601 are listed in Section 602.2. Cross laminated timber in Type IV Construction (existing Section 602.4.2) has been relocated to the new Section 602.2 as Item 2, with all the other allowable combustible materials for the construction of building elements.

Here are the items that are moved from Section 603 to Section 602.2 (both the existing Item number and the proposed new Item number are provided):

1. Fire-retardant-treated wood. (Item 1)

6. Millwork such as doors, door frames, window sashes and frames. (Item 3)

9. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases. (Item 4)

11. Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a corridor serving an occupant load of 30 or more shall be permitted to be constructed of fire-retardant-treated wood, 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height. (Item 5)

12. Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively. (Item 6)

14. Blocking, such as for handrails, millwork, cabinets and window and door frames. (Item 7)

16. Mastics and caulking materials applied to provide flexible seals between components of exterior wall construction. (Item 8)

19. Heavy timber as permitted by Note c to Table 601 and Sections 602.4.7 and 1406.3. (Item 9)

20. Aggregates, component materials and admixtures as permitted by Section 703.2.2. (Item 10)

21. Sprayed fire-resistant materials and intumescent and mastic fire-resistant coatings, determined on the basis of fire-resistance tests in accordance with Section 703.2 and installed in accordance with Sections 1705.13 and 1705.14, respectively. (Item 11)

22. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714. (Item 12)

26. Wall construction of freezers and coolers of less than 1000 square feet (92.9 m2), in size, lined on both sides with noncombustible materials and the building is protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. (Item 13)

The remaining items are removed from this Chapter because they do not comprise parts of the elements listed in Table 601 and any limitations on their use in noncombustible construction are provided elsewhere in the code:

2. Thermal and acoustical insulation: See Section 720.
3. Foam plastics: See Section 2603.
4. Roof coverings: See Chapter 15.
5. Interior floor finish and floor coverings: See Section 804.
7. Interior wall and ceiling finishes: See Sections 801 and 803.
8. Trim: See Section 806.
10. Finish flooring: See Section 805.
13. Combustible exterior wall coverings, balconies, and similar projections: See Section 1406.
15. Light-transmitting plastics: See Sections 2606- 2611.
17. Exterior plastic veneer: See Section 2605.2.
18. Nailing or furring strips: See Section 803.11.
23. Materials used to protect joints in fire-resistance rated assemblies: See Section 715.
24. Material in concealed spaces: See Section 718.5
25. Materials exposed within plenums: See Section 602 of the IMC

Cost Impact: Will not increase the cost of construction
The proposal attempts to clarify the code, but does not make any technical changes to code requirements.

G 170-15 : 602.4.1-KULIK4886

G 171-15

602.1, 602.1.1, 602.1.1.1 (New)

Proponent: Vickie Lovell, InterCode Incorporated, representing Fire Safe North America (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

602.1 General. Buildings and structures erected or to be erected, altered or extended in height or area shall be classified in one of the five construction types defined in Sections 602.2 through 602.5. ~~The building elements shall have a *fire-resistance rating* not less than that specified in Table 601 and exterior walls shall have a *fire-resistance rating* not less than that specified in Table 602. Where required to have a *fire-resistance rating* by Table 601, building elements shall comply with the applicable provisions of Section 703.2. The protection of openings, ducts and air transfer openings in building elements shall not be required unless required by other provisions of this code.~~

602.1.1 ~~**Minimum requirements.**~~**Fire-resistance ratings** ~~A~~ The building ~~or portion thereof~~elements shall have a *fire-resistance rating* not less than that specified in Table 601 and exterior walls shall have a *fire-resistance rating* not less than that specified in Table 602. Where required to have a fire resistance rating by Table 601, building elements shall comply with the applicable provisions of Section 703.2. The protection of openings, ducts and air transfer openings in building elements shall not be required ~~to conform to the details~~unless required by other provisions of ~~a type of construction higher than that type which meets the minimum requirements based on occupancy even though certain features of such a building actually conform to a higher type of construction.~~this code.

Add new text as follows:

602.1.1.1 Buildings in high risk areas. In Table 601 the building elements in multi-story buildings of construction Types IIB, IIIB and VB in Risk Categories III and IV identified in Table 1604.5 shall have a *fire-resistance rating* of not less than 1 hour where such buildings are any of the following:

1. Assigned to Seismic Design Category C or D in Table 1613.3.5(1).
2. Located in a flood hazard area established in accordance with Section 1612.3.
3. Located in a hurricane-prone region.

Reason: As hazard events, both naturally-occurring and man-made, are increasing in number and severity in the United States and around the world, the resilience of communities and the individual buildings within those communities is becoming of vital importance.
A National Institute of Building Sciences Publication (May, 2014) entitled "Moving Forward: Findings and Recommendations", states that "while a long history of building codes has laid the foundation for addressing the impacts of natural and man-made hazards, changes in the frequency and severity of events have brought new challenges — challenges requiring the engagement and support of policymakers. While building codes serve as the minimum requirements for life-safety in the building stock, basic life-safety protections do not fully address building performance requirements to achieve resilience."

Mitigation includes, among other things, fortifying buildings so that they are less likely to be severely damaged or completely destroyed during or immediately after a disaster. It is the key to recovery after a disaster. Mitigation allows individuals and communities to lessen post-disaster disruption and rebuild more quickly. States and cities have started implementing more stringent requirements in specific geographic areas they have designated as higher-risk. The purpose of this series of code changes proposed by Fire Safe North America is to encourage the debate in the code development process to identify what constitutes resilient buildings, and begin to identify issues that will become the basis for "new minimum requirements" for increased building resiliency.

Responding to the challenge of mitigating damage and resilient buildings is an admittedly complex topic. Fire Safe North America proposals are intended to reduce the total reliance of a community and its firefighters on automatic sprinkler systems in disaster-prone areas of the country where the water supply and/or power are likely to be interrupted, or are likely to have water supply system operational issues. The proposals, if approved, will fortify the building code requirements for the most vulnerable buildings to fire - Type IIB, IIIB, and VB construction, which are also classified as Risk Category III and IV in Table 1604.5, and in high-risk, disaster prone regions. The proposals modify the following code requirements in such buildings:

1. Reduce allowable area limits
2. Protect the path of egress by limiting travel distances
3. Protect the path of egress by protecting corridors
4. Require higher fire resistance ratings for occupancy separations
5. Require higher fire resistance ratings for building elements

These proposals are intended to be conservative so as to promote community resiliency and disaster mitigation by protecting essential buildings with both sprinkler protection AND fire resistance rated compartmentation. These proposals may be fairly considered to be the proverbial "belt-and suspenders" approach, requiring both sprinkler protection and increased fire resistance rated compartmentation in specific buildings in high risk areas for disasters.

Historically, the code has been written using the general assumption that automatic sprinklers will operate satisfactorily and there will be suitable power for such building operations. Code users design and build assuming that firefighters will be able to respond at their normal efficiencies. In some parts of the country, buildings impacted by disasters may remain without reliable water and/or power for a considerable period of time, well after the occurrence of the disaster. History has shown that increased incidents of fires after a disaster can be more destructive to life and property than the disaster itself. Total reliance on an uninterrupted power and water supply may not be an acceptable risk. It may also be an unacceptable risk to assume that firefighters will be able to respond at their normal efficiencies.

For example, more than 15% of the U.S. population lives in potential major earthquake areas. 41 states and territories have moderate to high risk. There is a real likelihood of power and water supplies being interrupted following a major seismic event, along with the potential for multiple simultaneous structure fires and also building-to-building fire spread. In October 17, 1989, a 7.1 earthquake in Santa Cruz Mountains was responsible for 26 fires in San Francisco, 60 miles from epicenter. There were 67 documented breaks in water mains which effectively eliminated water pressure in the area. On January 19, 1994, a 6.8 earthquake centered in Northridge, CA. There were approximately 100 fire ignitions, 30 to 50 of those were considered significant. The water supply systems in the area were damaged causing low pressure in water distribution. On January 17, 1995, a 6.8 (approx.) earthquake near Kobe, Japan caused 90 fires to start within minutes. 85 spread to adjacent buildings and 10 approached or reached conflagration status. 1,700 water line breaks occurred within a couple of hours. There were 7,000 buildings destroyed by fire alone.

In 1997, the Red River flooded Grand Forks, North Dakota, causing $3.7 billion in flood losses, and displaced thousands of families and businesses. Similar data of increased fire incidents are available in other flood and hurricane-prone areas.

Undoubtedly, this will increase the cost of construction in these specific buildings. However, a recent FEMA's 2010 report "Mitigation's Value to Society" statement described how mitigation is an investment that needs to be made. A recent study by the NIBS Multihazard Mitigation Council (MMC) identified that each dollar spent on mitigation saves an average of $4.00 in disaster recovery.

Links:
http://www.dhses.ny.gov/oem/mitigation/documents/mitigations-value-to-society.pdf

The two-volume NIBS MMC study report is available for free download at:
http://www.nibs.org/index.php/mmc/projects/nhms

Cost Impact: Will increase the cost of construction
This code change proposal will increase the cost of construction for some building types.

G 171-15 : 602.1-LOVELL5283

G 172-15

602.3

Proponent: David Tyree, representing American Wood Council (dtyree@awc.org); Sam Francis (sfrancis@awc.org)

2015 International Building Code

Revise as follows:

602.3 Type III. Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code. *Fire-retardant-treated wood* framing complying with Section 2303.2 shall be permitted within *exterior wall* assemblies of a 2-hour rating or less. <u>Exterior walls complying with Section 602.4.2 or 602.4.8.2 shall be permitted.</u>

Reason: Prior to the 2015 IBC, the requirements for exterior walls in Types III and IV construction were identical. They both permitted exterior walls to be of noncombustible material or to be of FRTW. The 2015 IBC now allows Cross-laminated timber, CLT, to also be used in those walls. The CLT is considered heavy timber in the 2015 IBC. So now, the Type III wall does not permit the three options of the Type IV wall. The 2015 code change created a difference that never existed and has no technical reason to continue to exist.

The exterior wall requirement for Type IV CLT walls are at least equivalent to what is currently required for FRTW exterior walls in Type III. This proposal will provide the same protection in Type III as is provided by exterior walls in Type IV construction. For a complete list of AWC code change proposals and additional information please go to http://www.awc.org/Code-Officials/2015-IBC-Code-Changes. For more information concerning CLT lumber and construction, please go to http://www.rethinkwood.com/tall-wood-survey.

Cost Impact: Will not increase the cost of construction
There is no increase in cost with this proposal as it just revises the protection requirements for Type II and Type IV construction identical.

G 172-15 : 602.3-TYREE4675

G 173-15

602.3

Proponent: Joseph Holland, representing Hoover Treated Wood Products (jholland@frtw.com)

2015 International Building Code

Revise as follows:

602.3 Type III. Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code. *Fire-retardant-treated wood* ~~framing~~ complying with Section 2303.2 shall be permitted within *exterior wall* assemblies of a 2-hour rating or less.

Reason: The term "framing" is not needed to understand the FRTW is permitted "within the exterior wall assemblies."

Cost Impact: Will not increase the cost of construction
There is no change in the requirements. It is only for clarification.

G 173-15 : 602.3-HOLLAND4215

G 174-15

602.4.1

Proponent: Joseph Holland, representing Hoover Treated Wood products (jholland@frtw.com)

2015 International Building Code

Revise as follows:

602.4.1 Fire-retardant-treated wood in exterior walls. *Fire-retardant-treated wood* ~~framing~~ complying with Section 2303.2 shall be permitted within exterior wall assemblies with a 2-hour rating or less.

Reason: The term "framing" is not needed to understand the FRTW is permitted "within the exterior wall assemblies."

Cost Impact: Will not increase the cost of construction
This is a clarification no change in construction costs.

G 174-15 : 602.4.1-HOLLAND4444

G 175-15

602.3, 602.4.1

Proponent: Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com)

2015 International Building Code

Revise as follows:

602.3 Type III. Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code. *Fire-retardant-treated wood* framing <u>and sheathing</u> complying with Section 2303.2 shall be permitted within *exterior wall* assemblies of a 2-hour rating or less.

602.4.1 Fire-retardant-treated wood in exterior walls. *Fire-retardant-treated wood* framing <u>and sheathing</u> complying with Section 2303.2 shall be permitted within exterior wall assemblies with a 2-hour rating or less.

Reason: The word framing creates some confusion. some have interpreted that framing does not include the sheathing utilized for lateral resistance to be framing. This has resulted in at least one interpretation that the walls cannot have FRT structural wood panel framing and yet another interpretation that the structural wood panel is permitted to be installed but unlike the studs does not need to be FRT.
ASCE considers sheathing to be part of the framing system. The ICC ES has AQ for a product equivalent to FRT plywood for use on Type III construction.

The addition of sheathing clarifies wood framing and sheathing is permitted to be within the assembly if FRT.

Cost Impact: Will not increase the cost of construction
This code change does not create a new requirement. It clarifies existing code language to prevent misinterpretation of the code.

G 175-15 : 602.3-MAIEL4965

G 176-15

602.3, 602.4, 602.4.8

Proponent: Stephen Skalko, representing Masonry Alliance for Codes and Standards (svskalko@cox.net)

2015 International Building Code

Revise as follows:

602.3 Type III. Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code. Non-bearing ~~Fire-retardant-treated f~~ire-retardant-treated *wood* framing complying with Section 2303.2 shall be permitted within *exterior wall* assemblies of a 2-hour rating or less.

602.4 Type IV. Type IV construction (Heavy Timber, HT) is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid or laminated wood without concealed spaces. The details of Type IV construction shall comply with the provisions of this section and Section ~~2304.11.~~ 2304.11.Non-bearing portions of Exterior walls complying with Section 602.4.1 or 602.4.2 shall be permitted. Minimum solid sawn nominal dimensions are required for structures built using Type IV construction (HT). For gluedlaminated members and structural composite lumber (SCL) members, the equivalent net finished width and depths corresponding to the minimum nominal width and depths of solid sawn lumber are required as specified in Table 602.4. *Cross-laminated timber* (CLT) dimensions used in this section are actual dimensions.

602.4.8 ~~Partitions~~Nonbearing partitions and walls. ~~Partitions~~ Nonbearing partitions and walls shall comply with Section 602.4.8.1 or 602.4.8.2.

Reason: Changes to the building code that allow the use of fire retardant treated wood for Types III and IV construction and cross-laminated lumber for Type IV construction have reduced the clarity in the code that these two types of construction are required to have the exterior load-bearing portions of the structure to be noncombustible materials. This is evident by the requirements in the first sentence to both 602.3 Type III and 602.4 Type IV specifying exterior walls to be noncombustible materials. It is implied, but not as clear, by the language in the last sentence of 602.3 for Type III construction and in 602.4.1 and 602.4.2 of Type IV construction, where fire retardant treated wood and cross-laminated lumber are permitted to be used "within" the exterior wall. This term "within" indicates the combustible materials are permitted for use as a component in the exterior wall but the structural exterior wall is still required to be noncombustible.

Historically building construction types in older building codes and the previous legacy codes were described based on noncombustible and/or combustible materials utilized in the building structural elements. The construction types ranged from buildings with no combustible structural framing, to those with noncombustible exterior walls and some combustible structural framing on the interior of the building, to buildings where the majority of the structural farming was combustible. This concept of describing the building construction type based on these combinations of noncombustible and/or combustible materials is reflected in the types of construction found in the International Building Code.

Types I and II reflect the construction type where noncombustible materials are utilized. Types III and IV construction comprise construction types where the exterior walls are of noncombustible materials and the interior framing is wholly or partly of combustible materials. In the case of Type III construction the interior framing members may be nominal light frame wood members. For Type IV construction the interior wood members are expected to be of such size to be classified as heavy timber. Finally Type V construction in the code would be a building where structural elements, including bearing exterior walls are of combustible members such as nominal light frame wood members.

Further, this proposal coordinates with Section 603.1 where it currently outlines the limitations on the use of FRTW for Types I and II construction which are also based on exterior load-bearing portions of the structure being noncombustible materials. In subpart #1 of 603.1 it states the following:

"1. Fire-retardant-treated wood shall be permitted in:

1.1 Nonbearing partitions where the required fire-resistance rating is 2 hours or less.

1.2 Nonbearing exterior walls where fire-resistance-rated construction is not required…."

This change will make clear that the bearing portion of the exterior walls in Types III and IV construction must be noncombustible to qualify for that type of construction.

Cost Impact: Will not increase the cost of construction
There is no cost impact from this change. It only clarifies the intent of the existing code.

G 176-15 : 602.3-SKALKO5513

G 177-15

602.3

Proponent: Carl Wren, City of Austin, Texas, representing City of Austin, Texas; Planning and Development Review Department and the Austin Fire Department (carl.wren@austintexas.gov)

2015 International Building Code

Revise as follows:

602.3 Type III. Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code. *Fire-retardant-treated wood* framing complying with Section 2303.2 shall be permitted <u>where enclosed </u>within *exterior wall* assemblies of a 2-hour rating or less.<u> The required fire resistance shall be maintained and the exposed inner and outer faces of such exterior walls shall be noncombustible.</u>

Reason: This jurisdiction has become aware of a lot of confusion as to what is required for the construction of a Type III exterior wall when the framing is fire retardant treated wood (FRTW). Some applicants have believed that the exterior wall could have FRTW plywood or OSB sheathing as the "noncombustible" exterior of the wall or that field applied ignition resistant coatings made wood sheathing noncombustible. Construction has been proposed where the FRTW plywood/OSB was to be applied directly to the FRTW framing and combustible siding installed on the exterior. These design approaches would potentially result in buildings up to 6 stories tall above the grade plane and as tall as 75-85 feet above the grade plane, without noncombustible and required fire resistive protection of the load bearing wall framing. These conditions are clearly contrary to the historical context of Type III wall construction and are at odds with the UBC source provision in section 503.4.3 of the 1997 UBC.

Bibliography: <u>Uniform Building Code</u>, International Conference of Buidling Officials/International Code Council, 1997 Edition, Seection 503.4.3, Page 1-51

Cost Impact: Will not increase the cost of construction
The proponent is proposing that the code change is a clarification and not a new requirement and therefore should not result in increased costs for code compliant construciton.

G 177-15 : 602.3-WREN5049

G 178-15

602.4

Proponent: Sam Francis, American Wood Council, representing American Wood Council (sfrancis@awc.org)

2015 International Building Code

Revise as follows:

602.4 Type IV. Type IV construction (Heavy Timber~~, HT~~) is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid ~~or~~wood, laminated wood or structural composite lumber (SCL) without concealed spaces._ The details of Type IV construction shall comply with the provisions of this section and Section 2304.11._ Exterior walls complying with Section 602.4.1 or 602.4.2 shall be permitted._ Minimum ~~solid~~dimensions for building elements are as follows:

1. Solid sawn building elements shall be not less than the nominal dimensions ~~are required for structures built using Type IV construction (HT)~~in Sections 602.4.3 through 602.4.6.

2. ~~For gluedlaminated~~Glued-laminated members and structural composite lumber ~~(SCL) members,~~members shall be the equivalent net finished width and ~~depths~~depth corresponding to the minimum nominal width and ~~depths~~depth of solid sawn lumber ~~are required~~ as specified in Table 602.4.~~*Cross-laminated*~~

3. Cross-laminated timber (CLT) dimensions ~~used in this section~~ are actual dimensions and shall be not less than the dimensions required in Sections 602.4.6.2, 602.4.7, and 602.4.6.8.2, as applicable.

Reason:
In the last code cycle, the Heavy Timber section saw 5 code change proposals. The correlation of these changes was very difficult. We are submitting several changes which are intended to make this chapter more understandable. One of the issues to be clarified is the "minimum dimensions of the exterior walls. Another item is to make it absolutely clear that Structural Composite Lumber of the minimum dimensions for this chapter is, in fact, considered heavy timber. So this proposal will point the user to the proper sections to accomplish these tasks.
For a complete list of AWC code change proposals and additional information please go to http://www.awc.org/Code-Officials/2015-IBC-Code-Changes.

Cost Impact: Will not increase the cost of construction
This is an editorial rewrite and will have no cost impact other than to lower costs by making the minimum requirements more clear.

G 178-15 : 602.4-FRANCIS4679

G 179-15

602.4, TABLE 602.4, 602.4.1, 602.4.2, 602.4.3, 602.4.4, 602.4.5, 602.4.9, 2304.11, 2304.11.1, TABLE 2304.11.1.1, 2304.11.2, 2304.11.3, 602.4.8, 602.4.8.2, 602.4.8.1, 602.4.6, 602.4.6.2, 602.4.6.1, 2304.11.4, 2304.11.5, 602.4.7, 2304.11.4.2 (New)

Proponent: Dennis Richardson, representing American Wood Council

2015 International Building Code

Revise as follows:

602.4 Type IV. Type IV construction ~~(Heavy Timber, HT)~~ is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid or laminated ~~wood~~heavy timber (HT), without concealed spaces. The minimum dimensions for permitted materials including solid timber, glued-laminated timber, structural composite lumber (SCL), and cross liminated timber (CLT) and details of Type IV construction shall comply with the provisions of this section and Section 2304.11. Exterior walls complying with Section 602.4.1 or 602.4.2 shall be permitted. ~~Minimum solid sawn nominal dimensions are required for structures built using Type IV construction (HT). For gluedlaminated members~~Interior walls and ~~structural composite lumber (SCL) members, the equivalent net finished width and depths corresponding to the minimum nominal width and depths~~partitions of ~~solid sawn lumber are required as specified in Table 602.4.~~not less than one hour~~*Cross*~~*fire-resistance rating*~~*-laminated*~~ *or heavy timber* ~~(CLT) dimensions used in this section are actual dimensions.~~ conforming with Section 2304.11.2.2 shall be permitted.

602.4.1 Fire-retardant-treated wood in exterior walls. *Fire-retardant-treated wood* framing complying with Section 2303.2 shall be permitted within exterior wall assemblies not less than 6 inches (152 mm) in thickness with a 2-hour rating or less.

602.4.2 Cross-laminated timber in exterior walls. *Cross-laminated timber* complying with Section 2303.1.4 shall be permitted within exterior wall assemblies not less than 6 inches (152 mm) in thickness with a 2-hour rating or less, provided the exterior surface of the cross-laminated timber is protected by one the following:

1. *Fire-retardant-treated wood* sheathing complying with Section 2303.2 and not less than $^{15}/_{32}$ inch (12 mm) thick;
2. *Gypsum board* not less than $^{1}/_{2}$ inch (12.7 mm) thick; or
3. A noncombustible material.

Delete without substitution:

~~**602.4.3 Columns.** Wood columns shall be sawn or glued laminated and shall be not less than 8 inches (203 mm), nominal, in any dimension where supporting floor loads and not less than 6 inches (152 mm) nominal in width and not less than 8 inches (203 mm) nominal in depth where supporting roof and ceiling loads only. Columns shall be continuous or superimposed and connected in an *approved* manner. Protection in accordance with Section 704.2 is not required.~~

~~**602.4.4 Floor framing.** Wood beams and girders shall be of sawn or glued-laminated timber and shall be not less than 6 inches (152 mm) nominal in width and not less than 10 inches (254 mm) nominal in depth. Framed sawn or glued-laminated timber arches, which spring from the floor line and support floor loads, shall be not less than 8 inches (203 mm) nominal in any dimension. Framed timber trusses supporting floor loads shall have members of not less than 8 inches (203 mm) nominal in any dimension.~~

~~**602.4.5 Roof framing.** Wood-frame or glued-laminated arches for roof construction, which spring from the floor line or from grade and do not support floor loads, shall have members not less than 6 inches (152 mm) nominal in width and have not less than 8 inches (203 mm) nominal in depth for the lower half of the height and not less than 6 inches (152 mm) nominal in depth for the upper half. Framed or glued-laminated arches for roof construction that spring from the top of walls or wall abutments, framed timber trusses and other roof framing, which do not support floor loads, shall have members not less than 4 inches (102 mm) nominal in width and not less than 6 inches (152 mm) nominal in depth. Spaced members shall be permitted to be composed of two or more pieces not less than 3 inches (76 mm) nominal in thickness where blocked solidly throughout their intervening spaces or where spaces are tightly closed by a continuous wood cover plate of not less than 2 inches (51 mm) nominal in thickness secured to the underside of the members. Splice plates shall be not less than 3 inches (76 mm) nominal in thickness. Where protected by *approved* automatic sprinklers under the roof deck, framing members shall be not less than 3 inches (76 mm) nominal in width.~~

Revise as follows:

~~602.4.9~~602.4.3 Exterior structural members. Where a horizontal separation of 20 feet (6096 mm) or more is provided, wood columns and arches conforming to heavy timber sizes complying with 2304.11 shall be permitted to be used externally.

2304.11 Heavy timber construction. Where a structure ~~or~~, portion thereof ~~is~~, or individual structural elements are required to be of ~~Type IV construction~~heavy timber by ~~other~~ provisions of this code, the building elements therein shall comply with the applicable provisions of Sections 2304.11.1 through ~~2304.11.5~~2304.11.4. Minimum dimensions of heavy timber shall comply as applicable in Table 2304.11 based on roofs or floors supported and the configuration of each structural element, or as applicable in Sections 2304.11.2 through 2304.11.4.

2304.11.1 ~~Columns~~Details of heavy timber structural members. ~~Columns~~ Heavy timber structural members shall be ~~continuous or superimposed throughout all stories by means of reinforced concrete or metal caps~~detailed and constructed in accordance with ~~brackets, or shall be connected by properly designed steel or iron caps, with pintles and base plates, or by timber splice plates affixed to the columns by metal connectors housed within the contact faces, or by other *approved* methods.~~Sections 2304.11.1.1 through 2304.11.1.3.

2304.11.1.1 ~~Column connections~~Columns. Minimum dimensions of columns shall be in accordance with Table 2304.11. Columns shall be continuous or superimposed throughout all stories and connected in an *approved* manner. Girders and beams at column connections shall be closely fitted around columns and adjoining ends shall be cross tied to each other, or intertied by caps or ties, to transfer horizontal loads across joints. Wood bolsters shall not be placed on tops of columns unless the columns support roof loads only. Where traditional heavy timber detailing is used, connections shall be permitted to be by means of reinforced concrete or metal caps with brackets, or shall be connected by properly designed steel or iron caps, with pintles and base plates, or by timber splice plates affixed to the columns by metal connectors housed within the contact faces, or by other approved methods.

~~**2304.11.2**~~**2304.11.1.2 Floor framing.** Minimum dimensions of floor framing shall be in accordance with Table 2304.11. *Approved* wall plate boxes or hangers shall be provided where wood beams, girders or trusses rest on masonry or concrete walls. Where intermediate beams are used to support a floor, they shall rest on top of girders, or shall be supported by ~~ledgers or blocks securely fastened to the sides of the girders, or they shall be supported by~~ an *approved* metal hanger into which the ends of the beams shall be closely fitted. Where traditional heavy timber detailing is used, these connections shall be permitted to be supported by ledgers or blocks securely fastened to the sides of the girders.

~~**2304.11.3**~~**2304.11.1.3 Roof framing.** Minimum dimensions of roof framing shall be in accordance with Table 2304.11. Every roof girder and at least every alternate roof beam shall be anchored to its supporting member~~; and every monitor and every sawtooth construction shall be anchored to the main roof construction. Such anchors shall consist of steel or iron bolts of sufficient strength~~ to resist ~~vertical uplift of the roof.~~forces as required in Chapter 16.

~~**602.4.8**~~**2304.11.2 Partitions and walls.** Partitions and walls shall comply with Section ~~602.4.8.1~~2304.11.2.1 or ~~602.4.8.2~~2304.11.2.2.

~~**602.4.8.2**~~**2304.11.2.1 Exterior walls.** Exterior walls shall permitted to be ~~of one of the following:~~

~~1. Noncombustible materials.~~

1. ~~Not less than 6 inches (152 mm) in thickness and constructed of one of the following:~~
   - ~~1.1. *Fire-retardant-treated wood* in accordance with Section 2303.2 and complying with Section 602.4.1.~~
   - 1.1. *Cross-laminated timber*~~complying with~~meeting the requirements of Section ~~602.4.2~~2303.1.4.

~~**602.4.8.1**~~**2304.11.2.2 Interior walls and partitions.** *No change to text.*

~~**602.4.6**~~**2304.11.3 Floors.** Floors shall be without concealed spaces. Wood floors shall be constructed in accordance with Section ~~602.4.6.1~~2304.11.3.1 or ~~602.4.6.2~~2304.11.3.2.

~~**602.4.6.2**~~**2304.11.3.1 Cross-laminated timber floors.** *Cross-laminated timber* shall be not less than 4 inches (102 mm) in actual thickness. *Cross-laminated timber* shall be continuous from support to support and mechanically fastened to one another. *Cross-laminated timber* shall be permitted to be connected to walls without a shrinkage gap providing swelling or shrinking is considered in the design. Corbelling of masonry walls under the floor shall be permitted to be used.

~~**602.4.6.1**~~**2304.11.3.2 Sawn or glued-laminated plank floors.** *No change to text.*

Delete without substitution:

~~**2304.11.4 Floor decks.** Floor decks and covering shall not extend closer than 1/2 inch (12.7 mm) to walls. Such 1/2-inch (12.7 mm) spaces shall be covered by a molding fastened to the wall either above or below the floor and arranged such that the molding will not obstruct the expansion or contraction movements of the floor. Corbeling of masonry walls under floors is permitted in place of such molding.~~

Revise as follows:

~~**2304.11.5**~~**2304.11.4 Roof decks.** Roofs shall be without concealed spaces and roof decks shall be constructed in accordance with Section 2304.11.4.1 or 2304.11.4.2. Other types of decking shall be permitted to be used where equivalent fire resistance and structural properties are being provided. Where supported by a wall, roof decks shall be anchored to walls to resist ~~uplift~~ forces determined in accordance with Chapter 16. Such anchors shall consist of steel bolts, lags, screws or ~~iron bolts~~*approved* hardware of sufficient strength to resist ~~vertical uplift of the roof.~~prescribed forces.

~~**602.4.7**~~**2304.11.4.1** ~~**Roofs**~~**Cross-laminated timber roofs.** ~~Roofs shall be without concealed spaces and wood roof decks shall be sawn or glued laminated, splined or tongue-and-groove plank, not less than 2 inches (51 mm) nominal in thickness; 1 1/8-inch-thick (32 mm) wood structural panel (exterior glue); planks not less than 3 inches (76 mm) nominal in width, set on edge close together and laid as required for floors; or of cross-laminated timber. Other types of decking shall be permitted to be used if providing equivalent fire resistance and structural properties.~~

Cross-laminated timber roofs shall be not less than 3 inches (76 mm) ~~nominal in~~in actual thickness and shall be continuous from support to support and mechanically fastened to one another.

Add new text as follows:

2304.11.4.2 Sawn, wood structural panel, or glued-laminated plank roofs.

Sawn, wood structural panel, or glued-laminated plank roofs shall be one of the following:

1. Sawn or glued laminated, splined or tongue-and-groove plank, not less than 2 inches (51 mm) nominal in thickness;
2. 11 /8-inch-thick (32 mm) wood structural panel (exterior glue);
3. Planks not less than 3 inches (76 mm) nominal in width, set on edge close together and laid as required for floors.

Revise as follows:

TABLE 2304.11
~~**WOOD MEMBER SIZE EQUIVALENCIES**~~**MINIMUM DIMENSIONS OF HEAVY TIMBER STRUCTURAL MEMBERS**

		MINIMUM NOMINAL SOLID SAWN SIZE		MINIMUM GLUED-LAMINATED NET SIZE		MINIMUM STRUCTURAL COMPOSITE LUMBER NET SIZE	
Supporting	Heavy Timber Structural Element	Width, inch	Depth, inch	Width, inch	Depth, inch	Width, inch	Depth, inch

Floor loads only or combined floor and roof loads	Columns; Framed sawn or glued-laminated timber arches which spring from the floor line; Framed timber trusses	8	8	6 3/4	8 1/4	7	7 1/2
	Wood beams and girders	6	10	5	10 1/2	5 1/4	9 1/2
Roof loads only	Columns (roof and ceiling loads); Lower half of: Wood-frame or glued-laminated arches which spring from the floor line or from grade	6	8	5	8 1/4	5 1/4	7 1/2
	Upper half of: Wood-frame or glued-laminated arches which spring from the floor line or from grade	6	6	5	6	5 1/4	5 1/2
	Framed timber trusses and other roof framing; [a] Framed or glued-laminated arches that spring from the top of walls or wall abutments	4 [b]	6	3 [b]	6 7/8	3 1/2 [b]	5 1/2

For SI:1 inch = 25.4 mm.

[a] Spaced members shall be permitted to be composed of two or more pieces not less than 3 inches (76 mm) nominal in thickness where blocked solidly throughout their intervening spaces or where spaces are tightly closed by a continuous wood cover plate of not less than 2 inches (51 mm) nominal in thickness secured to the underside of the members. Splice lates shall be not less than 3 inches (76 mm) nominal in thickness.

[b] Where protected by approved automatic sprinklers under the roof deck, framing members shall be not less than 3 inches (76 mm) nominal in width.

Reason: The cross laminated timber product standard was approved in the 2015 IBC in addition to a code change allowing this material to be utilized for the construction of 2 hour exterior walls in type IV-HT construction.
Cross Laminated Timber has been manufactured for over 30 years in Europe and has just recently caught hold on the American Continent where some major structures are under way in Canada and smaller buildings are being built in the US. In Europe buildings of 8 to 10 stories and above are regularly constructed. The following link gives examples of CLT buildings throughout the world. http://www.rethinkwood.com/tall-wood-survey
Because of the high level of carbon sequestration and low embodied energy, it is anticipated there will be a renewed interest in the use of type IV heavy timber as a type of construction. One bit of feedback American Wood Council received after CLT was approved in the 2015 IBC was the observation from one building department that the heavy timber and type IV provisions are confusing, sometimes redundant and spread across different sections of the building code.
This code change is an attempt to address that concern without making any change in the substance of the requirements. Currently type IV construction and heavy timber requirements are found in Sections 602.4 and 2304.11 of the IBC. The clean up and reorganization of those sections is part one of this effort. Part two is the identification and update of many references to type IV construction and heavy timber found throughout the code.

In order to pare down Section 602.4, only the provisions specific to type IV construction remain along with a list of the types of materials found in heavy timber and the reference to the requirements for those materials in Section 2304.11. Requirements specific to type IV remain in 602.4.
Section 2304.11 can best be described as "all things heavy timber". Heavy timber structural elements have long been referenced throughout other parts of the code where a specific heavy timber structural element is detailed for use incorporated in another type of construction. The most general example of this is table 601 footnote c allowing the use of heavy timber roof construction in place of one hour fire resistance rated roof construction in types IB, II, IIIA, and VA construction. The design professional may detail heavy timber as the roof structure and assembly for these different types of construction and they are treated as building elements but the type of construction for the overall structure does not change from the type IB, II, IIIA, or VA.
Heavy timber requirements removed from Section 602.4 are combined and organized with the existing content of Section 2304. Table 602.4 is moved and renamed Table 2304.11. It is updated with information placing a description of the elements that are applicable for a given size timber element based on whether the element supports roof loads and floor loads or only roof loads. Specific footnotes about the size and protection of spaced truss elements and the reduction of roof beam width for sprinklers are noted where applicable.
The non-size related detailing provisions for framing members and connections (columns, floor framing and roof framing) are coalesced into Sections 2304.11.1.1, 2304.11.1.2 and 2304.11.1.3. All of the information in table 2304.11 and the following sections are organized so that the most pertinent information for most designs is found first.
Finally, some of the detailing provisions for traditional heavy timber are identified as such and relocated later in each section while some other information that is archaic and better replaced by reference is removed. A good example of this is the removal of the requirement for the anchorage of "every monitor and every sawtooth construction" to the main roof construction in Section 2304.11.3. New Section 2304.11.1.3 requires roof girders and alternate roof beams to be anchored to their supports as required by Chapter 16.
Finally, Sections 2304.11.2 through 2304.11.4 contain pertinent thickness and detailing requirements for walls, roof and floor deck construction.
The following table gives a more detailed description of where specific requirements are moved.
Since this change is intended not to create any new requirements or delete pertinent content, there are other code changes which contain specific code changes to this information. It is intended this code change will serve as a template for the relocation of those other specific changes through the correlation process should other specific changes be approved.
Part 2 of this effort follows with the change to specific code references to: Section 602.4, type IV construction, heavy timber and Section 2304.11.
The following link provides access to additional information regarding this or other code changes proposed by American Wood Council.
http://www.awc.org/Code-Officials/2015-IBC-Code-Changes/

Section in 2015 IBC	Location in proposed change	Comments
602.4 Type IV	602.4 (same location)	modified to direct users to news section on heavy timber details; retains essentials for Type IV construction
Table 602.4	Table 2304.11	additional content is added describing the thickness of structural elements based on loading and configuration from 602.4.3 through 602.4.5
602.4.1 Fire-retardant treated wood in exterior walls, and 602.4.2 Cross-laminated timber in exterior walls	602.4.1 and 602.4.2 (same location)	thickness of wall assembly added from 602.4.8.2 item 2.
602.4.3 Columns	2304.11, Table 2304.11, and Section 2304.11.1.1	requirements combined with existing 2304.11.1 Columns; dimensions in new Table 2304.11.1
602.4.4 Floor framing	2304.11, Table 2304.11	
602.4.5 Roof framing	2304.11, Table 2304.11	
602.4.6 Floors	2304.11.3	
602.4.6.1 Sawn or glued-laminated plank floors	2304.11.3.2	the end of proposed Section 2304.11.3.2 comes from current 2304.11.2
602.4.6.2 Cross-laminated timber floors	2304.11.3.1	
602.4.7 Roofs	2304.11.4 and subsections 2304.11.4.1 and 2304.11.4.2	the current provisions of current section 2304.11.5 are folded into these sections
602.4.8 Partitions and walls and subsections 602.4.8.1 Interior walls and partitions and 602.4.8.2 Exterior walls	602.for exterior wall thickness in type IV; heavy timber in 2304.11.2 2304.11.2.1 and 2304.11.2.2	kept essentials for a Type IV building in 602.4; essentials for heavy timber in proposed section 2304.11.2
602.4.9 Exterior structural members	602.4.3	Unchanged but references proposed heavy timber section
2304.11 Heavy timber construction	2304.11 (same location)	Modified to become charging language for all heavy timber, not just Type IV construction; adds

		charging language for proposed Table 2304.11
2304.11.1 Columns	2304.11.1.1	new section 2304.11.1.1 combines current sections 2304.11.1 and 2304.11.1.1; updates text to be more design focused; retains traditional details
2304.11.1.1 Column connections	2304.11.1.1	incorporated in 2304.11.1
2304.11.2 Floor framing	2304.11.1.2	modifies text to make lesser-used methods a permitted option
2304.11.3 Roof framing	2304.11.1.3	modifies text to refer to design for all forces, not just uplift, archaic language deleted
2304.11.4 Floor decks	2304.11.3.2	current text appears at the end of the proposed section with hardware choices updated; this section incorporates requirements for floors moved from Chapter 6
2304.11.5 Roof decks	2304.11.4	current text appears at end of proposed section, and updates language to reflect current methods and to include consideration of all forces

Cost Impact: Will not increase the cost of construction
Since this is a reorganization of existing requirements, not the creation of new requirements, this code change will not increase the cost of construction.

G 179-15 : 602.4-RICHARDSON5194

G 180-15

406.7.2, TABLE 601, 603.1, 705.2.3, 803.3, 803.13.3, 1406.3, [BG] 1510.2.5, [BG] 1510.3, 3105.3, D102.2.8, 803.1

Proponent: Dennis Richardson, American Wood Council, representing American Wood Council (drichardson@awc.org)

2015 International Building Code

Revise as follows:

406.7.2 Canopies. Canopies under which fuels are dispensed shall have a clear, unobstructed height of not less than 13 feet 6 inches (4115 mm) to the lowest projecting element in the vehicle drive-through area. Canopies and their supports over pumps shall be of noncombustible materials, *fire-retardant-treated wood* complying with Chapter 23, ~~wood of Type IV sizes~~heavy timber complying with Section 2304.11 or of construction providing 1-hour *fire resistance*. Combustible materials used in or on a *canopy* shall comply with one of the following:

1. Shielded from the pumps by a noncombustible element of the *canopy*, or ~~wood of Type IV sizes~~heavy timber complying with Section 2304.11;
2. Plastics covered by aluminum facing having a thickness of not less than 0.010 inch (0.30 mm) or corrosion-resistant steel having a base metal thickness of not less than 0.016 inch (0.41 mm). The plastic shall have a *flame spread index* of 25 or less and a smokedeveloped index of 450 or less when tested in the form intended for use in accordance with ASTM E 84 or UL 723 and a self-ignition temperature of 650°F (343°C) or greater when tested in accordance with ASTM D 1929; or
3. Panels constructed of light-transmitting plastic materials shall be permitted to be installed in *canopies* erected over motor vehicle fuel-dispensing station fuel dispensers, provided the panels are located not less than 10 feet (3048 mm) from any building on the same *lot* and face *yards* or streets not less than 40 feet (12 192 mm) in width on the other sides. The aggregate areas of plastics shall be not greater than 1,000 square feet (93 m^2). The maximum area of any individual panel shall be not greater than 100 square feet (9.3 m^2).

TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A	B	A	B	HT	A	B
Primary structural frame[f] (see Section 202)	3[a]	2[a]	1	0	1	0	HT	1	0
Bearing walls Exterior[e, f] Interior	3 3[a]	2 2[a]	1 1	0 0	2 1	2 0	2 1/HT	1 1	0 0
Nonbearing walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior[d]	0	0	0	0	0	0	See Section ~~602.4.6~~2304.11.2	0	0
Floor construction and associated secondary members (see Section 202)	2	2	1	0	1	0	HT	1	0
Roof construction and associated secondary members (see Section 202)	1 1/2[b]	1[b,c]	1[b,c]	0[c]	1[b,c]	0	HT	1[b,c]	0

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

c. In all occupancies, heavy timber complying with Section 2304.11 shall be allowed where a 1-hour or less fire-resistance rating is required.

d. Not less than the fire-resistance rating required by other sections of this code.

e. Not less than the fire-resistance rating based on fire separation distance (see Table 602).

f. Not less than the fire-resistance rating as referenced in Section 704.10.

603.1 Allowable materials. Combustible materials shall be permitted in buildings of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

1. *Fire-retardant-treated wood* shall be permitted in:
   1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less.
   1.2. Nonbearing *exterior walls* where fire-resistance-rated construction is not required.
   1.3. Roof construction, including girders, trusses, framing and decking.

   Exception: In buildings of Type IA construction exceeding two *stories abovegrade plane*, *fire-retardant-treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).
2. Thermal and acoustical insulation, other than foam plastics, having a *flame spread index* of not more than 25.

   Exceptions:
   1. Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a *flame spread index* of not more than 100.
   2. Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a *flame spread index* of not more than 200.
3. Foam plastics in accordance with Chapter 26.
4. Roof coverings that have an A, B or C classification.
5. *Interior floor finish* and floor covering materials installed in accordance with Section 804.
6. Millwork such as doors, door frames, window sashes and frames.
7. *Interior wall and ceiling finishes* installed in accordance with Sections 801 and 803.
8. *Trim* installed in accordance with Section 806.
9. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.
10. Finish flooring installed in accordance with Section 805.
11. Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated wood*, 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.
12. Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively.
13. Combustible *exterior wallcoverings*, balconies and similar projections and bay or oriel windows in accordance with Chapter 14.
14. Blocking such as for handrails, millwork, cabinets and window and door frames.
15. Light-transmitting plastics as permitted by Chapter 26.
16. Mastics and caulking materials applied to provide flexible seals between components of *exterior wall* construction.
17. Exterior plastic veneer installed in accordance with Section 2605.2.
18. Nailing or furring strips as permitted by Section 803.11.
19. Heavy timber as permitted by Note c to Table 601 and Sections ~~602.4.7~~602.4.3 and 1406.3.
20. Aggregates, component materials and admixtures as permitted by Section 703.2.2.
21. Sprayed fire-resistant materials and intumescent and mastic fire-resistant coatings, determined on the basis of *fire resistance* tests in accordance with Section 703.2 and installed in accordance with Sections 1705.14 and 1705.15, respectively.
22. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.
23. Materials used to protect joints in fire-resistance-rated assemblies in accordance with Section 715.
24. Materials allowed in the concealed spaces of buildings of Types I and II construction in accordance with Section 718.5.
25. Materials exposed within plenums complying with Section 602 of the *International Mechanical Code*.
26. Wall construction of freezers and coolers of less than 1,000 square feet (92.9 m^2), in size, lined on both sides with noncombustible materials and the building is protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

705.2.3 Combustible projections. Combustible projections extending to within 5 feet (1524 mm) of the line used to determine the *fire separation distance* shall be of not less than 1-hour fire-resistance-rated construction, ~~Type IV~~heavy timber construction complying with Section 2304.11, fire-retardant-treated wood or as required by Section 1406.3.

Exception: Type VB construction shall be allowed for combustible projections in Group R-3 and U occupancies with a fire separation distance greater than or equal to 5 feet (1524 mm).

803.3 Heavy timber exemption. Exposed portions of building elements complying with the requirements for buildings of ~~Type IV~~heavy timber construction in Section 602.4 or Section 2304.11 shall not be subject to *interior finish* requirements.

803.13.3 Heavy timber construction. Wall and ceiling finishes of all classes as permitted in this chapter that are installed directly against the wood decking or planking of ~~Type IV~~heavy timber construction in Sections 602.4.2 or 2304.11 or to wood furring strips applied directly to the wood decking or planking shall be fireblocked as specified in Section 803.13.1.1.

1406.3 Balconies and similar projections. Balconies and similar projections of combustible construction other than fire-retardant-treated wood shall be fire-resistance rated where required by Table 601 for floor construction or shall be of ~~Type IV~~heavy timber construction in accordance with Section ~~602.4~~2304.11. The aggregate length of the projections shall not exceed 50 percent of the building's perimeter on each floor.

Exceptions:
1. On buildings of Type I and II construction, three stories or less above *grade plane*, *fire-retardant-treated wood* shall be permitted for balconies, porches, decks and exterior stairways not used as required exits.
2. Untreated wood is permitted for pickets and rails or similar guardrail devices that are limited to 42 inches (1067 mm) in height.
3. Balconies and similar projections on buildings of Type III, IV and V construction shall be permitted to be of Type V construction, and shall not be required to have a *fire-resistance rating* where sprinkler protection is extended to these areas.
4. Where sprinkler protection is extended to the balcony areas, the aggregate length of the balcony on each floor shall not be limited.

[BG] 1510.2.5 Type of construction. Penthouses shall be constructed with walls, floors and roofs as required for the type of construction of the building on which such penthouses are built.

Exceptions:

1. On buildings of Type I construction, the exterior walls and roofs of penthouses with a *fire separation distance* greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour fire-resistance rating. The exterior walls and roofs of penthouses with a fire separation distance of 20 feet (6096 mm) or greater shall not be required to have a fire-resistance rating.
2. On buildings of Type I construction two stories or less in height above grade plane or of Type II construction, the exterior walls and roofs of penthouses with a *fire separation distance* greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour fire-resistance rating or a lesser fire-resistance rating as required by Table 602 and be constructed of fire-retardant-treated wood. The exterior walls and roofs of penthouses with a *fire separation distance* of 20 feet (6096 mm) or greater shall be permitted to be constructed of fire-retardant-treated wood and shall not be required to have a fire-resistance rating. Interior framing and walls shall be permitted to be constructed of fire-retardant-treated wood.
3. On buildings of Type III, IV or V construction, the exterior walls of penthouses with a fire separation distance greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour fire-resistance rating or a lesser fire-resistance rating as required by Table 602. On buildings of Type III, IV or VA construction, the exterior walls of penthouses with a fire separation distance of 20 feet (6096 mm) or greater shall be permitted to be of ~~Type IV~~heavy timber construction complying with Sections 602.4 and 2304.11 or noncombustible construction or fire-retardant-treated wood and shall not be required to have a fire-resistance rating.

[BG] 1510.3 Tanks. Tanks having a capacity of more than 500 gallons (1893 L) located on the roof deck of a building shall be supported on masonry, reinforced concrete, steel or ~~Type IV~~heavy timber construction complying with Section 2304.11 provided that, where such supports are located in the building above the lowest *story*, the support shall be fire-resistance rated as required for Type IA construction.

3105.3 Design and construction. *Awnings* and *canopies* shall be designed and constructed to withstand wind or other lateral loads and live loads as required by Chapter 16 with due allowance for shape, open construction and similar features that relieve the pressures or loads. Structural members shall be protected to prevent deterioration. *Awnings* shall have frames of noncombustible material, *fire-retardant-treated wood*, ~~wood of Type IV size~~heavy timber complying with Section 2304.11, or 1-hour construction with combustible or noncombustible covers and shall be either fixed, retractable, folding or collapsible.

D102.2.8 Permanent canopies. Permanent canopies are permitted to extend over adjacent open spaces provided all of the following are met:

1. The canopy and its supports shall be of noncombustible material, *fire-retardant-treated wood*, ~~Type IV construction~~heavy timber complying with Section 2304.11 or of 1-hour fire-resistance-rated construction.
   Exception: Any textile covering for the canopy shall be flame resistant as determined by tests conducted in accordance with NFPA 701 after both accelerated water leaching and accelerated weathering.
2. Any canopy covering, other than textiles, shall have a *flame spread index* not greater than 25 when tested in accordance with ASTM E 84 or UL 723 in the form intended for use.
3. The canopy shall have at least one long side open.
4. The maximum horizontal width of the canopy shall not exceed 15 feet (4572 mm).
5. The *fire resistance* of *exterior walls* shall not be reduced.

2015 International Fire Code

803.1 General. The provisions of this section shall limit the allowable fire performance and smoke development of interior wall and ceiling finishes and interior wall and ceiling trim in existing buildings based on location and occupancy classification. Interior wall and ceiling finishes shall be classified in accordance with Section 803 of the *International Building Code*. Such materials shall be grouped in accordance with ASTM E 84, as indicated in Section 803.1.1, or in accordance with NFPA 286, as indicated in Section 803.1.2.

Exceptions:

1. Materials having a thickness less than 0.036 inch (0.9 mm) applied directly to the surface of walls and ceilings.
2. Exposed portions of structural members complying with the requirements of ~~buildings of Type IV construction~~heavy timber in accordance with the *International Building Code* shall not be subject to interior finish requirements.

Reason: This code change is part 2 of a proposal to reorganize Type IV Section 602.4 and heavy timber section 2304.11. This part of the change includes references found throughout the IBC to either: Type IV construciton, Section 602.4, Section 2304.11, or "heavy timber". This change should follow directly after the 602.4 change and the reason for the change is included in that reason statement.
The references found in this part are generally changed to Type IV or Section 602.4 when the section of the code is referring to the type of construction associated with a structure. The references are generally changed to "heavy timber complying with Section 2304.11" when the code is referring to a heavy timber element found in a building of another type of construction. This change is a reorganization of two sections and is not intended to change the intent of the code.

Cost Impact: Will not increase the cost of construction
Since this is a reorganization of existing requirements, not the creation of new requirements, this code change will not increase the cost of construction.

G 180-15 : 406.7.2-RICHARDSON5276

G 181-15

602.4, 602.4.6, 602.4.7, 602.4.10 (New)

Proponent: Paul Coats, PE CBO, American Wood Council, representing American Wood Council (pcoats@awc.org)

2015 International Building Code

Revise as follows:

602.4 Type IV. Type IV construction (Heavy Timber, HT) is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid or laminated wood without concealed spaces or with concealed spaces meeting the requirements of Section 602.4.10. The details of Type IV construction shall comply with the provisions of this section and Section 2304.11. Exterior walls complying with Section 602.4.1 or 602.4.2 shall be permitted. Minimum solid sawn nominal dimensions are required for structures built using Type IV construction (HT). For gluedlaminated members and structural composite lumber (SCL) members, the equivalent net finished width and depths corresponding to the minimum nominal width and depths of solid sawn lumber are required as specified in Table 602.4. *Cross-laminated timber* (CLT) dimensions used in this section are actual dimensions.

602.4.6 Floors. Floors shall be without concealed spaces or with concealed spaces meeting the requirements of Section 602.4.10. Wood floors shall be constructed in accordance with Section 602.4.6.1 or 602.4.6.2.

602.4.7 Roofs. Roofs shall be without concealed spaces ~~and wood~~or with concealed spaces meeting the requirements of Section 602.4.10. Wood roof decks shall be sawn or glued laminated, splined or tongue-and-groove plank, not less than 2 inches (51 mm) nominal in thickness; $1^1/_8$-inch-thick (32 mm) wood structural panel (exterior glue); planks not less than 3 inches (76 mm) nominal in width, set on edge close together and laid as required for floors; or of cross-laminated timber. Other types of decking shall be permitted to be used if providing equivalent fire resistance and structural properties.

Cross-laminated timber roofs shall be not less than 3 inches (76 mm) nominal in thickness and shall be continuous from support to support and mechanically fastened to one another.

Add new text as follows:

602.4.10 Concealed spaces Concealed spaces shall not contain combustibles other than building elements and electrical, mechanical, fire protection, or plumbing materials and equipment, shall comply with all applicable provisions of Section 718, and in addition shall be protected in accordance with at least one, or any combination, of the following:

1. The building is sprinklered throughout and automatic sprinklers are also provided in the concealed space.
2. The concealed space shall be filled completely with noncombustible insulation.
3. The concealed space shall be lined continuously with a noncombustible material, not less than 1/2-inch gypsum board, or equivalent.

Exception: Concealed spaces within 1-hour fire resistance rated interior walls and partitions in accordance with Section 602.4.8.1 shall not require additional protection.

Reason: The option of having protected concealed spaces in Type IV buildings is important to encourage the adaptive re-use of existing heavy timber buildings as well as to provide for the installation of mechanicals in Type IV cross laminated timber (CLT) construction. In addition to the current requirements for all concealed spaces in combustible construction, this change would require additional protection of the concealed spaces with sprinkler coverage, or eliminating all air space with noncombustible insulation, or covering all combustible surfaces with noncombustible materials or gypsum. If sprinkler protection is chosen, the entire building must be protected by sprinklers.
Additional information related to the proposal may be posted at: http://www.awc.org/Code-Officials/2015-IBC-Code Changes/

Cost Impact: Will not increase the cost of construction
The code change provides the option of having protected concealed spaces in Type IV buildings, therefore does not increase the cost of construction.

G 181-15 : 602.4-COATS4032

G 182-15

602.4.2, 602.4.8.2

Proponent: David Tyree, American Wood Council, representing American Wood Council (dtyree@awc.org)

2015 International Building Code

Revise as follows:

602.4.2 Cross-laminated timber in exterior walls. *Cross-laminated timber* complying with Section 2303.1.4, and associated glued laminated timber and structural composite lumber elements that are rated as required for the wall, shall be permitted within exterior wall assemblies with a 2-hour rating or less, provided the exterior surface of the cross-laminated timber ~~is~~and associated elements are protected by one the following:

1. *Fire-retardant-treated wood* sheathing complying with Section 2303.2 and not less than $^{15}/_{32}$ inch (12 mm) thick;
2. *Gypsum board* not less than $^{1}/_{2}$ inch (12.7 mm) thick; or
3. A noncombustible material.

602.4.8.2 Exterior walls. Exterior walls shall be of one of the following:

1. Noncombustible materials.
2. Not less than 6 inches (152 mm) in thickness and constructed of one of the following:
   2.1. *Fire-retardant-treated wood* in accordance with Section 2303.2 and complying with Section 602.4.1.
   2.2. *Cross-laminated timber* and associated elements complying with Section 602.4.2.

Reason: Reason: The code currently does not recognize that no member of glued laminated or SCL wood of heavy timber dimensions may be used as a beam, header, column or other member within a wall of CLT which is, itself, considered to be heavy timber. It seems rather obvious that a heavy timber element may be used within the construction of a wall of heavy timber construction. This change is intended to place into the code that which may seem obvious.
For a complete list of AWC code change proposals and additional information please go to http://www.awc.org/Code-Officials/2015-IBC-Code-Changes. For more information concerning CLT lumber and construction, please go to http://www.rethinkwood.com/tall-wood-survey.

Cost Impact: Will not increase the cost of construction
No increase in construction costs as proposal only clarifies the intent of the code.

G 182-15 : 602.4.2-TYREE4642

G 183-15

602.4.8.2

Proponent: Joseph Holland, representing Hoover Treated Wood Products (jholland@frtw.com)

2015 International Building Code

Revise as follows:

602.4.8.2 Exterior walls. Exterior walls shall be of one of the following:

1. Noncombustible materials.

~~2. Not less than 6 inches (152 mm) in thickness and constructed of one of the following:~~

~~2.1.~~ 2. *Fire-retardant-treated wood* in accordance with Section 2303.2 and complying with Section 602.4.1.

~~2.2~~. 3.. *Cross-laminated timber* complying with Section 602.4.2 not less than 6 inches (152mm) in thickness.

Reason: Prior to the 2015 code there was no mandate to erect a wall constructed with FRTW to be at least 6 inches thick. This provision was added when the membership included cross laminated timber (CLT) to type four construction.
No justification was submitted to explain the rationale behind the 6-inch requirement for FRTW. FRTW has been allowed in Type IV building under the UBC since the late 1960's and the IBC since its inception. We are not aware of any problems. The change to the 2015 code will make any wall constructed before the 2015 code with 2X4 studs nonconforming.

The wall load and fire resistance requirements in the code will dictate how the wall is to be constructed. A minimum thickness is not needed.

Cost Impact: Will not increase the cost of construction
Could save on the construction costs.

G 183-15 : 602.4.8.2-HOLLAND4421

G 184-15

602.4.8.2

Proponent: Sam Francis, American Wood Council, representing American Wood Council (sfrancis@awc.org)

2015 International Building Code

602.4.8.2 Exterior walls. Exterior walls shall be of one of the following:

1. Noncombustible materials.
~~2. Not less than 6 inches (152 mm) in thickness and constructed of one of the following:~~
~~2.1~~ 2. *Fire-retardant-treated wood* in accordance with Section 2303.2 and complying with Section 602.4.1.
~~2.2.~~ 3. *Cross-laminated timber* not less than 4 inches in thickness and complying with Section 602.4.2.

Reason: When these provisions were introduced into the code in the last cycle, an overall wall thickness was deemed to be desirable. However, FRTW has performed suitably without an overall wall thickness requirement and the thickness of CLT will be driven by the required fire resistance rating and structural requirements. Citing an overall wall thickness is confusing and unnecessary, but the actual minimum thickness of the CLT is perhaps useful. Therefore we are proposing to delete the overall thickness of the wall in favor of citing an associated minimum CLT thickness, which requires a re-organization of the section.
When the original code section was developed, an overall thickness of 6 inches was proposed. It included the interior gypsum board (5/8 in.), the exterior gypsum board (5/8 in.) the exterior insulation (?? in.), the exterior cladding (3/4 in.). Thus, the overall thickness included at least 2 inches of non-CLT materials not even counting the insulation which would be required by the energy code. Subtracting the 2 inches of non-CLT material leaves 4 inches of CLT as a minimum dimension. This is completely consistent with the 6 inch requirement from the 2015 IBC. Of course, for a structure of more than 2 stories or which requires a 2 hr. FRR wall, the net dimension will still need to be greater than 6 inches, overall, to achieve the fire resistance rating and the structural capacity. Generally, the structural requirements will exceed this minimum number. But having such a number is necessary to insure the integrity of such a building.

Cost Impact: Will not increase the cost of construction
this change is not a substantive change and thus will not impact costs.

G 184-15 : 602.4.8.2-FRANCIS5409

G 185-15

603.1

Proponent: Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com)

2015 International Building Code

Revise as follows:

603.1 Allowable materials.
Combustible materials shall be permitted in buildings of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

1. *Fire-retardant-treated wood* shall be permitted in:
   1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less.
   1.2. Nonbearing *exterior walls* where fire-resistance-rated construction is not required.
   1.3. Roof construction, including girders, trusses, framing and decking.
      Exception: In buildings of Type IA construction exceeding two *stories abovegrade plane* , *fire-retardant-treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).
   1.4. Balconies, porches, decks and exterior stairways not used as required exits on buildings three stories or less above grade plane.
2. Thermal and acoustical insulation, other than foam plastics, having a *flame spread index* of not more than 25.
   Exceptions:
   1. Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a *flame spread index* of not more than 100.
   2. Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a *flame spread index* of not more than 200.
3. Foam plastics in accordance with Chapter 26.
4. Roof coverings that have an A, B or C classification.
5. *Interior floor finish* and floor covering materials installed in accordance with Section 804.
6. Millwork such as doors, door frames, window sashes and frames.
7. *Interior wall and ceiling finishes* installed in accordance with Sections 801 and 803.
8. *Trim* installed in accordance with Section 806.
9. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.
10. Finish flooring installed in accordance with Section 805.
11. Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated wood* , 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.
12. Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively.
13. Combustible *exterior wall~~coverings~~coverings*, balconies and similar projections and bay or oriel windows in accordance with Chapter 14.
14. Blocking such as for handrails, millwork, cabinets and window and door frames.
15. Light-transmitting plastics as permitted by Chapter 26.
16. Mastics and caulking materials applied to provide flexible seals between components of *exterior wall* construction.
17. Exterior plastic veneer installed in accordance with Section 2605.2.
18. Nailing or furring strips as permitted by Section 803.11.
19. Heavy timber as permitted by Note c to Table 601 and Sections 602.4.7 and 1406.3.
20. Aggregates, component materials and admixtures as permitted by Section 703.2.2.
21. Sprayed fire-resistant materials and intumescent and mastic fire-resistant coatings, determined on the basis of *fire resistance* tests in accordance with Section 703.2 and installed in accordance with Sections 1705.14 and 1705.15, respectively.
22. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.
23. Materials used to protect joints in fire-resistance-rated assemblies in accordance with Section 715.
24. Materials allowed in the concealed spaces of buildings of Types I and II construction in accordance with Section 718.5.
25. Materials exposed within plenums complying with Section 602 of the *International Mechanical Code* .
26. Wall construction of freezers and coolers of less than 1,000 square feet (92.9 m^2), in size, lined on both sides with noncombustible materials and the building is protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

Reason: The addition of Sub Section 1.4 is warranted to include the requirements of Section 1406.3, Exception 1 in here.

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction.

G 185-15 : 603.1-MAIEL3437

G 186-15

1203.2 (New), 1203.2

Proponent: Mike Fischer, Kellen Company, representing the Ventilation Task Force of the Asphalt Roofing Manufacturers Association and the Center for the Polyurethanes Industry of the American Chemistry Council (mfischer@kellencompany.com)

2015 International Building Code

Add new text as follows:

1203.2 **Roof ventilation** Roof assemblies shall be ventilated in accordance with this section or shall meet the unvented attic or unvented enclosed rafter assembliy requirements of Section 1203.3.

Revise as follows:

~~**1203.2**~~1203.2.1 ~~**Ventilation required.**~~**Ventilated attics and rafter spaces.** *No change to text.*

Reason: The current code requirements for ventilated and unvented attics create an exception without clear direction. For example, 1203.2 includes mandatory ventilation provisions, but the unvented attic requirements aren't established as an exception to the ventilation requirements. The intent of introducing the unvented attic requirements into the code was to provide comprehensive provisions that replace the ventilation requirements as an optional path to address moisture concerns when the building thermal envelope is located at the roof assembly. This proposal clears up the ambiguity by indicating that there are two options available; ventilate the attic according to the code, or meet the detailed requirements for unvented attic spaces.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification of existing requirements; it includes no technical changes to the code.

G 186-15 : 1203.2-FISCHER4003

G 187-15

1203.3

Proponent: Joseph Lstiburek, representing self (joe@buildingscience.com)

2015 International Building Code

Revise as follows:

1203.3 Unvented attic and unvented enclosed rafter assemblies. Unvented *attics* and unvented enclosed roof framing assemblies created by ceilings applied directly to the underside of the roof framing members/rafters and the structural roof sheathing at the top of the roof framing members shall be permitted where all the following conditions are met:

1. The unvented *attic* space is completely within the *building thermal envelope*.
2. No interior Class I vapor retarders are installed on the ceiling side (*attic* floor) of the unvented *attic* assembly or on the ceiling side of the unvented enclosed roof framing assembly.
3. Where wood shingles or shakes are used, a minimum $^1/_4$-inch (6.4 mm) vented airspace separates the shingles or shakes and the roofing underlayment above the structural sheathing.
4. In Climate Zones 5, 6, 7 and 8, any air-impermeable insulation shall be a Class II vapor retarder or shall have a Class II vapor retarder coating or covering in direct contact with the underside of the insulation.
5. Insulation shall be located in accordance with the following:
    - 5.1. Item 5.1.1, 5.1.2, 5.1.3 or 5.1.4 shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing.
        - 5.1.1. Where only air-impermeable insulation is provided, it shall be applied in direct contact with the underside of the structural roof sheathing.
        - 5.1.2. Where air-permeable insulation is provided inside the building thermal envelope, it shall be installed in accordance with Item 5.1. In addition to the air-permeable insulation installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing in accordance with the R values in Table 1203.3 for condensation control.
        - 5.1.3. Where both air-impermeable and air-permeable insulation are provided, the *air-impermeable insulation* shall be applied in direct contact with the underside of the structural roof sheathing in accordance with Item 5.1.1 and shall be in accordance with the R values in Table 1203.3 for condensation control. The *air-permeable insulation* shall be installed directly under the *air-impermeable insulation*.
        - 5.1.4. Alternatively, sufficient rigid board or sheet insulation shall be installed directly above the structural roof sheathing to maintain the monthly average temperature of the underside of the structural roof sheathing above 45°F (7°C). For calculation purposes, an interior air temperature of 68°F (20°C) is assumed and the exterior air temperature is assumed to be the monthly average outside air temperature of the three coldest months.
    - 5.2. Where preformed insulation board is used as the <u>air-impermeable</u>~~*air-permeable*~~ *insulation* layer, it shall be sealed at the perimeter of each individual sheet interior surface to form a continuous layer.

Exceptions:

1. Section 1203.3 does not apply to special use structures or enclosures such as swimming pool enclosures, data processing centers, hospitals or art galleries.
2. Section 1203.3 does not apply to enclosures in Climate Zones 5 through 8 that are humidified beyond 35 percent during the three coldest months.

Reason: This is a technical error - arrising from a typo or transcription error in the orignal proposal - the section should refer to air-impermeable insulation not air-permeable insulation.
There is no cost impact. This is an editiorial correction.

Cost Impact: Will not increase the cost of construction
This is an editorial change correcting an error in the orignal code change. There is no cost impact.

G 187-15 : 1203.3-LSTIBUREK5406

G 188-15

TABLE 1203.3

Proponent: Joseph Lstiburek, representing self (joe@buildingscience.com)

2015 International Building Code

Revise as follows:

TABLE 1203.3
INSULATION FOR CONDENSATION CONTROL

CLIMATE ZONE	MINIMUM R-VALUE OF AIR-IMPERMEABLE INSULATION[a]
~~2B and 3B tile roof only~~	~~0 (none required)~~
1, 2A, 2B, 3A, 3B[b], 3C	~~R-5~~ (none required)
4C	R-10
4A, 4B	R-15
5	R-20
6	R-25
7	R-30
8	R-35

a. Contributes to, but does not supersede, thermal resistance requirements for attic and roof assemblies in Section C402.2.1 of the *International Energy Conservation Code*.

b. In climate zones 3A, 3B and 3C where air-permeable insulation is provided and applied in direct contact with the underside of the structural sheathing, it shall be a Class II vapor retarder, or shall have a Class II vapor retarder coating or covering in direct contact with the underside of the insulation.

Reason: This significantly reduces the cost of constructing unvented attics. It allows the use of cellulose and fiberglass insulation.

Cost Impact: Will not increase the cost of construction
This will significantly reduce the cost of construction

G 188-15 : T1203.3-LSTIBUREK5443

G 189-15

1203.4, 1203.4.1, 1203.4.1.1 (New), 1203.4.1.2 (New), 1203.4.2 (New), 1203.4.3 (New), 1203.4.3.1 (New), 1203.4.3.2 (New), 1203.4.2

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1203.4 Under-floor ventilation. The space between the bottom of the floor joists and the earth under any building except spaces occupied by basements or cellars shall be provided with ventilation ~~openings through foundation walls or *exterior walls*. Such openings shall be placed so as to provide cross ventilation of the under-floor space.~~in accordance with Sections 1203.4.1, 1203.4.2 and 1203.4.3.

1203.4.1 ~~**Openings for under-floor ventilation.**~~**Ventilation openings.** Ventilation openings through foundation walls shall be provided. The openings shall be placed so as to provide cross ventilation of the under-floor space. The net area of ventilation openings shall be ~~not less than 1 square foot for each 150 square feet (0.67 m^2 for each 100 m^2) of crawl-space area~~in accordance with Section 1203.4.1.1 or 1203.4.1.2. Ventilation openings shall be covered for their height and width with any of the following materials, provided that the least dimension of the covering shall be not greater than $^1/_4$ inch (6.4 mm):

1. Perforated sheet metal plates not less than 0.070 inch (1.8 mm) thick.
2. Expanded sheet metal plates not less than 0.047 inch (1.2 mm) thick.
3. Cast-iron grilles or gratings.
4. Extruded load-bearing vents.
5. Hardware cloth of 0.035-inch (0.89 mm) wire or heavier.
6. Corrosion-resistant wire mesh, with the least dimension not greater than $^1/_8$ inch (3.2 mm).
7. Operable louvres, where ventilation is provided in accordance with Section 1203.4.1.2.

For buildings in flood hazard areas as established in Section 1612.3, the openings for under-floor ventilation shall be designed and installed in accordance with ASCE 24.

1203.4.1.1 Ventilation area for crawl spaces with open earth floors. The net area of ventilation openings for crawl spaces with uncovered earth floors shall be not less than 1 square foot for each 150 square feet (0.67 m^2 for each 100 m^2) of crawl-space area.

1203.4.1.2 Ventilation area for crawl spaces with covered floors. The net area of ventilation openings for crawl spaces with the ground surface covered with a Class I vapor retarder shall be not less than 1 square foot for each 1500 square feet (0.67 m^2 for each 1000 m^2) of crawl-space area.

1203.4.2 Ventilation in cold climates. In extremely cold climates, where ventilation opening will cause a detrimental loss of energy, ventilation openings to the interior of the structure shall be provided.

1203.4.3 Mechanical ventilation. Mechanical ventilation shall be provided to crawl spaces where the ground surface is covered with a Class I vapor retarder. Ventilation shall be in accordance with Section 1203.4.3.1 or 1203.4.3.2.

1203.4.3.1 Continuous mechanical ventilation. Continuously operated mechanical ventilation shall be provided at a rate of 1.0 cubic foot per minute (cfm) for each 50 square feet (1.02 L/s for each 10 m^2) of crawl space ground surface area and the ground surface is covered with a Class I vapor retarder.

1203.4.3.2 Conditioned space. The crawl space shall be conditioned in accordance with the *International Mechanical Code* and the walls of the crawl space shall be insulated in accordance with the *International Energy Conservation Code*.

~~**1203.4.2 Exceptions.** The following are exceptions to Sections 1203.4 and 1203.4.1:~~

1. ~~Where warranted by climatic conditions, ventilation openings to the outdoors are not required if ventilation openings to the interior are provided.~~
2. ~~The total area of ventilation openings is permitted to be reduced to $^1/_{1,500}$ of the under-floor area where the ground surface is covered with a Class I vapor retarder material and the required openings are placed so as to provide cross ventilation of the space. The installation of operable louvers shall not be prohibited.~~
3. ~~Ventilation openings are not required where continuously operated mechanical ventilation is provided at a rate of 1.0 cubic foot per minute (cfm) for each 50 square feet (1.02 L/s for each 10 m^2) of crawlspace floor area and the ground surface is covered with a Class I vapor retarder.~~
4. ~~Ventilation openings are not required where the ground surface is covered with a Class I vapor retarder, the perimeter walls are insulated and the space is conditioned in accordance with the *International Energy Conservation Code*.~~
5. ~~For buildings in flood hazard areas as established in Section 1612.3, the openings for under-floor ventilation shall be deemed as meeting the flood opening requirements of ASCE 24 provided that the ventilation openings are designed and installed in accordance with ASCE 24.~~

Reason: The purpose of this code change proposal is to organize Section 1203.4 into a logical format, and to change the code requirements related to the option presented by Section 1203.4.2, Exception 4. That exception allows for ventilation of a crawl space with a Class I vapor retarder covering the ground when the space is insulated and conditioned in accordance with the IECC. This is a problem because the IECC does not provide any requirements for conditioning. Since space conditioning requirements for conditioning are given in the IMC, the reference was modified to this section.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
Will not increase the cost of construction. The revisions are for clarification of the technical requirements and making reference to the appropriate I-code.

G 189-15 : 1203.4-KULIK5032

G 190-15

1207.2, 1207.3

Proponent: David Tyree, representing American Wood Council (dtyree@awc.org); Jason Smart (jsmart@awc.org); Kenneth Bland (kbland@awc.org); Sam Francis (sfrancis@awc.org); Bradford Douglas (bdouglas@awc.org)

2015 International Building Code

Revise as follows:

1207.2 Air-borne sound. Walls, partitions and floor/ceiling assemblies separating *dwelling units* and *sleeping units* from each other or from public or service areas shall have a sound transmission class of not less than 50, or not less than 45 if field tested, for air-borne noise when tested in accordance with ASTM E 90. Alternatively, the sound transmission class of walls, partitions and floor/ceiling assemblies shall be established by engineering analysis based on a comparison of walls, partitions and floor/ceiling assemblies having sound transmission class ratings as determined by the test procedures set forth in ASTM E 90. Penetrations or openings in construction assemblies for piping; electrical devices; recessed cabinets; bathtubs; soffits; or heating, ventilating or exhaust ducts shall be sealed, lined, insulated or otherwise treated to maintain the required ratings. This requirement shall not apply to entrance doors; however, such doors shall be tight fitting to the frame and sill.

1207.3 Structure-borne sound. Floor/ceiling assemblies between *dwelling units* and *sleeping units* or between a *dwelling unit* or *sleepingunit* and a public or service area within the structure shall have an impact insulation class rating of not less than 50, or not less than 45 if field tested, when tested in accordance with ASTM E 492. Alternatively, the impact insulation class of floor/ceiling assemblies shall be established by engineering analysis based on a comparison of floor/ceiling assemblies having impact insulation class ratings as determined by the test procedures set forth in ASTM E492.

Reason: Reason: The proposed performance alternative recognizes the current practice of STC and IIC interpolation based on data from testing performed in accordance with ASTM E90 and ASTM E492. It mirrors provisions of Section 703.3, which provides a similar engineering analysis alternative for establishing fire resistance ratings, thereby providing flexibility for designers. For a complete list of AWC code change proposals and additional information please go to http://www.awc.org/Code-Officials/2015-IBC-Code-Changes.

Cost Impact: Will not increase the cost of construction
This proposal does not increase the cost of construction as it only recognizes the use of ASTM E90 and E492.

G 190-15 : 1207.2-TYREE4803

G 191-15

202 (New), 1208.3, 1208.4

Proponent: Lee Kranz, representing Washington Association of Building Officials Technical Code Development Committee (lkranz@bellevuewa.gov)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

DWELLING UNIT, EFFICIENCY A dwelling unit containing not more than one habitable room.

Revise as follows:

1208.3 Room area. Every *dwelling unit* shall have no fewer than one room that shall have not less than 120 square feet (13.9 m^2) of *net floor area*. Other habitable rooms shall have a *net floor area* of not less than 70 square feet (6.5 m^2). *Efficiency dwelling units* shall be in accordance with Section 1208.4.

Exception: Kitchens are not required to be of a minimum floor area.

1208.4 Efficiency dwelling units. An efficiency ~~living~~dwelling unit shall conform to the requirements of the code except as modified herein:

1. The unit shall have a living room of not less than 220 square feet (20.4 m^2) of floor area. An additional 100 square feet (9.3 m^2) of floor area shall be provided for each occupant of such unit in excess of two.
2. The unit shall be provided with a separate closet.
3. The unit shall be provided with a kitchen sink, cooking appliance and refrigeration facilities, each having a clear working space of not less than 30 inches (762 mm) in front. Light and *ventilation* conforming to this code shall be provided.
4. The unit shall be provided with a separate bathroom containing a water closet, lavatory and bathtub or shower.

Reason: The current provisions of Section 1208.4 have no purpose in the building code because the scoping of these provisions depends on what is meant by "efficiency dwelling unit". Absent a clear definition of what an Efficiency Dwelling Unit (EDU) is in the building code there is no way to enforce the efficiency dwelling unit provisions found in IBC Section 1208.4. "Efficiency dwelling unit" is not a commonly used term, but our understanding is that it is what is more commonly called a studio apartment.
According to Section 1208.3, dwelling units may consist of a single room of 120 square feet. For example, this could be a single 10' X 12' room. This is not an acceptable amount of space for a dwelling unit. This code change will require that at least one room of not less than 220 square feet be provided in dwelling units containing only a single habitable room. It will also require a separate closet, bathroom, kitchen sink, a cooking appliance, & a refrigerator as well as the application of light and ventilation regulations.

Cost Impact: Will not increase the cost of construction
This code change adds a definition to clarify what an efficiency dwelling unit is and does not change the cost to construction.

G 191-15 : 1208.3-KRANZ3736

G 192-15

Part I:
2701.1
Part II:
[M] 2801.1
Part III:
[P] 2901.1

THIS IS A 3 PART CODE CHANGE PROPOSAL. PART I WILL BE HEARD THE THE IBC GENERAL COMMMITTEE, PART II WILL BE HEARD BY THE IMC COMMITTEE AND PART III WILL BE HEARD BY THE IPC/IPSDC COMMITTEE. PLEASE SEE THE TENTATIVE HEARING ORDERS FOR THE RESPECTIVE COMMITTEES.

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

Part I

2015 International Building Code

Revise as follows:

2701.1 Scope. ~~This~~ The provisions of this chapter ~~governs~~and NFPA 70 shall govern the design, construction, erection, and installation of the electrical components, appliances, equipment and systems used in buildings and structures covered by this code. ~~Electrical~~The *International Fire Code*, the *International Property Maintenance Code*, and NFPA 70 shall govern the use and maintenance of electrical components, appliances, equipment and systems ~~shall be designed~~. The *International Existing Building Code* and ~~constructed in accordance with the provisions of~~ NFPA 70 shall govern the alteration, repair, relocation, replacement, and addition of electrical components, appliances, equipment and systems.

Part II

2015 International Building Code

Revise as follows:

[M] 2801.1 Scope. ~~Mechanical appliances, equipment~~
The provisions of this chapter and ~~systems shall be constructed, installed and maintained in accordance with~~ the *International Mechanical Code* and the *International Fuel Gas Code* shall govern the design, construction, erection and installation of mechanical appliances, equipment and systems used in buildings and structures covered by this code. Masonry chimneys, fireplaces and barbecues shall comply with the *International Mechanical Code* and Chapter 21 of this code. The *International Fire Code*, the *International Property Maintenance Code*, the *International Mechanical Code* and the *International Fuel Gas Code* shall govern the use and maintenance of mechanical components, appliances, equipment and systems. The *International Existing Building Code*, the *International Mechanical Code* and the *International Fuel Gas Code* shall govern the alteration, repair, relocation, replacement, and addition of mechanical components, appliances, equipment and systems.

Part III

2015 International Building Code

Revise as follows:

[P] 2901.1 Scope. The provisions of this chapter and the *International Plumbing Code* shall govern the design construction, erection, and installation~~, *alteration*, repairs, relocation, replacement, addition to, use or maintenance~~ of plumbing components, appliances, equipment and systems used in buildings and structures covered by this code. Toilet and bathing rooms shall be constructed in accordance with Section 1210~~. Plumbing systems and equipment shall be constructed, installed and maintained in accordance with the *International Plumbing Code*~~. Private sewage disposal systems shall conform to the *International Private Sewage Disposal Code*. The *International Fire Code*, the *International Property Maintenance Code*, and the *International Plumbing Code* shall govern the use and maintenance of plumbing components, appliances, equipment and systems. The *International Existing Building Code* and the *International Plumbing Code* shall govern the alteration, repair, relocation, replacement, and addition of plumbing components, appliances, equipment and systems.

Reason: This proposal provides consistency in the scoping for the Electrical, Plumbing, and Mechanical chapters. Direction is provided as to what codes govern use and maintenance, and alteration, repair, relocation, replacement and additions for existing electrical, plumbing, and mechanical systems.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal will not increase the cost of construction. This proposal may decrease the cost of construction, by providing clarity to the scoping of these chapters.

Part II: Will not increase the cost of construction
This proposal will not increase the cost of construction. This proposal may decrease the cost of construction, by providing clarity to the scoping of these chapters.

Part III: Will not increase the cost of construction
This proposal will not increase the cost of construction. This proposal may decrease the cost of construction, by providing clarity to the scoping of these chapters.

G 192-15 : 2701.1-KULIK5035

G 193-15

2901, [P] 2901.1, 2902, [P] 2902.1, [P] TABLE 2902.1, [P] 2902.1.1, [P] 2902.1.2, [P] 2902.2, [P] 2902.2.1, [P] 2902.3, [P] 2902.3.1, [P] 2902.3.2, [P] 2902.3.3, [P] 2902.3.4, [P] 2902.3.5, [P] 2902.3.6, [P] 2902.4, [P] 2902.4.1, [P] 2902.5, [P] 2902.6

Proponent: Janine Snyder, City of Thornton, Colorado, representing Colorado Association of Plumbing & Mechanical Officials (CAPMO) (Janine.Snyder@cityofthornton.net)

2015 International Building Code

Delete without substitution:

~~**CHAPTER 29**~~
~~**PLUMBING SYSTEMS**~~

~~**SECTION 2901**~~
~~**GENERAL**~~

~~**[P] 2901.1 Scope.** The provisions of this chapter and the *International Plumbing Code* shall govern the erection, installation, *alteration*, repairs, relocation, replacement, addition to, use or maintenance of plumbing equipment and systems. Toilet and bathing rooms shall be constructed in accordance with Section 1210. Plumbing systems and equipment shall be constructed, installed and maintained in accordance with the *International Plumbing Code*. Private sewage disposal systems shall conform to the *International Private Sewage Disposal Code*.~~

~~**SECTION 2902**~~
~~**MINIMUM PLUMBING FACILITIES**~~

~~**TABLE 2902.1**~~
~~**MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 2902.1.1 and 2902.2)**~~

~~No.~~	~~CLASSIFICATION~~	~~OCCUPANCY~~	~~DESCRIPTION~~	~~WATER CLOSETS (URINALS SEE SECTION 419.2 OF THE *INTERNATIONAL PLUMBING CODE*)~~		~~LAVATORIES~~		~~BATHTUBS/ SHOWERS~~	~~DRINKING FOUNTAINS (SEE SECTION 410 OF THE *INTERNATIONAL PLUMBING CODE*)~~	~~OTHER~~
				~~Male~~	~~Female~~	~~Male~~	~~Female~~			
		~~A-1[d]~~	~~Theaters and other buildings for the performing arts and motion pictures~~	~~1 per 125~~	~~1 per 65~~	~~1 per 200~~		—	~~1 per 500~~	~~1 service sink~~
		~~A-2[d]~~	~~Nightclubs, bars, taverns, dance halls and buildings for similar purposes~~	~~1 per 40~~	~~1 per 40~~	~~1 per 75~~		—	~~1 per 500~~	~~1 service sink~~
			~~Restaurants, banquet halls and food courts~~	~~1 per 75~~	~~1 per 75~~	~~1 per 200~~		—	~~1 per 500~~	~~1 service sink~~
~~1~~	~~Assembly (continued)~~		~~Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums~~	~~1 per 125~~	~~1 per 65~~	~~1 per 200~~		—	~~1 per 500~~	~~1 service sink~~

		~~A-3[d]~~								
			~~Passenger terminals and transportation facilities~~	~~1 per 500~~	~~1 per 500~~	~~1 per 750~~		~~—~~	~~1 per 1,000~~	~~1 service sink~~
			~~Places of worship and other religious services~~	~~1 per 150~~	~~1 per 75~~	~~1 per 200~~		~~—~~	~~1 per 1,000~~	~~1 service sink~~

~~No.~~	~~CLASSIFICATION~~	~~OCCUPANCY~~	~~DESCRIPTION~~	~~WATER CLOSETS (URINALS SEE SECTION 419.2 OF THE *INTERNATIONAL PLUMBING CODE*)~~		~~LAVATORIES~~		~~BATHTUBS/ SHOWERS~~	~~DRINKING FOUNTAINS (SEE SECTION 410 OF THE *INTERNATIONAL PLUMBING CODE*)~~	~~OTHER~~
				~~Male~~	~~Female~~	~~Male~~	~~Female~~			
~~1~~	~~Assembly~~	~~A-4~~	~~Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities~~	~~1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500~~	~~1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520~~	~~1 per 200~~	~~1 per 150~~	~~—~~	~~1 per 1,000~~	~~1 service sink~~
		~~A-5~~	~~Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities~~	~~1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500~~	~~1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520~~	~~1 per 200~~	~~1 per 150~~	~~—~~	~~1 per 1,000~~	~~1 service sink~~

~~2~~	~~Business~~	~~B~~	~~Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses~~	~~1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50~~	~~1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80~~	—	~~1 per 100~~	~~1 service sink~~[e]
~~3~~	~~Educational~~	~~E~~	~~Educational facilities~~	~~1 per 50~~	~~1 per 50~~	—	~~1 per 100~~	~~1 service sink~~
~~4~~	~~Factory and industrial~~	~~F-1 and F-2~~	~~Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials~~	~~1 per 100~~	~~1 per 100~~	~~See Section 411 of the *International Plumbing Code*~~	~~1 per 400~~	~~1 service sink~~
~~5~~	~~Institutional~~	~~I-1~~	~~Residential care~~	~~1 per 10~~	~~1 per 10~~	~~1 per 8~~	~~1 per 100~~	~~1 service sink~~
		~~I-2~~	~~Hospitals, ambulatory nursing home care recipient~~[b]	~~1 per room~~[c]	~~1 per room~~[c]	~~1 per 15~~	~~1 per 100~~	~~1 service sink~~
		-	~~Employees, other than residential care~~[b]	~~1 per 25~~	~~1 per 35~~	—	~~1 per 100~~	—
		-	~~Visitors, other than residential care~~	~~1 per 75~~	~~1 per 100~~	—	~~1 per 500~~	—
		~~I-3~~	~~Prisons~~[b]	~~1 per cell~~	~~1 per cell~~	~~1 per 15~~	~~1 per 100~~	~~1 service sink~~
		~~I-3~~	~~Reformatories, detention centers and correctional centers~~[b]	~~1 per 15~~	~~1 per 15~~	~~1 per 15~~	~~1 per 100~~	~~1 service sink~~
		-	~~Employees~~[b]	~~1 per 25~~	~~1 per 35~~	—	~~1 per 100~~	—
		~~I-4~~	~~Adult day care and child day care~~	~~1 per 15~~	~~1 per 15~~	~~1~~	~~1 per 100~~	~~1 service sink~~

No.	~~CLASSIFICATION~~	~~OCCUPANCY~~	~~DESCRIPTION~~	~~WATER CLOSETS (URINALS SEE SECTION 419.2 OF THE *INTERNATIONAL PLUMBING CODE*)~~		~~LAVATORIES~~		~~BATHTUBS OR SHOWERS~~	~~DRINKING FOUNTAINS (SEE SECTION 410 OF THE *INTERNATIONAL PLUMBING CODE*)~~	~~OTHER~~
				~~Male~~	~~Female~~	~~Male~~	~~Female~~			
6	~~Mercantile~~	~~M~~	~~Retail stores, service stations, shops, salesrooms, markets and shopping centers~~	~~1 per 500~~		~~1 per 750~~		—	~~1 per 1,000~~	~~1 service sink~~[e]
7	~~Residential~~	~~R-1~~	~~Hotels, motels, boarding houses (transient)~~	~~1 per sleeping unit~~		~~1 per sleeping unit~~		~~1 per sleeping unit~~	—	~~1 service sink~~
		~~R-2~~	~~Dormitories, fraternities, sororities and boarding houses (not transient)~~	~~1 per 10~~		~~1 per 10~~		~~1 per 8~~	~~1 per 100~~	~~1 service sink~~
		~~R-2~~	~~Apartment house~~	~~1 per dwelling unit~~		~~1 per dwelling unit~~		~~1 per dwelling unit~~	—	~~1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per 20 dwelling units~~
		~~R-3~~	~~One- and two-family dwellings and lodging houses with five or fewer guest rooms~~	~~1 per dwelling unit~~		~~1 per 10~~		~~1 per dwelling unit~~	—	~~1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per dwelling unit~~
		~~R-3~~	~~Congregate living facilities with 16 or fewer persons~~	~~1 per 10~~		~~1 per 10~~		~~1 per 8~~	~~1 per 100~~	~~1 service sink~~

		~~R-4~~	~~Congregate living facilities with 16 or fewer persons~~	~~1 per 10~~	~~1 per 10~~	~~1 per 8~~	~~1 per 100~~	~~1 service sink~~
8	~~Storage~~	~~S-1 S-2~~	~~Structures for the storage of goods, warehouses, storehouses and freight depots, low and moderate hazard~~	~~1 per 100~~	~~1 per 100~~	~~See Section 411 of the *International Plumbing Code*~~	~~1 per 1,000~~	~~1 service sink~~

~~a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by this code.~~

~~b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.~~

~~c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient *sleeping units* shall be permitted, provided that each patient *sleeping unit* has direct access to the toilet room and provisions for privacy for the toilet room user are provided.~~

~~d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.~~

~~e. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.~~

~~**[P] 2902.1 Minimum number of fixtures.** Plumbing fixtures shall be provided in the minimum number as shown in Table 2902.1 based on the actual use of the building or space. Uses not shown in Table 2902.1 shall be considered individually by the code official. The number of occupants shall be determined by this code.~~

~~**[P] 2902.1.1 Fixture calculations.** To determine the *occupant load* of each sex, the total *occupant load* shall be divided in half. To determine the required number of fixtures, the fixture ratio or ratios for each fixture type shall be applied to the *occupant load* of each sex in accordance with Table 2902.1. Fractional numbers resulting from applying the fixture ratios of Table 2902.1 shall be rounded up to the next whole number. For calculations involving multiple occupancies, such fractional numbers for each occupancy shall first be summed and then rounded up to the next whole number.~~

~~**Exception:** The total *occupant load* shall not be required to be divided in half where *approved* statistical data indicate a distribution of the sexes of other than 50 percent of each sex.~~

~~**[P] 2902.1.2 Family or assisted-use toilet and bath fixtures.** Fixtures located within family or assisted-use toilet and bathing rooms required by Section 1109.2.1 are permitted to be included in the number of required fixtures for either the male or female occupants in assembly and mercantile occupancies.~~

~~**[P] 2902.2 Separate facilities.** Where plumbing fixtures are required, separate facilities shall be provided for each sex.~~

~~**Exceptions:**~~

1. ~~Separate facilities shall not be required for *dwellingunits* and *sleeping units*.~~
2. ~~Separate facilities shall not be required in structures or tenant spaces with a total *occupant load*, including both employees and customers, of 15 or fewer.~~
3. ~~Separate facilities shall not be required in mercantile occupancies in which the maximum occupant load is 100 or less.~~

~~**[P] 2902.2.1 Family or assisted-use toilet facilities serving as separate facilities.** Where a building or tenant space requires a separate toilet facility for each sex and each toilet facility is required to have only one water closet, two family or assisted-use toilet facilities shall be permitted to serve as the required separate facilities. Family or assisted-use toilet facilities shall not be required to be identified for exclusive use by either sex as required by Section 2902.4.~~

~~**[P] 2902.3 Employee and public toilet facilities.** Customers, patrons and visitors shall be provided with public toilet facilities in structures and tenant spaces intended for public utilization. The number of plumbing fixtures located within the required toilet facilities shall be provided in accordance with Section 2902.1 for all users. Employees shall be provided with toilet facilities in all occupancies. Employee toilet facilities shall be either separate or combined employee and public toilet facilities.~~

~~**Exception:** Public toilet facilities shall not be required in:~~

1. ~~Open or enclosed parking garages where there are no parking attendants.~~
2. ~~Structures and tenant spaces intended for quick transactions, including takeout, pickup and drop-off, having a public access area less than or equal to 300 square feet (28 m^2).~~

~~**[P] 2902.3.1 Access.** The route to the public toilet facilities required by Section 2902.3 shall not pass through kitchens, storage rooms or closets. Access to the required facilities shall be from within the building or from the exterior of the building. Routes shall comply with the accessibility requirements of this code. The public shall have access to the required toilet facilities at all times that the building is occupied.~~

~~**[P] 2902.3.2 Location of toilet facilities in occupancies other than malls.** In occupancies other than covered and open mall buildings, the required public and employee toilet facilities shall be located not more than one *story* above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 500 feet (152 m).~~

~~**Exception:** The location and maximum distances of travel to required employee facilities in factory and industrial occupancies are permitted to exceed that required by this section, provided that the location and maximum distance of travel are *approved*.~~

~~**[P] 2902.3.3 Location of toilet facilities in malls.** In covered and open mall buildings, the required public and employee toilet facilities shall be located not more than one story above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall~~

~~not exceed a distance of 300 feet (91 mm). In mall buildings, the required facilities shall be based on total square footage (m^2) within a covered mall building or within the perimeter line of an open mall building, and facilities shall be installed in each individual store or in a central toilet area located in accordance with this section. The maximum distance of travel to central toilet facilities in mall buildings shall be measured from the main entrance of any store or tenant space. In mall buildings, where employees' toilet facilities are not provided in the individual store, the maximum distance of travel shall be measured from the employees' work area of the store or tenant space.~~

~~**[P] 2902.3.4 Pay facilities.** Where pay facilities are installed, such facilities shall be in excess of the required minimum facilities. Required facilities shall be free of charge.~~

~~**[P] 2902.3.5 Door locking.** Where a toilet room is provided for the use of multiple occupants, the egress door for the room shall not be lockable from the inside of the room. This section does not apply to family or assisted-use toilet rooms.~~

~~**[P] 2902.3.6 Prohibited toilet room location.** Toilet rooms shall not open directly into a room used for the preparation of food for service to the public.~~

~~**[P] 2902.4 Signage.** Required public facilities shall be provided with signs that designate the sex as required by Section 2902.2. Signs shall be readily visible and located near the entrance to each toilet facility. Signs for accessible toilet facilities shall comply with Section 1111.~~

~~**[P] 2902.4.1 Directional signage.** Directional signage indicating the route to the required public toilet facilities shall be posted in a lobby, corridor, aisle or similar space, such that the sign can be readily seen from the main entrance to the building or tenant space.~~

~~**[P] 2902.5 Drinking fountain location.** Drinking fountains shall not be required to be located in individual tenant spaces provided that public drinking fountains are located within a distance of travel of 500 feet (152 m) of the most remote location in the tenant space and not more than one story above or below the tenant space. Where the tenant space is in a covered or open mall, such distance shall not exceed 300 feet (91 440 mm). Drinking fountains shall be located on an accessible route.~~

~~**[P] 2902.6 Small occupancies.** Drinking fountains shall not be required for an occupant load of 15 or fewer.~~

Reason: Chapter 29 is merely a reprint of specific sections out of the International Plumbing Code. There is no justification for reprinting verbiage from another code into the Building Code unless the language is specifically a building code item such as masonry fireplaces as referenced in Chapter 28. Instead, allow the charging statement in 2901 to direct the code official to the proper code or codes as done in Chapter 28 for Mechanical Systems.

Cost Impact: Will not increase the cost of construction
This will not increase the cost of construction as it is not adding additional code requirements it is merely directing the proponent to the correct code.

Analysis: This code change proposal addresses the scope and application of the International Building Code, Chapter 29. The action taken by the IBC-General Committee on this proposal coupled with the final action taken at the 2015 Final Action Hearings will be limited to an advisory recommendation to the ICC Board of Directors who will determine the final disposition on this proposed change in accordance with Section 1.3 of CP 28 which stipulates that the Board determines the scope of the I-Codes.

G 193-15 : 2902-SNYDER4424

G 194-15

3001.2, TABLE 3001.2 (New)

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

3001.2 Referenced standards. Except as otherwise provided for in this code, the design, construction, installation, *alteration*, repair and maintenance of elevators and conveying systems and their components shall conform to ~~ASME A17.1/CSA B44, ASME A17.7/CSA B44.7, ASME A90.1, ASME B20.1, ANSI MH29.1, ALI ALCTV~~the applicable standard specified in Table 3001.2 and ASCE 24 for construction in flood hazard areas established in Section 1612.3.

Add new text as follows:

TABLE 3001.2
ELEVATORS AND CONVEYING SYSTEMS AND COMPONENTS

TYPE	**STANDARD**
Elevators, escalators, dumbwaiters, moving walks, material lifts	ASME A17.1/CSA B44
Belt manlifts	ASME A90.1
Conveyors and related equipment	ASME B20.1
Automotive lifts	ALI ALCTV
Platform lifts, stairway chairlifts, wheelchair lifts	ASME A18.1

Reason: The referenced installation and design standards do not apply to all elevators and conveying systems and their components. Each standard is for a certain type. Although covered for accessibility in Section 1109.8, the installation standard for Platform Lifts and Stairway Chairlifts, ASME A18.1, is not included in Chapter 30. ASME A18.1 is a separate standard, not covered by Section 1.1.2 of ASME A17.1.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This code change proposal will not increase the cost of construction due to the code already requires conformance with these standards. There may be a decrease in the cost of construction, due to providing clarity on what is required for specific equipment.

G 194-15 : 3001.2-KULIK5033

G 195-15

3001.2 (New)

Proponent: Andrew Cid, representing Private Citizen for The Initiative for Emergency Elevator Communication Systems for the Deaf, Hard of Hearing and Speech Impaired (andycid99@gmail.com)

2015 International Building Code

Add new text as follows:

3001.2 Emergency elevator communication systems for the deaf, hard of hearing and speech impaired An emergency two-way communication system shall be provided that:

1. Is a visual text-based and a video-based live interactive system,
2. Is fully accessible by the deaf and hard of hearing and speech impaired, and
3. Is located between the elevator car and the local emergency authorities at a point outside of the hoistway.

Reason: Reason for Addition / Change to the Language of IBC 3001.2:
The addition of the terms "visual, text-based and video-based live interactive communication systems" is strongly recommended to emphasize the need for totally accessible communication in elevators between local government emergency authorities and individuals who are: Deaf, Hard of Hearing, and Speech Impaired. This type of comunication system is long overdue and strongly recommended for installation and retrofit into public elevators in existing buildings and for new construction. A similar proposal was considered by the A117.1 Standards Committee in 2014, but not approved. The IBC and IEBC should take the lead on this topic and establish this requirement that is needed by our communities..

Cost Impact: Will not increase the cost of construction
Cost Impact - The cost impact, to a recommended 70% of the existing building inventory for public and commercial buildings that are three (3) stories or higher with elevators, is expected to be negligible or minimal to the building owner / operator. Any costs incurred is anticipated to be alleviated wth the use of various incentives such as tax write offs for complying with new accessibility standards. In addition, for new construction, it is expected that there will be no significant additional costs involved because it will be built into the design / build. For existing buildings, the estimated cost for such a system is approximately $2,500. For new construction, the system will cost approximately $5,000.

G 195-15 : 3001.2 (New)-CID3932

G 196-15

3004.1, 3004.5 (New)

Proponent: RW Bob O'Gorman, Automotive Lift Institute, representing Automotive Lift Institute, Inc.

2015 International Building Code

CHAPTER 30 ELEVATORS AND CONVEYING SYSTEMS
Revise as follows:

3004.1 General. Escalators, moving walks, conveyors, personnel hoists ~~and~~ , material hoists and automotive lifts shall comply with the applicable provisions of Sections 3004.2 through ~~3004.4~~3004.5.

Add new text as follows:

3004.5 Automotive Lifts. Automotive Lifts shall be listed and labeled in accordance with ANSI/ALI ALCTV.

Reason: ANSI/ALI ALCTV is ALREADY identified as a referenced National Safety Standard in section 3001.2 of Chapter 30. This proposal is NOT requiring that a new standard be placed into reference. The reference to ANSI/ALI ALCTV by the IBC has existed since the 2000 codes went into effect. AHJ's and those attempting to comply regarding Automotive Lifts are confused and need clarification within the cited sections.
ANSI/ALI ALCTV applies to permanently installed, automotive service and repair lifts, such as those installed and used to convey and support passenger cars, trucks, buses, rail, and specialty vehicles. ANSI/ALI ALCTV identifies the electrical and mechanical safety requirements for an automotive lift and dictates that any such electrically powered devices be "Listed" by an OSHA accredited, Nationally Recognized Testing Laboratory (NRTL) and that the mechanical characteristics such as structural components and control systems be "Certified" as conforming to this ANSI standard by an accredited, independent third party product certifier.

Unlike the other products currently addressed within section 3004 (escalators, conveyors, and personnel/material hoists), no expertise in automotive lifts was had by those responsible for this item being developed at the time it was placed within Chapter 30. As a result, there is no dedicated section of code providing greater detail to those attempting to comply....or for those utilizing the code to definitively determine risk and compliance with known electrical and mechanical safety requirements contained within ANSI/ALI ALCTV.

A problem exists throughout the vehicle lift industry - there are a number of manufacturers (both within the continental US and overseas) that are providing automotive lift products that have no electrical and mechanical product safety certifications as required by ANSI/ALI ALCTV. These products are regularly being installed and hard wired into new and current construction. In recent years these products have moved beyond commercial applications and are now being placed into residential environments. Unknowing purchasers and end users are winding up with automotive lifts that successfully circumvent known electrical safety requirements regularly, because when these lifts are installed without proper permits (or even with permits); many utilizing the code that challenge an installation do not know how to interpret the need for compliance with ANSI/ALI ALCTV when countered with the argument "show me where it says that in writing". My office has been contacted literally hundreds of times by electrical code enforcement officers and other AHJ's regarding their difficulty in "holding ground" when those that sold the product argue chapter 30 does NOT apply to automotive lifts - because it lacks discussion and direction found for other products in the section.

Cost Impact: Will not increase the cost of construction
Since Compliance with ANSI/ALI ALCTV is already referenced in section 3001.2 of the current edition of the IBC (it has been required within this section since the 2000 edition of the IBC) the writer of this proposal states there is zero cost impact.
The change requested will allow for clarification of an existing requirement for automotive lifts to comply with ANSI/ALI ALCTV. The clarification requested will assist AHJ's, consumers, specifiers and contractors attempting to comply, to have clear understanding of what is currently required for Automotive Lifts, such as those used in service and repair centers (shops and dealerships for example).

Cost of construction will NOT increase. Currently 24 major companies act responsibly and provide North America with more than 2500 certified variations of automotive lift products that range in capacity from 5,000 lbs to well over 150,000 lbs in some applications. Without clarification, the issue of automotive lift compliance with IBC will continue to be a matter of "Buyer Beware".

G 196-15 : 3004.1-O'GORMAN5630

G 197-15

3004.2.2

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Revise as follows:

3004.2.2 Escalators. Where provided in below-grade transportation stations, escalators shall have a clear width of not less than 32 inches (815 mm).

~~**Exception:** The clear width is not required in existing facilities undergoing *alterations*.~~

Reason: The exception to this section addresses requirements for escalators undergoing alterations. Such provisions should be in the IEBC, not the IBC.

Cost Impact: Will not increase the cost of construction
This change and the companion change to put requirements for existing escalators undergoing alterations in the IEBC will clarify how the two codes work together. There should be no cost impact with this change.

G 197-15 : 3004.2.2-COLLINS4477

G 198-15

3005.4

Proponent: Quinton Owens, City of Rexburg, representing "self" (quintono@rexburg.org)

2015 International Building Code

Revise as follows:

3005.4 Machine rooms, control rooms, machinery spaces, and control spaces. Elevator machine rooms, control rooms, control spaces and machinery spaces outside of but attached to a hoistway that have openings into the hoistway shall be enclosed with *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. The *fire-resistance rating* shall be not less than the required rating of the hoistway enclosure served by the machinery. Openings in the *fire barriers* shall be protected with assemblies having a f*ire protection rating* not less than that required for the hoistway enclosure doors.

Exceptions:

1. For other than fire service access elevators and occupant evacuation elevators, where machine rooms, machinery spaces, control rooms and control spaces do not abut and have no openings to the hoistway enclosure they serve, the *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both, shall be permitted to be reduced to a 1-hour *fire-resistance rating*.
2. For other than fire service access elevators and occupant evacuation elevators, in buildings ~~four~~three*stories* or less above *grade plane* where machine room, machinery spaces, control rooms and control spaces do not abut and have no openings to the hoistway enclosure they serve, the machine room, machinery spaces, control rooms and control spaces are not required to be fire-resistance rated.

Reason: As the fire rating on shafts increases from one hour to two hours beginning at 4 stories, it seems logical that a machine room serving only a one hour rated shaft should be in exception two and all other shafts would fall together under exception one.

Cost Impact: Will increase the cost of construction
Cost increase is limited only to raising assembly rating by 1 hour for machine rooms serving elevator shafts of 4 stories.

G 198-15 : 3005.4-OWENS5702

G 199-15

3005.7 (New)

Proponent: Lee Kranz, City of Bellevue, WA, representing The City of Bellevue Washington

2015 International Building Code

Add new text as follows:

3005.7 **Fire service access and occupant evacuation elevator machine rooms.** Fire service access elevator machinery and occupant evacuation elevator machinery shall not be located in the same room with machinery serving other elevators.

Exception: Co-location of elevator machinery is permitted where a clean-agent fire-extinguishing sytem is installed in the machinery room instead of an automatic sprinkler system. The clean-agent system shall be in accordance with Section 904.10. Openings in the machinery room floor, walls and ceiling shall be limited to insure the functionality of the clean-agent system.

Reason: There are cases where fire service access elevator machinery or occupant evacuation elevator machinery may need to be co-located in the same machinery room as other non-fire service elevator or non-occupant self evacuation elevator machinery. IBC Section 903 and NFPA 13 requires sprinkler protection in all elevator machinery rooms except those serving fire service access elevator machinery or occupant evacuation elevator machinery (see IBC Sections 3007.2.1 & 3008.2.1 prohibiting the use of automatic (wet) sprinklers in fire service access and occupant evacuation elevator machine rooms). Both fire service access elevator machinery and occupant evacuation elevator machinery must be protected from any water source so this proposal allows the use of a clean-agent system per NFPA 2001 to allow all elevator machinery to be in the same room. This will insure that the provisions of IBC Section 3007.4 & 3008.4 are met when co-location of machinery is desired to meet design requirements.

Cost Impact: Will not increase the cost of construction
This code change will not effect the cost of construction as in some cases it will be less expensive to install a clean-agent fire extinguishing system than an automatic sprinkler system.

G 199-15 : 3005.7 (New)-KRANZ3868

G 200-15

3006.2

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

3006.2 Hoistway opening protection required. Elevator hoistway door openings shall be protected in accordance with Section 3006.3 where ~~an~~ the elevator ~~hoistway~~ is required to be located in a shaft enclosure, connects more than three stories~~, is required to be enclosed within a shaft enclosure in accordance with Section 712.1.1~~ and where any of the following conditions ~~apply~~ exist

1. The elevator hoistway exceeds 420 feet in height.
2~~1~~. The building is not ~~protected~~equipped throughout with an *automatic sprinkler system* ~~in accordance with Section 903.3.1.1 or 903.3.1.2.~~
3~~2~~. The building contains a Group I-1 Condition 2 occupancy.
4~~3~~. The building contains a Group I-2 occupancy.
5~~4~~. The building contains a Group I-3 occupancy~~.~~
~~5. The building is a high rise and the elevator hoistway is more than 75 feet (22 860 mm) in height. The height of the hoistway shall be measured from the lowest floor to the highest floor of the floors served by the hoistway.~~

Exceptions:

1. Protection of elevator hoistway door openings is not required where the elevator serves only open parking garages in accordance with Section 406.5.
2. Protection of elevator hoistway door openings is not required at the level(s) of exit discharge, provided the level(s) of exit discharge is equipped with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. Enclosed elevator lobbies and protection of elevator hoistway door openings are not required on levels where the elevator hoistway opens to the exterior

The height of the hoistway shall be measured from the top of the lowest finished floor to the top of the highest finished floor of the floors served by the hoistway.

The height of elevator hoistways sharing a common atmosphere by elevator door openings at a common floor or by openings between hoistways shall be measured from the top of the lowest finished floor to the top of the highest finished floor of the floors served by the non separated hoistways.

Reason: This proposal is a follow-up to what was proposed in the 2012 cycle as proposal FS66-12. This version has been updated to work with the new language found in Section 3006.2 and addresses the reasons for disapproval, including that midrise buildings may not have been equipped throughout with an automatic sprinkler system.
This issue has been viewed very differently throughout the US with many jurisidictions requiring elevator lobbies and many not. The IBC has required these lobbies since the 2000 edition and have always been heavily debated. This debate has been the reason the CTC has been carefully studying this issue. The work that led to FS66-12 included a technical analysis that looked at issues such as stack effect and also looked at the reliability of sprinklers through the use of the fire safety concepts tree. The technical analysis is available at the following link. https://cdpaccess.com/proposal/fileupload/get/280

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Elevator Lobbies Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
If the requirements for elevator lobbies are made less restrictive then the cost of construction would go down.

G 200-15 : 3006.2-BALDASSARRA4170

G 201-15

3006.2.1 (New), 1020.1.1(IFC [BE] 1020.1.1) (New)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Add new text as follows:

3006.2.1 **Rated corridors.** Where corridors are required to be fire resistance rated in accordance with Section 1020.1, elevator hoistway openings shall be protected in accordance with Section 3006.3.

1020.1.1(IFC [BE] 1020.1.1) **Hoistway opening protection** Elevator hoistway openings shall be protected in accordance with Section 3006.2.1.

Reason: During the 2012 cycle the CTC submitted a code change FS88-12 to clarify that it was not the intent to require protection of a hoistway opening in rated corridors. Instead, the elevator lobby requirements themselves addressed this issue. That proposal was not approved. Based upon that disapproval, it appears that it is within the intent to require protection of elevator hoistway openings based upon the requirement for rated corridor construction. Therefore, this requirement needs to be specifically clarified within Section 3006 to avoid the requirement being missed. A new section 3006.2.1 has been written to clarify that intent. Also, to further clarify this intent a Section 1020.1.1 has been provided as a pointer to these specific lobby requirements.
It should be noted that this requirement has limited application. The following summarizes the buildings not already addressed by Section 3006.2 that are required to have rated corridors.

Unsprinklered buildings:

Both conditions below apply to require hoistway opening protection:

- Group A, B, E, F, M, S and U occupancies with an occupant load served by a corridor greater than 30.
- Hoistways connecting only 3 stories.

Sprinklered buildings

Both conditions below apply to require hoistway opening protection:

- Applicable Occupancies
  - o Group R greater than 10 served by corridor (.5 hr)
  - o Group H1, H-2, H-3 (1 hr)
  - o Group H4, H5 greater than 30 served by Corridor (1 hr)
- Non High rise buildings

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Elevator Lobbies Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This will not increase the cost of construction depending upon how this issue is being interpreted. This item will only increase construction if it had not been interpreted to require protection of the hoistway opening in rated corridors. This would involve having to comply with Section 3006.3.

G 201-15 : 3006.2.1 (New)-BALDASSARRA4172

G 202-15

405.4.3, 708.1, 716.5.9.3, [F] 907.5.2.1 (IFC 907.5.2.1), 3006.4, 3007.6, 3007.6.1, 3007.6.3, 3007.9, 3007.9.1, 3008.6

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technologies Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

405.4.3 Elevators. Where elevators are provided, each compartment shall have direct access to an elevator. Where an elevator serves more than one compartment, an enclosed elevator lobby shall be provided and shall be separated from each compartment by a s*moke barrier* in accordance with Section 709. Doors shall be gasketed, have a drop sill and be automatic-closing by smoke detection in accordance with Section 716.5.9.3.

708.1 General. The following wall assemblies shall comply with this section.

1. Separation walls as required by Section 420.2 for Groups I-1, R-1, R-2 and R-3.
2. Walls separating tenant spaces in *covered and open mall buildings* as required by Section 402.4.2.1.
3. Corridor walls as required by Section 1020.1.
4. Enclosed Elevator lobby separation as required by Section 3006.2.
5. Egress balconies as required by Section 1019.2

716.5.9.3 Smoke-activated doors. Automatic-closing doors installed in the following locations shall be automatic-closing by the actuation of smoke detectors installed in accordance with Section 907.3 or by loss of power to the smoke detector or hold-open device. Doors that are automatic-closing by smoke detection shall not have more than a 10-second delay before the door starts to close after the smoke detector is actuated:

1. Doors installed across a *corridor.*
2. Doors installed in the enclosures of *exit access stairways* and *ramps* in accordance with Sections 1019 and 1023, respectively.
3. Doors that protect openings in *exits* or *corridors* required to be of fire-resistance-rated construction.
4. Doors that protect openings in walls that are capable of resisting the passage of smoke in accordance with Section 509.4.
5. Doors installed in *smoke barriers* in accordance with Section 709.5.
6. Doors installed in *fire partitions* in accordance with Section 708.6.
7. Doors installed in a *fire wall* in accordance with Section 706.8.
8. Doors installed in shaft enclosures in accordance with Section 713.7.
9. Doors installed in waste and linen chutes, discharge openings and access and discharge rooms in accordance with Section 713.13. Loading doors installed in waste and linen chutes shall meet the requirements of Sections 716.5.9 and 716.5.9.1.1.
10. Doors installed in the walls for compartmentation of underground buildings in accordance with Section 405.4.2.
11. Doors installed in the enclosed elevator lobby walls of underground buildings in accordance with Section 405.4.3.
12. Doors installed in smoke partitions in accordance with Section 710.5.2.3.

[F] 907.5.2.1 Audible alarms. Audible alarm notification appliances shall be provided and emit a distinctive sound that is not to be used for any purpose other than that of a fire alarm.

Exceptions:

1. Audible alarm notification appliances are not required in critical care areas of Group I-2 Condition 2 occupancies that are in compliance with Section 907.2.6, Exception 2.
2. A visible alarm notification appliance installed in a nurses' control station or other continuously attended staff location in a Group I-2 Condition 2 suite shall be an acceptable alternative to the installation of audible alarm notification appliances throughout the suite in Group I-2 Condition 2 occupancies that are in compliance with Section 907.2.6, Exception 2.
3. Where provided, audible notification appliances located in each enclosed occupant evacuation elevator lobby in accordance with Section 3008.9.1 shall be connected to a separate notification zone for manual paging only.

3006.4 Means of egress. Elevator lobbies shall be provided with at least one means of egress complying with Chapter 10 and other provisions in this code. Egress through an enclosed elevator lobby shall be permitted in accordance with Item 1 of Section 1016.2.

3007.6 Fire service access elevator lobby. The fire service access elevator shall open into ~~a~~an enclosed fire service access elevator lobby in accordance with Sections 3007.6.1 through 3007.6.5. Egress is permitted through the enclosed elevator lobby in accordance with Item 1 of Section 1016.2.

Exception: Where a fire service access elevator has two entrances onto a floor, the second entrance shall be permitted to ~~open into an elevator lobby~~be protected in accordance with Section 3006.3.

3007.6.1 Access to interior exit stairway or ramp. The enclosed fire service access elevator lobby shall have direct access from the enclosed elevator lobby to an enclosure for an *interior exit stairway* or *ramp*.

Exception: Access to an *interior exit stairway* or *ramp* shall be permitted to be through a protected path of travel that has a level of fire protection not less than the elevator lobby enclosure. The protected path shall be separated from the enclosed elevator lobby through an opening protected by a smoke and draft control assembly in accordance Section 716.5.3.

3007.6.3 Lobby doorways. Other than doors to the hoistway, elevator control room or elevator control space, each doorway to ~~a~~an enclosed fire service access elevator lobby shall be provided with a $^3/_4$-hour *fire door assembly* complying with Section 716.5. The *fire door assembly* shall comply with the smoke and draft control door assembly requirements of Section 716.5.3.1 with the UL 1784 test conducted without the artificial bottom seal.

3007.9 Standpipe hose connection. A Class I standpipe hose connection in accordance with Section 905 shall be provided in the *interior exit stairway* and *ramp* having direct access from the enclosed fire service access elevator lobby.

3007.9.1 Access. The *exit* enclosure containing the standpipe shall have access to the floor without passing through the enclosed fire service access elevator lobby.

3008.6 Occupant evacuation elevator lobby. Occupant evacuation elevators shall open into an enclosed elevator lobby in accordance with Sections 3008.6.1 through 3008.6.6. Egress is permitted through the elevator lobby in accordance with Item 1 of Section 1016.2.

Reason: This proposal is simply clarifying where elevator lobbies are intended to be enclosed. In some cases an elevator lobby is simply the area where the elevators open onto and no enclosure of the space is necessary. This does not necessarily mean the hoistway opening is not protected but instead that there is not a physical lobby enclosure. It should be noted that there are some sections such as Section 909.21.6 that are not necessarily intending to address whether such lobbies are enclosed or unenclosed.
The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Elevator Lobby Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at:
http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This is simply clarification of when elevator lobbies are enclosed.

G 202-15 : 405.4.3-BALDASSARRA4176

G 203-15

3007.1

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

3007.1 General. Where required by Section 403.6.1, every floor above and including the lowest level of fire department vehicle access of the building shall be served by fire service access elevators complying with Sections 3007.1 through 3007.9. Except as modified in this section, fire service access elevators shall be installed in accordance with this chapter and ASME A17.1/CSA B44.

> **Exception:** Elevators that only service an open or enclosed parking garage and the lobby of the building shall not be required to serve as fire service access elevators in accordance with Section 3007.

Reason: There are two aspects that this proposal addresses. The first is that it was not the intention that FSAEs be available in the levels of the building below the lowest level of fire department access. Typically the fire department is more concerned with travelling high into the building and does not require that the same facilities be provided in the lower levels of the building. Most fire departments will likely not take an elevator below grade to a fire when the stairs are manageable. This will likely only affect buildings on steep grades where the lowest level of fire department access differs greatly from the main entrance. The second aspect addresses the issue that FSAEs are not necessary in parking garages. As noted the fire department is more likely to use FSAEs due to the height of the building. In addition, fire fighters typically are not willing to take an elevator past the fire floor. Instead in such cases they would prefer the use of the stairway.
The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the WTC Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This will save money by not requiring FSAE elevators from the garage and clarifying that it is only the portion of the building above the lowest level of fire department vehicle access that need these elevators.

G 203-15 : 3007.1-BALDASSARRA4189

G 204-15

3007.3, 3008.3

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technologies Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

3007.3 Water protection. ~~An *approved* method to prevent water~~ Water from the operation of an automatic sprinkler system outside the enclosed lobby shall be prevented from infiltrating into the hoistway enclosure ~~from the operation of the *automatic sprinkler system* outside the enclosed fire service access elevator lobby shall be provided.~~in accordance with an approved method.

3008.3 Water protection. ~~An *approved* method to prevent water~~ Water from the operation of an automatic sprinkler system outside the enclosed lobby shall be prevented from infiltrating into the hoistway enclosure ~~from the operation of the *automatic sprinkler system* outside the enclosed occupant evacuation elevator lobby shall be provided.~~in accordance with an approved method.

Reason: As currently written it is often misinterpreted that water protection should be provided from sprinklers activating within the enclosed lobby itself. In fact, this provision is specifically looking only at sprinkler activation outside the lobby. If a sprinkler was activated within the lobby itself then there are larger concerns about the safety of the elevator operations. Also if sprinklers have activated within the lobby the lobby smoke detection would have also activated and recalled the elevators to the lobby. This section is not intended to include fire fighter hose stream.
The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the WTC Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This is merely a clarification. It may be a savings if it was interpreted to include the activation of an automatic sprinkler system within the enclosed elevator lobby.

G 204-15 : 3007.3-BALDASSARRA4191

G 205-15

3007.1

Proponent: Dave Frable, representing US General Services Administration

2015 International Building Code

Add new text as follows:

3007.1 General. Where required by Section 403.6.1, every floor above and including the lowest level of fire department vehicle access of the building shall be served by fire service access elevators complying with Sections 3007.1 through 3007.9. Except as modified in this section, fire service access elevators shall be installed in accordance with this chapter and ASME A17.1/CSA B44.

Reason: The intent of this code change proposal is to clarify the original intent of the installation requirements for fire service access elevators in buildings with an occupied floor more than 120 feet able the lowest level of fire department access.
Please note that it was not the intention of the submitter of the original code change proposal to require fire service access elevators be available on the levels of the building below the lowest level of fire department access. Typically the fire department is more concerned with travelling upward into the building and typically do not require that fire service access elevators be provided in the lower levels of the building. Most fire departments will likely
not take an elevator below grade to a fire when the stairs are manageable.

Cost Impact: Will not increase the cost of construction
This clarrification will reduce cost of construction by not requiring fire service access elevators to be installed in locations below the lowest level of fire department vehicle access and that it is only the portion of the building above and including the lowest level of fire department vehicle access that need these elevators.

G 205-15 : 3007.1-FRABLE5041

G 206-15

3007.8, 3007.8.1 (New)

Proponent: Dave Frable, US General Services Administration, representing US General Services Administration

2015 International Building Code

Revise as follows:

3007.8 Electrical power. ~~The following features serving each fire service access elevator shall be supplied by both~~ Sufficient normal ~~power~~ and Type 60/Class ~~2~~X/Level 1 standby power~~: 1. Elevator~~ shall be provided to simultaneously operate all designated fire service access elevators and their associated elevator equipment~~.2. Elevator~~, elevator hoistway lighting~~.3. *Ventilation*~~, elevator car lighting, and the ventilation and cooling equipment for their respective elevator machine rooms, control rooms, machine spaces and control spaces. ~~4. Elevator car lighting.~~

Add new text as follows:

3007.8.1 Standby power evaluation and analysis An evaluation and analysis shall be provided to determine the appropriate minimum time, in hours, that standby power must be provided following loss or failure of the normal power supply for the fire service access elevators to operate for the specific building and application. The subject evaluation and analysis shall be prepared by the responsible registered design professional and shall be approved prior to installation.

Reason: Currently as written all designated fire service access elevators must comply with Section 3007.8 which requires 2 hours of standby power for each designated fire service access elevator and associated equipment simultaneously.
In many 120 foot tall buildings across the country, the current 2-hour standby power requirement becomes costly and is likely much more conservative than necessary. The intent of this code change is to provide a more reasonable approach for providing standby power in lieu of using an arbitrary/absolute value of 2-hours. NFPA 110, Standard for Emergency and Standby Power Systems permits the use of Class X systems (Other time, in hours, as required by the application). Please note the Class defines the minimum time, in hours, for which the standby power system is designed to operate at its rated load without being refueled or recharged.

This proposal would permit the Building Official to approve an evaluation and analysis prepared by the registered design professions for determining the appropriate minimum time, in hours, that standby power must be provided for the respective building. In addition, it should also be pointed out that the 2-hour standby power requirement is also not consistent with reviews of the WTC bombing in 1996 that concluded buildings should not take longer than 1-hour to evacuate.

Cost Impact: Will not increase the cost of construction
This proposal will decrease the cost of construction as it will possibly reduce the size of the emergency power supply system providing standby power as well as determing the appropriate timeframe necessary for providing standby power for the operation of the fire service access elevators during an emergency.

G 206-15 : 3007.8-FRABLE5021

G 207-15

3008.1, 3008.1.1 (New), 3008.8.1 (New)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

3008.1 General. ~~Where elevators are to be~~ Elevators used for occupant self-evacuation during fires~~, all passenger elevators for general public use~~ shall comply with Sections 3008.1 through 3008.10.~~ Where other elevators are used for occupant self-evacuation, those elevators shall comply with these sections.~~

Add new text as follows:

3008.1.1 Number of occupant evacuation elevators. The number of elevators available for occupant evacuation shall be determined based on an egress analysis that addresses one of the following scenarios

1. Full building evacuation where the analysis demonstrates that the number of elevators provided for evacuation results in an evacuation time less than one hour.
2. Evacuation of the 5 consecutive floors with the highest cumulative occupant load where the analysis demonstrates that the number of elevators provided for evacuation results in an evacuation time less than 15 minutes.

A minimum of one elevator in each bank shall be designated for occupant evacuation. Not less than two shall be provided in each occupant evacuation elevator lobby where more than one elevator opens into the lobby. Signage shall be provided to denote which elevators are available for occupant evacuation.

3008.8.1 Determination of standby power load. Standby power loads shall be based upon the determination of the number of occupant evacuation elevators in Section 3008.1.1.

Reason: The alternative to the 3rd stair in Section 403.5.2 is to use occupant evacuation elevators. This is a viable and more efficient option, but can require an excessive amount of standby power. As currently written, all passenger elevators must be used to comply with Section 3008 and Section 3008.8 would require 2 hours of standby power for every elevator simultaneously. In a building with many elevators, this becomes excessive and may be much more conservative than necessary where occupant loads are low. This proposal provides a more reasonable performance-based approach but while retaining the capacity to evacuate buildings more quickly than with stairs alone.
Two options are provided to determine the number of occupant evacuation elevators necessary to meet the performance intent. The first focuses upon full building evacuation. This does not mandate full building evacuation but instead is a benchmark to use for analysis. The use of 1 hour sets an upper limit on evacuation time and is based upon concerns during review of events such as the WTC bombing in 1993 that buildings should not take longer than an hour to evacuate. The 1 hour criterion is consistent with the upper limit that the elevator industry typically uses to determine the use of elevators during the busier times of the day within buildings during normal operation. It is also consistent with the basis for the current code language. The second option is more closely associated with a more typical phased evacuation. This 15 minute criterion intends to remove occupants from the area to which the fire department will respond. In reviewing a number resources the time of arrival of most fire departments in a typical city is likely around 4 minutes. This does not include time for set-up at the scene. NFPA 1710 specifically requires a 240 second arrival time to 90 percent of the incidents in a jurisdiction. Again this is only arrival time of the first due company. Several fire service officers have stated that an additional 10 minutes are needed to begin incident assessment, leading to the 15 minute criterion. Using the highest occupant load for 5 consecutive floors will provide a safety factor for the required number of occupant evacuation elevators.

In addition since the initial publication of occupant evacuation elevator requirements, ASME A17.1 has been updated and revised to address occupant evacuation elevators. This also includes the interface with the fire department features on elevators. Elevators can now be individually recalled by the fire department thus leaving more elevators available for evacuation if necessary. ASME A17.1 also provides requirements for the prioritization of elevators during emergencies. This provides another level of rigor to the concept.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the WTC Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Bibliography: Fire Master Plan, Olympia Washington, Chapter 4 Emergency response – response times. Response times - Chapter 4 Fire Master Plan Olympia, WA
NYC City wide fire report -2014. NYC response times

NFPA 1710 – 2010

Cost Impact: Will not increase the cost of construction
This proposal will decrease the cost of construction as it will possibly reduce the number of elevators necessary for occupant evacuation and thus reduce the capacity necessary for standby power.

G 207-15 : 3008.1 #1-BALDASSARRA4188

G 208-15

3008.1, 3008.6.1

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technologies Committee (CTC@iccsafe.org)

2015 International Building Code

3008.1 General. Where elevators are to be used for occupant self-evacuation during fires, all passenger elevators for general public use shall comply with Sections 3008.1 through 3008.10. Where other elevators are used for occupant self-evacuation, those elevators shall comply with these sections.

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Revise as follows:

3008.6.1 Access to interior exit stairway or ramp. The occupant evacuation elevator lobby shall have direct access from the enclosed elevator lobby to an *interior exit stairway* or *ramp*.

> ~~**Exception**~~**Exceptions:** 1. Access to an *interior exit stairway* or *ramp* shall be permitted to be through a protected path of travel that has a level of fire protection not less than the elevator lobby enclosure. The protected path shall be separated from the enclosed elevator lobby through an opening protected by a smoke and draft control assembly in accordance Section 716.5.3.
> 2. Elevators that only service an open parking garage and the lobby of the building shall not be required to provide direct access in accordance with this section.

Reason: Requiring occupant evacuation elevators to extend from a parking garages to the main lobby was not contemplated or intended to be addressed by the requirements for occupant evacuation elevators. Such elevators were intended to address portions of the building where height became an issue for evacuation. However it was felt that these elevators should still be available for occupant evacuation but the direct access requirement was felt to be overly restrictive for open parking garages. The direct access requirement often affects the location of the stairways and possibly leading to an additional stairway. There is an exception to Section 3008.6.1 if you provide protection to that stairway but in an open parking garage smoke accumulation is much less due to the open nature of the structure. The additional construction required to create that protected path would serve little benefit.
The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the WTC Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
Will decrease the cost of construction. This will simplify the location of the stairway. This exception eliminates the need for an additional stairway or of the creation of a protected path from the occupanct evacuation elevator lobby to the stairway.

G 208-15 : 3008.1 #2-BALDASSARRA4190

G 209-15

202 (New), 3001.1 (New), 3002 (New), 3003 (New), 3004 (New), 3005 (New), 3006 (New), 3007 (New), 3008 (New). CHAPTER 35

Proponent: Jani Palmer, Environmental Protection Agency, representing United States Environmental Protection Agency

2015 International Building Code

Add new text as follows:

SECTION 202
DEFINITIONS

ACTIVE SOIL-DEPRESSURIZATION SYSTEM. A system designed to lower the air pressure in the soil beneath a building, relative to the atmospheric pressure immediately above ground level, by continuously withdrawing air from below a membrane covering the soil. An active soil-depressurization system consists of a pressure distribution manifold, one or more radon vents, an operating fan and a fan-failure indicator.

RADON. A naturally occuring, chemically inert, radioactive gas. It is part of the uranium-238 decay series. For purposes of this code, radon applies to radon-222; thus, it is the direct decay product of radium-226.

SOIL GAS RETARDER MEMBRANE. A durable, flexible and non-deteriorating material, installed in a continuous sheet to retard the pressured-driven flow of soil gas through elements of a structure.

CHAPTER
30 RADON REDUCTION SYSTEMS

SECTION 3001
GENERAL

3001.1 Intent. The provisions of this chapter shall govern the design, construction and testing of radon reduction systems. These systems are intended to limit radon entry points through floors, walls and foundations and to limit the mechanicl depressurization of buildings, which can enhance radon entry.

3001.2 Required. This Chapter shall be mandatory for buildings of Group E (Educational) occupancy that are located in areas of high radon potential as determined by Table AF101(1) High Radon-Potential (Zone 1) Counties in Table 3001.2.

Table 3001.2
High Radon-potential, Zone 1, counties.

SECTION 3002
SOIL GAS RETARDER MEMBRANE.

3002.1 Membrane materials. Acceptable soil gas retarder membranes shall consist of a single layer of polyethylene, not less than 0.006-inch (6 mils) thick with a maximum perm rating of 0.3. Polyvinyl chloride (PVC), ethylene diene ter polymer (EPDM), neoprene or other non-deteriorating, non-porous material may be used instead of polyethylene, provide the installed thickness of the alternate material has greater or equal tensile strength, resistance to water-vapor transmission, resistance to puncture, and resistance to deterioration determined in accordance with ASTM E 154. The membrane shall be placed to minimize seams and to cover all of the soil below the building floor.

3002.2 Tape. Tape used to install the soil gas retarder shall have a minimum width of 2 inches and shall be pressure sensitive vinyl or other non-deteriorating pressure sensitive tape compatible with the surfaces being joined.

3002.3 Mastic. Mastic used to join sections of membrane to one another or to elements of the building foundation, or to seal penetrations in the membrane of the soil gas retarder shall be compatible with the surfaces being joined, and shall be installed in accordance wtih the manufaturer's recommendations for the materials, surface conditions and temperatures involved.

3002.4 Installation. The soil gass retarder shall be placed under the entire soil contact area of the floor in a manner than minimizes the required number of joints and seams. Care shall be taken to prevent damage to the membrance during the construction process. In buildings incorporating the sub-slab portions of an active soil-depressurization system, the soil gas retarder shall also serve to prevent mastic, cement or other materials from blocking the pressure distribution manifolds or pits.

3002.5 Seams Seams between portions of the soil gas retarder shall maintain not less than 12 inches of lap when concrete is placed. The membrane shall be secured with tape or mastic or by using larger unsecured overlaps prior to placing concrete.

3002.6 Slab edges and joints The soil gas retarder shall fully cover the soil beneath the building floor. Where the slab edge is cast against a foundation wall or grade beam, the soil gas retarder shall contact the foundation element, and shall not extend vertically into the slab more than one half of of the slab thickness.

3002.7 Penetrations At all points where pipes, conduits, reinforcing bars or other objects pass through the soil gas retarder membrane, the membrane shall be fitted to within one-half inch of the penetration and sealed to the penetration. Where penetrations occur within 24 inches of a soil-depressurization system mat or pit, the gap between the penetrating object and the soil gas retarder shall be taped closed. When necessary to meet this requirement a second layer of the membrane, cut so as to provide not less than a 12-inch lap on all sides, shall be placed over the object and shall be sealed to the soil gas retarder with a continuous band of tape.

3002.8 Punctures, cuts and tears All damaged portions of the soil gas retarder membrane within 24 inches of any portion of a soil-depressurization system mat or pit shall be sealed with tape or with a patch made from the same or compatible material, cut so as to provide not less than a 12-inch lap from any opening, and taped continuously about its perimeter.

3002.9 Mastics Mastic used to join sections of soil gas retarder to one another or to elements of the building foundation, or to seal penetrations in the soil gas retarder, shall be located not less than 24 inches from any portion of the soil-depressurization system mat or pit. Tape shall be used to seal those portions of the soil gas retarder membrane that are within 24 inches of a soil-depressurization system mat or pit.

3002.10 Repairs Where portions of an existing concrete slab-on-grade construction have been removed and are about to be replaced, the soil gas retarder membrane shall be carefully fitted to the opening, and all openings between the membrane and the soil shall be closed with tape or mastic. Special care shall be exercised to assure that mastic does not enter any portion of the soil-depressurization system that is located beneath the slab-on-grade construction.

SECTION 3003
CONCRETE FLOORS IN CONTACT WITH SOIL GAS

3003.1 General Concrete slab-on-grade construction that is supported on soil or spanning over exposed soil, and that is used as a floor for conditioned space or enclosed spaces that are adjacent to or are connected to conditioned spaces, shall be constructed in accordance with local codes for mix design, slump and workability, hot weather placing and finishing and curing.

3003.2 Concrete for slab-on-grade construction. Concrete for slab-on-grade construction that is in contact with soil gas shall be in accordance wtih Sections 3003.2.1 and 3003.2.2.

3003.2.1 Compressive strength Design strength for concrete mixes used in the construction of slab-on-grade floors shall be not less than 3,000 psi at 28 days and shall be designed, delivered and placed in accordance with ASTM C 94.

3003.2.2 Shrinkage sontrol Concrete mix design, placing practices, and curing practices prescribed shall be in accordance with this section. Concrete slab-on-grade or slabs spanning above exposed soil shall be designed, placed, finished and cured in accordance with this code.

3003.3 Sealing of construction joints, penetrations, cracks and other connections The sealing of construction joints, penetrations, cracks and other connections shall be in accordance wtih Sections 3003.3.1 through 3003.3.4.

3003.3.1 Sealants Sealants shall be selected and installed in compliance with ASTM C 920 and ASTM C 1193.

1. Sealant materials shall be compatible with the materials they join, including curing compounds and admixtures, and with materials that will be applied over them, including floor finishing materials.
2. Field-molded sealants shall be installed in sealant reservoirs proportioned, cleaned of laitance and prepared in accordance with the manufacturer's recommendations. For elastomeric sealants, this generally requires the installation of a bond breaker or backer rod shall be provided where required by the sealant manufacturer's installation instructions.
3. Where installed sealant is not protected by a finished floor or other protective surface, it shall be suitable to withstand the traffic to which it will be exposed.
4. Waterstops shall be preformed from polyvinyl chloride or other non-corrosive material.

3003.3.2 Joints Joints between sections of concrete floor slabs, between the floor slab and a wall or other vertical surface, and between a section of floor and another object that passes through the slab, shall be sealed to prevent soil gas entry in accordance with the provisions of this section. Joints and portions thereof shall not be covered or rendered inaccessible unless the seal has first been inspected and approved by the building official. Such joints shall be sealed prior to the structure being certified for occupancy.

1. **Butt joints.** Non-bonded butt joints shall be sealed to prevent radon entry using an elastomeric sealant or a waterstop as specified in Section 3003.3.1. The sealant reservoir shall be sufficiently large to prevent failure of the sealant or waterstop and shall not be less than 1/4-inch by 1/4-inch in cross-section
2. **Lap joints**. Non-boned lap joints shall be sealed with either a field-molded or preformed elastomeric sealant or with a flexible waterstop as specified in Section 3003.3.1. The lap joint shall be sufficiently large to prevent failure of the sealant or waterstop, but in no case shall the sealant reservoir be less than 1/2-inch by 1/2-inch in cross-section.
3. **Isolation joints.** Non-boned isolation joints shall be sealed with either a field-molded or preformed elastomeric sealant or with a flexible waterstop as specified in Section 3003.3.1. Isolation joints shall be sufficiently large enough to prevent failure of the sealant or waterstop, and shall be not less than 1/2-inch by 1/2-inch in cross-section.
4. **Control or contraction joints.** In locations where continued movement of the slab portions can be reasonably expected, flexible sealants shall be installed in reservoirs in accordance wtih Section 3003.3.2 Item 2, or a flexible waterstop shall be provided.
5. **Construction joints.** Bonded construction joints shall be sealed to prevent radon entry using either a rigid or an elastomeric sealant or a waterstop in accordance with Section 3003.3.1. Where movement of the joint is not prevented by continuous reinforcing and tie bars, flexible sealants shall be be installed in reservoirs in accordance with Section 3003.3.2 Item 2, or a flexible waterstop shall be provided.

3003.3.3 Cracks Cracks in concrete slabs supported on soil or spanning over exposed soil, that are used as floors for conditioned space or enclosed spaces adjacent to or connected to conditioned spaces, shall be sealed against radon entry in accordance with the provisions of this section and Section 3003.3.1, except that cracks less than 1/16-inch wide that do not meet any of the conditions described in Section 3003.3.3(1), shall not be required to be sealed.

1. Cracks greater than 1/4-inch wide; all cracks that exhibit vertical displacement; all cracks that connect weakened zones in the slab such as vertical penetrations or re-entrant corners; and, all cracks that cross changes in materials or planes in the structure, shall be sealed with a flexible field-molded elastomeric sealant installed in accordance with Section 3003.3.2, Item 3, for isolation joints.
2. Cracks greater than 1/16-inch wide; that do not meet any of the conditions described in 3003.3.3(1), shall be enlarged to contain a sealant reservoir not less than 1/4-inch by 1/4-inch in cross-section along the entire length of the crack; and shall be sealed with a flexible, field-molded elastomeric sealant installed in accordance with 3003.3.2(1).

3003.3.4 Stakes, pipe penetrations and other small objects Objects that pass through the slab shall be sealed gas tight. A sealant reservoir, appropropriately dimensioned to accommodate any differential movement between the object and the concrete, shall be formed continuously around the objects, and the joint shall be sealed with a field molded elastomeric sealant in accordance with Section 3003.3.2 Item 3 and Section 3003.3.1. Where pipes or other penetrations are separated from the concrete by flexible sleeves, the sleeve shall be removed to provide bonding of the sealant to the object. Where stakes are used to support plumbing, electrical conduits or other objects that will penetrate the slab, the stakes shall be solid, non-porous and resistant to decay, corrosion and rust. Special care shall be taken to avoid honeycombing between multiple or ganged penetrations.

1. Large utility service openings throught the slab shall be sealed gas-tight. For slab-on-grade construction, this shall be accomplished by fully covering the exposed soil with a vapor-retarder membrane, covered to a depth of not less than 1 inch with an elastomeric sealant. Alternatively, the opening shall be closed with an expansive concrete or hydraulic cement to within 1/2 inch of the top of the slab, and the remaining 1/2 inch shall be filled with an elastomeric sealant. Where the opening connects to a crawlspace, the opening shall be closed with sheet metal or other rigid impermeable materials and sealed with an elastomeric sealant compatible with the materials and conditions.
2. For openings made through existing slabs, sealing shall meet the applicable provisions of this section. Where the opening is partially repaired with concrete, any resulting crack shall be sealed in accordance with Section 3003.3.3.
3. Sumps located in habitable portions of a building and connecting to the soil, either directly or through drainage piping, shall be equipped with a gasketed lid. The lid shall be attached so as to provide a gas-tight seal between the sump and the access space above.

SECTION 3004
WALLS IN CONTACT WITH SOIL GAS

3004.1 General Walls separating below-grade conditioned space from the surrounding earth or from a crawlspace or other enclosed space with an exposed earth floor, shall be isolated from the soil by an approved structural barrier as in accordance with Section 3002. Foundation walls consisting of cavity walls, or constructed of hollow masonry products or of any material in such a way as to create an air-space within the wall, shall be capped as the floor-level of the first finished floor they intersect. The cap shall be either at least 8 inches of solid concrete or concrete filled block, or a cap that provides air-flow resistance at least equal to the adjacent floor. Cracks, honeycombs, joints, ducts, pipes conduit chases or other openings in the wall shall not be allowed to connect soil gas to a conditioned space or to an enclosed space adjacent to or connected to a conditioned space.

3004.2 Materials Walls governed by the provisions of Section 3004 shall be constructed of reinforced concrete, or solid reinforced masonry construction.

3004.3 Waterproofing Walls governed by Section 3004 shall be constructed with a continuous waterproofing membrane applied either

1. To the exterior surface from the top of the footing to not less than 6 inches above the finished grade, or where the wall separates interior space and a crawlspace; or
2. From the top of the footing to the bottom of the floor above.

3004.3.1 Application The waterproofing membrane shall be applied in accordance with this code and shall be sealed to the top of the footing so as to waterproof the joint between the footing and the wall. Where installed in accordance with Section 3004.3 Item 2, the membrane shall be attached to the bottom of the floor above in a manner that fully seals the joint between the floor and wall.

3004.3.2 Utility penetrations Below-grade utility penetrations through walls in partial or full contact with the soil shall be closed and sealed with a sealant in accordance wtih Section 3003.3.1. This seal shall be made on both faces of the wall. Where conduits or ducts do not provide a continuous and gas-tight separation from the soil, the end of the conduit or duct shall be sealed in accordance with Section 3003.3.1 to prevent soil gas entry.

3004.4 Doors and service openings Doors, hatches or removable closures of any kind that can create an opening between the interior and a crawlspace shall be gasketed and equipped with a latch or other permanent fastening device.

SECTION 3005
BUILDINGS WITH CRAWL SPACES

3005.1 General. For the purposes of Section 3005, buildings with crawl spaces shall include all buildings with a floor supported above grade.

3005.1.1 Reinforced concrete floor systems Reinforce concrete floors constructed over crawl spaces shall be in accordance with Section 3003.

3005.1.2 Wood-framed floor systems Wood-framed floors spanning over soil, that are used as floors for conditioned space or enclosed spaces adjacent to or connected to conditioned spaces, shall be constructed in accordance with Section 3005.

3005.2 Materials. Wood-framed floors constructed over a crawl space shall be constructed of APA certified tongue-in-groove plywood, and shall otherwise comply with this code. Oriented structural board shall not be considered to be an acceptable substitue material.

3005.3 Utility penetrations Penetrations through the floor shall be fully sealed to the floor structure with a sealant that complies with Section 3003.3.1. Large service openings through the slab shall be sealed gas-tight. Where large openenings are created, sheet metal or other rigid material shall be used in conjunction with sealants to close and seal the openings.

3005.4 Vertical joints Vertical joints between the subfloor and foundation wall or the subfloor and any vertical plane of the building that extends from the crawlspace to the top of the subfloor, shall be sealed with a sealant that complies with Section 3003.3.1.

3005.5 Doors and service openings. Doors, hatches or removable closures of any kind that have the potential to create an opening in the floor-plane shall be gasketed and equipped with a latch or other permanent fastening device.

3005.6 Other radon-entry paths Openings thatconnect a crawlspace and construction cavities, such as the space between wall studs, hollow masonry or precast concrete units, or floor and ceiling planes, shall be closed and sealed in accordance with Section 3003.3.1.

3005.7 Crawl space ventilation Crawl Spaces shall be passively ventilated or shall be constructed with an active soil-depressurization system in compliance with Sections 3008 and 3009. No portion of an air-distribution system shall pass through a crawlspace.

3005.7.1 Required ventilation. Crawl spaces shall be ventilated by openings through the perimeter wall connecting to the exterior of the foundation. Required vents shall have a combined net free area of not less than 1 square inch in each 1 square foot of crawl space, and shall conform to the following conditions:

1. Openings shall be distributed uniformly around the outside walls of the crawl space.
2. Vents shall be fitted with corrosion- and decay-resistant wire mesh or grilles with openings not less than 1/4 inch nor more than 1/2 inch in size. Vents shall not be fitted with operable louvers, dampers or other closure mechanisms.
3. Plumbing located in a ventilated crawlspace shall be protected from freezing with insulation or heat tape.

3005.7.2 Prohibited uses. Crawl spaces shall not be used as an air-duct or plenum or to house a duct or fan that is part of a heating, ventilating or air-conditioning system.

SECTION 3006
SPACE CONDITIONING SYSTEMS AND VENTILATING

3006.1 General. This Section limits radon entry points by means of the mechanical depressurizaiton of buildings. Ventilating systems shall be designed in accordance with applicable codes and the provisions of this section for use of outside air of low radon concentration.

3006.2 Condensate drains. Joints in condensate piping shall be solvent welded, soldered or otherwise connected in a leak-proof and gat-tight manner. Condensate drains shall be trapped and shall terminate in the building sewer or outside of buildings, at not less than 6 inches above finished grade. Where the condensate piping penetrates a floor or wall separating enclosed space from the soil or from a crawl space, the penetration shall be sealed in accordance with applicable provisions of Section 3003. Condensate drain piping shall not terminate in a return plenum.

3006.3 Other piping. Where piping penetrates a floor or wall separating enclosed space from the soil or from a crawl space, the penetration shall be sealed in accordance with applicable provisions of Section 3003. Where piping is insullated, the insulation shall be removed at the point of the seal, and the required seal shall be made between the pipe and the building structure. The sealant shall be compatible with the materials and anticipated operating temperatures. Piping shall not terminate in a return plenum.

3006.4 Plumbing and wiring chases. Where piping or wiring is installed in a chase that is at any point in contact with the soil or a crawl space, the chase shall be sealed to the floor or wall where it first enters the structure, in accordance with applicable provisions of Section 3003. Piping contained in such a chase shall be sealed to the chase at the interior plane of that floor or wall. A chase or portion thereof shall not terminate in a return air duct or plenum. Where it is impractical or prohibited by another code to seal wiring into an electrical chase or conduit, the chase shall comply with applicable portions of Section 3003 or the conduit shall be entirely fabricated of gas-tight components and materials.

SECTION 3007
AIR DISTRIBUTION SYSTEMS

3007.1 Air distribution systems. Air ducts, plenums, fan enclosures or fans that are part of a building's heating, ventilating or air-conditioning system shall be completely isolated from the soil gas by a structural barrier complying with this Chapter. Heating, ventilating and air-conditioning systems supplying spaces with floors or walls that are in contact with soil or soil gas shall be designated to minimize air pressure differences and eliminate negative pressures, that cause significant flow of soil gas through the structural barrier and into the building. Return ducts, plenums and air handlers shall not be located in a crawl space.

3007.2 Exhaust fans, hoods, equipment and appliances. For each zone, the required volume of outside ventilation air shall be not less than the combined volume of air capable of being exhausted by all exhaust fans, hoods, equipment and appliances installed in the zone. This amount shall not be reduced by use factors unless devices are wired and switched in a manner that prevents their simultaneous operation.

3007.3 Combustion air ducts. Ducts that provide combustion air to fuei-burning appliances and equipment shall be completely isolated from the soil gas by a structural barrier that complies with the provisions in this Chapter.

SECTION3008
ACTIVE SOIL-DEPRESSURIZATION SYSTEMS

3008.1 General. A soil-depressurization system causes the direction of air flow through any possible failure in the structural barrier to move out of the building and into the depressurization system, therby reducing radon. Soil-depressurization systems shall be installed beneath concrete slabs supported directly on the the soil, or beneath the soil gas retarder membrane in crawl spaces.

3008.2 Prohibited uses. Soil-depressurization systems components shall not extend beneath areas that are required to be depressurized by other codes for the protection of public health, such as, but not limited to, rooms containing general anesthesia or pathogens. Soil-depressurization systems shall be installed beneath rooms that are required to be depressurized for other reasons, such as, but not limited to, toilets and kitchens.

3008.3 System components. An active soil-depressurization system shall be comprised of the following components: a pressure distribution system porous media or manifolds; a soil cover; one or more vents; a suctio fan; and a system failure indicator.

3008.3.1 Pressure distribution media or manifold. The low-pressure zone shall be extended across the entire area beneath the structure in accordance with the following. Acceptable means of extending the low-pressure zone include, but are not limited to, synthetic ventilation mats, a system of perforated pipe and an air-permeable gravel layer. Different types of pressure distribution media shall be allowed to be used in the same system, provided each complies with the installation requirements of this Chapter. Pressure distribution media must be installed in such a way as to assure that they are never blocked by water.

1. Ventilation mats shall have a soil contact area of not less than 216 square inches per linear foot and provide a cross-section profile of not less than 9 square inches.
2. Perforated pipe that is used to consruct pressure extension manifolds shall be installed directly under the soil cover or in gravel or a similar porous medium that provides an adequate air flow connection between the pipe and the sub-soil and that protects the pipe from becoming blocked by soil.
3. Continuous gravel layers of at least 4-inches thickness are an acceptable pressure distribution medium, provided the completely cover the area of soil to be pressurized.

3008.3.2 Soil cover. In slab-on-grade construction, the soil cover shall consist of the soil gas retarder membrane and the concrete slab. In crawl spaces, the concrete slab shall be allowed to be omitted, provided that the soil-gas retarder membrane will not be subjected to wear and damage due to required maintenance procedures. In all instances, the soil gas retarder membrane shall be fully sealed to the radon vents in accordance with Section 3002.

3008.3.3 Radon vents. Radon vents that carry the soil gas to an area above and away from the building shall be gas-tight and of a material that is in accordance wtih the requirements for plumbing vents in the *International Plumbing Code.*

3008.3.4 Suction fans. Suction fans shall be designed for continuous operation. Fan perfomance shall comply with air flows and operating pressures that are determined by the system design, as determined using estimates from active soil-depressurization air flow models or in accordance with Section 3008.4.2.2.

3008.3.5 Fan failure iIndicator. Soil-depressurization systems shall have a failure indicator labeled with the words "Radon Reduction System Fan Failure Indicator" mounted so as to be conveniently visible to building occupants. The fan failure indicator shall be either a visual device consisting of a light not less than 1/5 footcandle at the floor level, or an alarm that produces a minimum of 60 db audible signal. The indicator shall be made to operate automatically when the pressure inside any radon vent pipe fitted with an operable fan is less than 0.40-inch water column (100 pascals) lower than the air pressure inside the building.

3008.4 Active soil-depressurization system design requirements.

3008.4.1 General. Active soil-depressurization systems shall be designed to be capable of maintaining a 0.02-inch (5-pascal) pressure differential over 90 percent of the slab or crawlspace.

3008.4.2 Ventilation mat systems. Ventilation mat systems shall be designed to be capable of maintaining a 5-pascal pressure differential over 90 percent of the slab area or in accordance with the *International Mechanical Code* for equipment and system sizing.

3008.4.2.1 Installation. Radon ventilation mats shall be installed immediately prior to placing the soil gas retarder membrane. Mats shall be arranged in a pattern that provides not less than two possible flow paths from any points on the mat to a radon vent pipe. Mats shall be placed with the filter material facing the compacted soil. Where sections of the mat join, a section of filter material not less than 6-inches long at the end of one of the mats shall be loosened and the other piece of mat shall be inserted between the loosened filter material and the first section of mat. The mats shall be pressed tightly together at this lap and mechanically attached together with hog rings or metal pins driven through the mat and into the soil so as not to puncture or tear the soil gas retarder membrane. When properly joined, the filter material will extend continuously across the joint and the full cross-sectional area of the mat shall be preserved across the splice.

3008.4.2.2 Alternate compliance method. Systems installed on sand or granular soil shall demonstrate compliance by meeting all of the following design limits:

1. Mats shall be located at least 15 feet and not more than 25 feet from the outside edge of the floor.
2. Mats shall be spaced not more than 50 feet on center.
3. No portion of a building floor shall be isolated from a mat by a construction feature, such as an internal footing, grade beam, foundation wall or other obstacle having a depth greater than the exterior foundation walls.
4. No portion of a building floor shall be more than 35 feet from the mat.
5. Mats shall be run parallel to the longest slab dimension unless obstructed by a construction feature, and arranged in a pattern that provides at least two possible flow paths from any point on the mat to a radon vent pipe.

3008.4.2.3 Radon vent connection. The radon vent pipe shall join to the mat in a manner that does not restrict the full air flow capacity of the pipe. Where required, dependent upon the thickness and effective net-free-area of the ventilation mat, the diameter of the vent pipe at the connections shall be enlarged with a suitable flange, or the the net-free-area of the mat shall be enlarged by installing additional layers of mat or a layer of gravel beneath the connection point. The soil gas retarder membrane shall be fully sealed to the radon vents in accordance with Section 3002.

3008.4.3 Perforated pipe systems. Perforated pipes shall be of a material that complies with this code for foundation drainage, and shall be sized according to the air flow estimated for the active soil-depressurization system. Perforated pipes installed in gravel shall be number 4 or 5 gravel compling with ASTM D 448, with not more than 5 percent passing a 3/8-inch screen.

3008.4.3.1 Installation. Perforated pipe pressure distribution manifolds shall be installed after the installation of all other utilities has been complete, and immediately prior to the soil gas retarder membrane. Pipes shall be installed with a row of perforations located at the bottom of the pipe, in order to allow condesate to drain from the system. Pipes shall be arranged in a pattern that provides at least two possible flow paths from any point in the system to a radon vent pipe. Separate sections of pipe shall be solvent welded or mechanically fastened together.

3008.4.3.2 Radon vent connection. The radon vent pipe shall join to the perforated pipe with a fitting that allows for the fill air flow capacity of the vent pipe. The soil gas retarder membrane shall be fully sealed to the radon vents in accordance with Section 3002.

3008.4.4 Continuous gravel layer system. Gravel used as the pressure distribution medium shall be installed only after the installation of other utilities has been completed, and immediately prior to the soil gas retarder membrane. Where regions of gravel are isolated from one another by interior foundation elements, separate suction points shall be provided in each region, or regions shall be interconnected with pipes run horizontally through the obstruction. The size and number of such pipes shall be sufficient to provide at least two-times the anticipated air flow. Not less than two pipes shall be used to interconnect one gravel area with another. These pipes shall be separated by a horizontal distance of not less than one-half the length of the boundary between the connecting gravel areas.

3008.4.4.1 Radon vent connection. The radon vent pipe shall join to the gravel layer with a "T" fitting that allows for the full air flow capacity of the vent pipe from either side of the "T". The fitting shall be installed with two arms in the gravel and a single arm connected to the radon vent pipe. The soil gas retarder membrane shall be fully sealed to the radon vents in accordance with Section 3002.

3008.4.5 Radon vent pipe installation. Radon vent pipes shall be solvent welded or otherwise joined to create a gas-tight connection from the soil suction point to the vent termination point. They shall be sloped at not less than 1/8-inch per foot in a mnner that will drain rain and condensate back to the soil, and shall be supported in accordance with the requirements for vents in the *International Plumbing Code.*

3008.4.5.1 Labeling. Portions of the radon vent pipe no permanently encased in a wall or chase shall be labeled to prevent accidental misuse. Labels shall consist of a pressure sensitive 2-inch yellow band with the words "Radon Reduction System" printed in black letters at least 1 inch in height. These labels shall be placed on every visible portion of the vent pipe at a spacing of not more than 3 feet. The labels shall be placed so as to be visible from any direction.

3008.4.5.2 Sizing. The size of vent pipes shall be determined by application of appropriate engineering principles and based on modeled air flow rates. For systems that comply with the alternate compliance method of Section 3008.4.2.2, and are installed in buildings with straight runs of vent pipes not more than 50 feet in height, the required number and size of vent pipes shall be determined as follows:

1. For up to 100 linear feet of ventilation mat, one 2-inch diameter pipe shall be used.
2. For up to 200 linear feet of ventilation mat, one 3-inch diameter pipe, or two 2-inch diamter pipes, shall be used.
3. For up to 400 linear feet of ventilation mat use one 4-inch diameter pipe, or two 3-inch diameter pipes, or four 2-inch diameter pipes shall be used.

3008.4.5.3 Terminals. Radon vent pipes shall terminate with a rain cap, installed above the roof of the structure, and shall be located in accordance with existing codes for toxic or noxious exhaust. Where not specifically addressed or applicable, vent pipes shall terminate in locations that minimize human exposure to their exhaust air, such that the location is:

1. At least 12 inches above the surface of the roof;
2. At least ten feet from any window, door or other openeing such as, but not limited to, an operable skylight or air intake to conditioned spaces of the structure; and
3. Ten feet from openings into an adjacent building. The total required distance (10 feet) shall be measured either directly between the two points or be the sum of measurements made around the intervening obstacles.

Where the discharge point is within two feet of the elevation of openings into conditioned space, the ten foot distance shall be the horizontal distance between the points.

3008.4.6 Suction fans. Soil-depressurization system fans shall be designed to maintain the following minimum air pressure differences at the lower opening of the radon vent pipe, as compared to the air pressure of the conditioned space above:

1. For systems using ventilation mats, 0.5 inches water column.
2. For systems using perforated pipe, 0.5 inches water column.
3. For systems using continuous gravel layers, 1.0 inches water column.

3008.4.6.1 Fan sizing. Soil-depressurization systems that comply with the alternative compliance method of Sections 3008.4.2.2 and 3008.4.5.2, shall comply by sizing the fan as follows:

1. For up to 100 linear of ventilation mat the fan shall be rated for 50 cfm (24 L/s) at 1-inch water column.
2. For 100 to 200 linear feet of ventilation mat, the fan shall be rated for not less than 100 cfm (47 L/s) at 1-inch water column.
3. For 200 to 400 linear feet of ventilation mat, the fan shall be rated for not less than 175 cfm (83 L/s) at 1-inch water column.

Add new standard(s) as follows: ASTM E 154-08a (Reapproved 2013) Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, Walls or as Ground Cover.
ASTM C 1193-13 Standard Guilde for Use of Joint Sealants

Reason: Radon in schools presents significant health risk. Thousands of schools are affected by radon. EPA found that 41% of schools that had high radon were located geographically within Zone 1 (high radon potential), It is common knowledge that there is no way to know your building/room's radon level unless you test. Testing before a building is constructed is not possible; therefore, preventative measures, such as adding radon reducing features during construction, can save future costs and lives. Often, the preventative measures alone are enough to keep radon levels below the 4 pCi/L action level. This means that many times, no fan for radon removal would need to run; thus saving more energy.

Bibliography: Radon Prevention in the Design and Construction of Schools and Other Large Buildings [EPA 625-R-92-016, June 1994].
Reducing Radon in Schools: A Team Approach [EPA 402-R-94-008, April 1994] at www.epa.gov/radon/pubs/index.html

www.epa.gov/radon

Cost Impact: Will increase the cost of construction
If the gravel and vapor barrier are already being installed due to code requirements, the cost will be at the low end of this range.The cost of adding radon resistant features during construction is much less than the cost to test and fix radon after construction. Typically, costs can be approximately $10,000 and $50,000 if these radon resistant features are not added during construction.

Analysis: A review of the standards proposed for inclusion in the code, ASTM E154 and ASTM C1193 with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28), will be posted on the ICC website on or before April 2, 2014. All other
standards proposed for inclusion into the code are already in Chapter 35 of the 2015 IBC.

G 209-15 : Chapter 30 (New)-PALMER5624

G 210-15

3008.8, 3008.8.1 (New)

Proponent: Dave Frable, representing US General Services Administration

2015 International Building Code

Revise as follows:

3008.8 Electrical power. ~~The following features serving each occupant evacuation elevator shall be supplied by both~~Sufficient normal ~~power~~ and Type 60/Class ~~2~~X/Level 1 standby power: ~~1. Elevator~~shall be provided to simultaneously operate all occupant evacuation elevators along with their associated elevator equipment.~~2. Ventilation,~~elevator hoistway lighting, elevator car lighting, and the ventilation and cooling equipment for their respective elevator machine rooms, control rooms, ~~machinery~~machine spaces and control spaces. ~~3. Elevator car lighting.~~

3008.8.1 Standby power evaluation and analysis. An evaluation and analysis shall be provided to determine the appropriate minimum time, in hours, that standby power must be provided following loss or failure of the normal power supply for the occupant evacuation elevators to operate for the specific building and application. The subject evaluation and analysis shall be prepared by the responsible registered design professional and shall be approved prior to installation.

Reason: Currently as written all occupant evacuation elevators must comply with Section 3007.8 which requires 2 hours of standby power for each occupant evacuation elevator and associated equipment simultaneously.
In many tall buildings across the country, the current 2-hour standby power requirement becomes costly and is likely much more conservative than necessary. The intent of this code change is to provide a more reasonable approach for providing standby power in lieu of using an arbitrary/absolute value of 2-hours. NFPA 110, Standard for Emergency and Standby Power Systems permits the use of Class X systems (Other time, in hours, as required by the application). Please note the Class defines the minimum time, in hours, for which the standby power system is designed to operate at its rated load without being refueled or recharged.

This proposal would permit the Building Official to approve an evaluation and analysis prepared by the registered design professions for determining the appropriate minimum time, in hours, that standby power must be provided for the respective building. In addition, it should also be pointed out that the 2-hour standby power requirement is also not consistent with reviews of the WTC bombing in 1996 that concluded buildings should not take longer than 1-hour to evacuate.

Cost Impact: Will not increase the cost of construction
This proposal will decrease the cost of construction as it will possibly reduce the size of the emergency power supply system providing standby power as well as determing the appropriate timeframe necessary for providing standby power for the operation of occupant evacuation elevators during an emergency.

G 210-15 : 3008.8-FRABLE5036

G 211-15

3101.1, 3111, 3111.1, 3111.1.1, 3111.1.1 (New), 3111.1.2 (New), 3111.1.3 (New), 3111.2 (New), 3111.2.1 (New), 3111.3 (New), 3111.3.1 (New), 3111.3.2 (New), 3111.3.3 (New), 3111.3.4 (New), 3111.3.5 (New), 3111.3.5.1 (New)

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

3101.1 Scope. The provisions of this chapter shall govern special building construction including membrane structures, temporary structures, *pedestrian walkways* and tunnels, automatic *vehicular gates*, *awnings* and *canopies*, *marquees*, signs, ~~and~~ towers and antennas, swimming pool enclosures and safety devices, and solar energy systems.

SECTION 3111
~~PHOTOVOLTAIC PANELS AND MODULES~~SOLAR ENERGY SYSTEMS

3111.1 General. ~~Photovoltaic panels and modules~~ Solar energy systems shall comply with the requirements of this ~~code and the *International Fire Code*~~section.

Delete without substitution:

~~**3111.1.1 Rooftop-mounted photovoltaic panels and modules.** Photovoltaic panels and modules installed on a roof or as an integral part of a roof assembly shall comply with the requirements of Chapter 15 and the *International Fire Code*.~~

Add new text as follows:

3111.1.1 Wind resistance. Rooftop mounted photovoltaic panels and modules and solar thermal collectors shall be designed in accordance with Section 1609.

3111.1.2 Roof live load. Roof structures that provide support for solar energy systems shall be designed in accordance with Section 1607.12.5.

3111.1.3 Guards. Installations shall comply with Section 1015.6 prior to installation of solar thermal systems or photovoltaic solar energy systems.

3111.2 Solar thermal systems. Solar thermal systems shall be designed and installed in accordance with Section 2606.12, the *International Plumbing Code*, the *International Mechanical Code*, and the *International Fire Code*.

3111.2.1 Equipment listings. Solar thermal systems and components shall be listed and labeled in accordance with ICC 900/SRCC 300 and ICC 901/SRCC 100.

3111.3 Photovoltaic solar energy systems. Photovoltaic solar energy systems shall be designed and installed in accordance with this section, the *International Fire Code*, NFPA 70, and the manufacturer's installation instructions.

3111.3.1 Equipment listings. Photovoltaic panels and modules shall be listed and labeled in accordance with UL 1703. Inverters shall be listed and labeled in accordance with UL 1741. Systems connected to the utility grid shall use inverters listed for utility interaction.

3111.3.2 Fire classification. Rooftop-mounted photovoltaic systems shall have a fire classification in accordance with Section 1505.9. Building integrated photovoltaic systems shall have a fire classification in accordance with Section 1505.8.

3111.3.3 Building integrated photovoltaic systems. Building integrated photovoltaic systems that serve as roof coverings shall be designed and installed in accordance with Section 1507.17.

3111.3.4 Access and pathways. Roof access, pathways and spacing requirements shall be provided in accordance with Section 605.11 of the *International Fire Code.*

3111.3.5 Ground mounted photovoltaic systems. Ground mounted photovoltaic systems shall be designed and installed in accordance with Chapter 16 and the *International Fire Code.*

3111.3.5.1 Fire separation distances. Ground mounted photovoltaic systems shall be subject to the fire separation distance requirements determined by the local jurisdiction.

Add new standard(s) as follows: ICC/SRCC
ICC 900/SRCC 300 Solar Thermal Systems
ICC 901/SRCC 100 Solar Thermal Collector

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
Currently, provisions for solar energy systems, both solar thermal and photovoltaic, are scattered throughout the International Building Code, International Fire Code, International Plumbing Code, International Mechanical Code, and the National Electrical Code (NFPA 70). The intent of this proposed change is to do for these codes what was done in the 2015 International Residential Code through Proposal RM98-13. This proposed change consolidates and organizes all the requirements, with necessary section revisions and section additions, in an easily used format that assists the user to find all the applicable requirements – fire, electrical, structural, plumbing, and mechanical - related to solar thermal and photovoltaic systems.

Both of these systems are special building construction, and this proposal expands on the existing Section 3111 for photovoltaic panels and modules, providing clarity as to where specific requirements are located in the building and other codes.

As with the new Section R324 in the International Residential Code, expanding Section 3111 will allow for easy inclusion of new solar energy system types and locations.

Several of the new sections proposed to Section 3111 are located in other parts of the code, and a follow-up proposal will be made in the Group B cycle to address those sections, which include:

1510.7.1 (proposed new Section 3111.1)

1510.7.3, 1510.7.4, and 1512.1 (proposed new Section 3111.3)
1510.7.4 (proposed new Section 3111.3.1)
1510.7 (proposed new Section 3111.3.2)

Also a new section will be proposed in Group B cycle to address the specific structural requirements for wind resistance in Chapter 16. These requirements will be coordinated with new provisions in ASCE 7-16.

The requirement for guards in Section 3111.1.3 is already in Section 1015.6.

The new standards developed by ICC/SRCC are referenced for solar thermal equipment and installations.

Cost Impact: Will not increase the cost of construction
This code change proposal will not increase the cost of construction. The proposal attempts to clarify the code, but does not make any technical changes to code requirements.

Analysis: A review of the standards proposed for inclusion in the code, ICC 900/SRCC 300 and ICC 901/SRCC 100, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

G 211-15 : 3101.1-KULIK4875

G 212-15

3102.1.1

Proponent: Jennifer Goupil, representing American Society of Civil Engineers (jgoupil@asce.org)

2015 International Building Code

Revise as follows:

3102.1.1 Tensile membrane structures and air-supported structures. Tensile membrane structures and air-supported structures, including permanent and temporary structures, shall be designed and constructed in accordance with ASCE 55. The provisions in Sections 3102.3 through 3102.6 shall apply.

Reason: This change proposes to add the new referenced standard *ASCE 55 Tensile Membrane Structures*. This Standard provides minimum criteria for the design and performance of tensile membrane cable and rigid member structures, including frame structures, collectively known as tensile membrane structures, including permanent and temporary structures as defined herein. The requirements of this Standard shall apply whether the tensile membrane structure is independent of or attached to another structure. This Standard does apply to air-supported structures.

In addition to the scope and definitions, the Standard includes chapters on membrane materials, connections, design, fabrication and erection, as well as appendices for special provisions and a procedure for determining modulus of elasticity.

ASCE/SEI 55 is published and maintained by the Structural Engineering Institute of the American Society of Civil Engineers (SEI/ASCE). The document is a nationally recognized consensus standard developed in full compliance with the ASCE *Rules for Standards Committees*. The ASCE standards process is fully accredited by the American National Standards Institute (ANSI).

The document is designated ASCE/SEI 55-10 *Tensile Membrane Structures* and it is currently available for purchase from ASCE. Any person interested in obtaining a public comment copy of ASCE/SEI 55 may do so by contacting the proponent at jgoupil@asce.org. A copy of the standard has been submitted with this proposal.

Cost Impact: Will not increase the cost of construction
This proposal coordinates the provisions of the code wtih the provisions of the referenced standard and provides the correct pointer to ASCE 55.

G 212-15 : 3102-GOUPIL4126

G 213-15

3102.1, 3103.1, 3103.5 (New)

Proponent: Adolf Zubia, IAFC Fire & Life Safety Section, representing IAFC Fire & Life Safety Section

2015 International Building Code

Revise as follows:

3102.1 General. The provisions of Sections 3102.1 through 3102.8 shall apply to air-supported, air-inflated, membrane-covered cable, membrane-covered frame and *tensile membrane structures*, collectively known as membrane structures, erected for a period of 180 days or longer. Those erected for a shorter period of time shall comply with Section 3103 and the *International Fire Code*. Membrane structures covering water storage facilities, water clarifiers, water treatment plants, sewage treatment plants, greenhouses and similar facilities not used for human occupancy are required to meet only the requirements of Sections 3102.3.1 and 3102.7. Membrane structures erected on a building, balcony, deck or other structure for any period of time shall comply with this section.

3103.1 General. The provisions of Sections 3103.1 through ~~3103.4~~3103.5 shall apply to structures erected for a period of less than 180 days. Tents and other membrane structures erected for a period of less than 180 days shall comply with Section 3103.5 and the *International Fire Code*. Those erected for a longer period of time shall comply with applicable sections of this code.

Add new text as follows:

3103.5 Structural design. Temporary tents and membrane structures, including those erected for a period of less than 180 days, shall be designed and constructed in accordance with Chapter 16 where any of the following conditions occur:

1. The occupant load of the tent or membrane structure exceeds 300.
2. The height of the tent or membrane structure exceeds 30 feet (9144 mm).
3. The tent or membrane structure exceeds one story.
4. The floor area of the tent or membrane structure exceeds 5,000 square feet (465 m^2).

Construction documents as required by Section 1603 shall be provided for such temporary tents and membrane structures.

Reason: This proposal is submitted by Fire and Life Safety Section of the International Association of Fire Chiefs.
Temporary tents and membrane structures are now being constructed of significant size, with many containing multiple stories or floor levels. The potential collapse of these tents or membrane structures creates significant hazards to the occupants and others in the immediate vicinity.

These temporary tents and membrane structures have traditionally been regulated solely by the IFC, however, the structural requirements are found in the IBC. Structural loads such as seismic, wind and snow loads impact temporary structures just the same as they would affect permanent structures.

This proposal accomplishes the following:

1. It provides a reference to the structural requirements for temporary tents and membrane structures in the IBC.

2. It includes the requirement that certain large tents and membrane structures must meet the same structural requirements that would be required for permanent structures.

This proposal will require a review of structural design for temporary tents and membrane structures over 30 feet in height or over 5,000 square feet,

over one story,

and over an occupant load of 300.

These categories of temporary tents and membrane structures are significantly larger than the typical, routine tent and membrane structure installation. The smaller tents are intentionally not included in this proposal.

A companion code change will be submitted to the IFC during the Group B code change cycle to complement this proposal.

Cost Impact: Will increase the cost of construction
The cost of construction will increase to cover the additional structural evaluation necessary to show compliance with Chapter 16.

G 214-15

3103.5 (New), 3103.5.1 (New)

Proponent: Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

2015 International Building Code

Add new text as follows:

3103.5 Accessibility. Temporary structures shall comply with the accessibility requirements of Chapter 11.

3103.5.1 Temporary outdoor performance areas. An accessible route is required to an temporary outdoor performance area. An accessible route shall directly connect the temporary outdoor performance area to the assembly seating or standing area where a circulation path directly connects a temporary outdoor performance area to the an assembly seating or standing area.

Exception: The vertical access to the elevated temporary outdoor performance area is not required at the time of initial construction provided:

1. A ramp, lift or elevator can be installed without reconfiguration or extension of the temporary outdoor performance area or extension of the electrical system; and
2. The accessible route is not required from the assembly seating or standing area to the temporary outdoor performance area.

Reason: The proposed amendment addresses the accessibility requirements for temporary structures. Section 107.2 requires temporary uses to comply with the IBC including the accessibility requirements. The proposed addition of Section 3103.5 references Chapter 11 and makes clear that the temporary construction need only comply if involving the applicable facilities regulated by Chapter 11. For example a snow ramp and similar elevated structures that do not covey users are not considered amusement rides and therefore not regulated.

Section 3103.5.1 is added to address a practical issue during temporary performances where the show producer knows that no persons with mobility impairments require access onto a performance stage and prefer to incur the additional costs of a ramp or platform lift. The ADA requires all employers to accommodate persons with disabilities and as a result the code change is proposed with permissive language to allow for circumstances where access can be provided. By requiring an accessible route up to the temporary platform or stage the code change will make it possible to add a temporary platform lift or ramp if necessary to provide access. A temporary structure is very similar to a moved or relocated building; the IEBC does not require that moved or relocated buildings be made accessible. Additionally, the employee work area definition in the IBC is broad enough to classify the performance stage or platform as an employee work area that Section 1103.2.2 only requires compliance with the accessibility requirements in Section 1104.3 that requires an accessible route to connect the employee work area to the rest of the facility.

Cost Impact: Will not increase the cost of construction
This code change will not increase the cost of construction since the cost of installing a ramp or a lift when not needed is avoided.

G 214-15 : 3103.5 (New)-FATTAH5007

G 215-15

3104.3

Proponent: Mike Fischer, Kellen Company, representing the Plastic Glazing Coalition of the American Chemistry Council (mfischer@kellencompany.com)

2015 International Building Code

Revise as follows:

3104.3 Construction. The *pedestrian walkway* shall be of noncombustible construction.

Exceptions:

1. Combustible construction shall be permitted where connected buildings are of combustible construction.
2. *Fire-retardant-treated wood*, in accordance with Section 603.1, Item 1.3, shall be permitted for the roof construction of the *pedestrian walkway* where connected buildings are a minimum of Type I or II construction.
3. Awnings or canopies installed at a *pedestrian walkway* shall be in accordance with Section 3105.

Reason: Awnings and canopies are often used at pedestrian walkways. Section 3104.3 requires that pedestrian walkways be of non-combustible construction, but provides no guidance on canopies or awnings that may cover, or project over, the walkway. The proposal provides a reference to indicate that the provisions of 3105, which apply to awnings and canopies in other locations, also apply over pedestrian walkways.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification of existing code provisions; it does not add new requirements.

G 215-15 : 3104.3-FISCHER5483

G 216-15

3104.5.2.2

Proponent: Gary Lampella, representing Oregon Building Officials Association (gary.lampella@ci.redmond.or.us)

2015 International Building Code

Revise as follows:

3104.5.2.2 Glass. The wall shall be constructed of ~~a~~ tempered, wired or laminated glass. The glass wall and doors ~~or glass~~ separating the interior of the building from the *pedestrian walkway* ~~. The glass~~ shall be protected by an *automatic sprinkler system* in accordance with Section 903.3.1.1 that, when actuated, shall completely wet the entire surface of interior sides of the wall or glass. Obstructions shall not be installed between the sprinkler heads and the wall or glass. The glass shall be in a gasketed frame and installed in such a manner that the framing system will deflect without breaking (loading) the glass before the sprinkler operates.

Reason: When this section was reformatted by G19-12 we believe the proponent inadvertently added verbiage that resulted in an unintended provision. In the first sentence after "....tempered, wired or laminated glass wall and doors or glass..." The term "or glass" was not in the 2012 edition. This leads one to believe that you could have the option of using tempered, wired or laminated glass or just plain glass. We are sure that was not the intent of the proponent of G19-12. We know of a couple of instances where diesign professionals have read this to mean they had that option.
We have also divided the first sentence into two sentences. The first sentence tells you the type of glazing to be used, and the second sentence has the protection method.

This proposal would correct any confusion as to the type of glazing required.

Cost Impact: Will not increase the cost of construction
This is just a clarification of the type of glazing that is currently required for pedestrian walkways so there should be no cost increase

G 216-15 : 3104.5.2.2-LAMPELLA4992

G 217-15

3104.9

Proponent: Ronald Geren, RLGA Technical Services, LLC, representing Self (ron@specsandcodes.com)

2015 International Building Code

CHAPTER 31 SPECIAL CONSTRUCTION
Revise as follows:

3104.9 Exit access travel. The length of *exit access* travel that occurs within a *pedestrian walkway* shall be 200 feet (60 960 mm) or less.

Exceptions:

1. *Exit access* travel distance on a *pedestrian walkway* equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 shall be 250 feet (76 200 mm) or less.
2. *Exit access* travel distance on a *pedestrian walkway* constructed with both sides not less than 50 percent open shall be 300 feet (91 440 mm) or less.
3. *Exit access* travel distance on a *pedestrian walkway* constructed with both sides not less than 50 percent open, and equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, shall be 400 feet (122 m) or less.

Reason: The application of travel distance in a pedestrian walkway is not clearly stated. The language proposed is similar to the travel distance requirement for atriums in Section 404.9.3.

Cost Impact: Will not increase the cost of construction
This proposal only clarifies the application of the requirement and does not add any new requirements that would add material or labor cost to a building.

G 217-15 : 3104.9-GEREN5145

G 218-15

3105.1

Proponent: Victor Cuevas, representing City of Los Angeles

2015 International Building Code

Revise as follows:

3105.1 General. *Awnings*, *canopies* and ~~*canopies*~~ trellises shall comply with the requirements of Sections 3105.2 through 3105.4 and other applicable sections of this code.

Reason: Trellises are not currently addressed by the IBC. Trellises represent no greater hazard than awnings or canopies, which are similar to trellises, except that they have a cover.

Cost Impact: Will not increase the cost of construction
Adding the term trellis to the code will not requre that construction work be made any different than the way it's currently done.

G 218-15 : 3105.1-CUEVAS4921

G 219-15

202 (New), 3105.3

Proponent: Victor Cuevas, representing City of Los Angeles

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

TRELLIS. A permanent structure or architectural projection of rigid construction that provides shading, identity or decoration. Trellises may be constructed of lattice members so that a sphere of 10 inches minimum in diameter can pass through, or of members running in one direction only with a minimum clear spacing between the members of not less than 4 inches. A trellis is permitted to be structurally independent or supported by attachment to a building on one or more sides.

Revise as follows:

3105.3 Design and construction. *Awnings*, *canopies* and ~~*canopies*~~trellises shall be designed and constructed to withstand wind or other lateral loads and live loads as required by Chapter 16 with due allowance for shape, open construction and similar features that relieve the pressures or loads. Structural members shall be protected to prevent deterioration. *Awnings* and trellises shall have frames of noncombustible material, *fire-retardant-treated wood*, wood of Type IV size, heavy timber or 1-hour construction with combustible or noncombustible covers and shall be either fixed, retractable, folding or collapsible.

Exception: Trellises in Group R-3 occupancies shall be permitted to be constructed of any materials allowed by this code.

Reason: The proposed new definition for trellis, is similar to a canopy, except without a covering. This definition incorporates spacing requirements that have been developed and used for trellises at single family dwellings.
Section 3105.3 is being amended to include trellises, and to include a reference to heavy timber. The exception is in place to continue allowances for trellises of any material or size in one- and two-family homes.

Cost Impact: Will not increase the cost of construction
This change does not require any change in the way buildings are built. It simply establishes a criteria/threshold for when floor area needs to be accounted for, when roof projections exceed the outer walls of a building.
Adding the term trellis to the code will not requre that construction work be made any different than the way it's currently done.

G 219-15 : 3105.3-CUEVAS4922

G 220-15

3105.4

Proponent: Mike Fischer, Kellen Company, representing the Plastic Glazing Coalition of the American Chemistry Council (mfischer@kellencompany.com)

2015 International Building Code

Revise as follows:

3105.4 Awnings and canopy materials. Awnings and *canopies* shall be provided with an *approved* covering that ~~meets~~complies with one of the following:

1. The fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701 ~~or has~~,
2. Has a *flame spread index* not greater than 25 ~~when~~where tested in accordance with ASTM E 84 or UL 723, or
3. Meets all of the following criteria as tested in accordance with NFPA 286:

    3.1. During the 40 kW exposure, flames shall not spread to the ceiling.
    3.2. Flashover, as defined in NFPA 286, shall not occur.
    3.3. The flame shall not spread to the outer extremity of the sample on any wall or ceiling.
    3.4. The peak heat release rate throughout the test shall not exceed 800 kW.

Exception: The fire propagation performance and flame spread index requirements shall not apply to awnings installed on detached one- and two-family dwellings.

Reason: The proposal provides an additional compliance path for awning and canopy covers through the addition of NFPA 286 to Section 3105.4. NFPA 286 is referenced in other sections of the IBC, including Chapter 26.

Cost Impact: Will not increase the cost of construction
The proposal provides additional options and adds no mandatory requirements.

G 220-15 : 3105.4-FISCHER5502

G 221-15

3111, 3111.1, 3111.1.1, 3111.1.1.1 (New), 3111.1.1.2 (New)

Proponent: Victor Cuevas, representing City of Los Angeles

2015 International Building Code

SECTION 3111 PHOTOVOLTAIC PANELS AND MODULES

3111.1 General. Photovoltaic panels and modules shall comply with the requirements of this code and the *International Fire Code*.

3111.1.1 Rooftop-mounted photovoltaic panels and modules. Photovoltaic panels and modules installed on a roof or as an integral part of a roof assembly shall comply with the requirements of Chapter 15 and the *International Fire Code*.

Add new text as follows:

3111.1.1.1 Height and area Photovoltaic panel arrays supported by a structure shall not constitute an additional story or additional floor area provided one of the following is met:

1. The highest point of the structure/panel array shall meet the lower of the two values below:
   1.1 Ten feet above the allowable building height; or
   1.2. Ten feet above the roof of the building immediately below.

2. Either no use is located on the roof beneath the photovoltaic array or the use of the roof shall be limited to parking complying with all of the following:
   2.1. The total area within the perimeter of each photovoltaic array shall not be greater than 6,000 square feet.
   2.2. The distance between solar photovoltaic array structures shall be not less than 10 feet.
   2.3. Where a driveway aisle is located between arrays, the distance between the arrays shall be not less than 25 feet.
   2.4. No storage shall occur beneath the array, and
   2.5. The structure supporting the array shall be completely open on all sides, with no interior partitions.

3111.1.1.2 Fire-resistance Noncombustible structural members supporting photovoltaic panel arrays shall not be required to have a fire-resistance rating as follows:

1. Where no use occurs beneath the array, the array structure and supported photovoltaic panels shall have uniformly distributed and unobructed openings throughout the top of the array as approved by the code official, to allow heat and gases to escape. The code official is authorized to require signage prohibiting use of the space beneath the array; or

2. Where parking is located beneath the array, the requirement of Section 3111.1.1.1 are met.

Reason: Add regulations similar to the State of California. The area limitation of 6,000 square feet will allow the Fire Department to get around the structures when putting out a fire.

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction.

G 221-15 : 3111.1.1.1 (New)-CUEVAS4746

G 222-15

3112 (New), 3112.1 (New), 3112.2 (New), 3112.3 (New), 3112.4 (New), 3112.5 (New), 3112.6 (New), 3112.6.1 (New)

Proponent: Vickie Lovell, InterCode Incorporated, representing National Greenhouse Manufacturers Association (vickie@intercodeinc.com)

2015 International Building Code

Add new text as follows:

SECTION3112 GREENHOUSES

3112.1 General. The provisions of this section shall apply to structures defined as greenhouses by this code that are designed and used for the cultivation, maintenance, or protection of plants.

3112.2 Accessibility. Greenhouses shall be accessible in accordance with Chapter 11.

3112.3 Structural design. Greenhouses shall comply with the structural design requirements for greenhouses in Chapter 16.

3112.4 Glass and glazing. Glass and glazing used in greenhouses shall comply with Section 2405.

3112.5 Light-transmitting plastics. Light-transmitting plastics shall be permitted in lieu of plain glass in greenhouses and shall comply with Section 2606.

3112.6 Membrane structures. Greenhouses that are considered membrane structures shall comply with Section 3102.

3112.6.1 Plastic film. Plastic films used in greenhouses shall comply with Section 3102.3.

Reason: The word "greenhouse" is used throughout the IBC and important requirements for greenhouses are scattered throughout the code. They are often formatted as exceptions in sections that are otherwise unrelated to greenhouses, and could be easily overlooked by designers and enforcers. Therefore, the purpose of this proposal is to relocate (and direct the code user to) the current and relevant code requirements for greenhouses to a new section in Chapter 31, Special Construction. The new section will consolidate all the relevant information in the code into a single location without any technical changes to current code language.
The table below shows where the current code requirements are located in the 2015 IBC. The new section 3112 has pointers to these sections.

2015 IBC Section with Greenhouse Requirements
Chapter 312 Use Group U
Table 506.5 Group U Height and Area
1103.2.4 Accessibiity Exception for Group U
Table 1604.3 Deflection Limits
1607.12.2.1 Ordinary roofs, awnings and canopies
1609.1.2 Structural design and protection of openings
2405.3 Exception 3 Screening
2606.11 Greenhouses. Light transmitting plastics
2607.4 Exception 3 Area limitation and separation
2609.4 Exception 3 Area limitations
3102.1 General. Membrane Structures
3102.3 Exception Type of Construction
3102.3.1 Exception - Membrane and interior liner material
Appendix C Group U Agricultural Buildings
Appendix D D105 Exceptions to Restrictions in Fire District
Appendix G G1001 Utility and miscellaneous Group U

There are numerous other Group U requirements that could apply to greenhouses.

This proposal, along with the other greenhouse proposals that modify the occupancies to include greenhouses, will assist the designers, other code users and code officials to more consistenlty apply the requirements for greenhouses. As greenhouse food production and scientific research becomes increasingly vital and sophisticated, a single code section on greenhouses will promote more consistent enforcement of current code text, and facilitate the introduction of new technology related to greenhouses in the future.

Cost Impact: Will not increase the cost of construction
There is no cost impact related to this proposal because this proposal only reorganizes and references existing code language into a new section.

G 222-15 : 3112 (New)-LOVELL4397

G 223-15

202 (New), 107.2.7 (New), 3101.1, 3112 (New), 3112.1 (New), 3112.1.1 (New), 3112.2 (New), 3112.3 (New), 3112.4 (New)

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

RELOCATABLE BUILDING. A partially or completely assembled building constructed and designed to be reused multiple times and transported to different building sites.

Add new text as follows:

107.2.7 Relocatable buildings. Construction documents for relocatable buildings shall comply with this section and Section 3112.

Revise as follows:

3101.1 Scope. The provisions of this chapter shall govern special building construction including membrane structures, temporary structures, *pedestrian walkways* and tunnels, automatic *vehicular gates*, *awnings* and *canopies*, *marquees*, signs, and towers, antennas, and ~~antennas~~relocatable buildings.

Add new text as follows:

SECTION3112 RELOCATABLE BUILDINGS

3112.1 General. The provisions of this section shall apply to relocatable buildings. Relocatable buildings manufactured after the effective date of this code shall comply with the applicable provisions of this code.

3112.1.1 Compliance. A newly constructed relocatable building shall comply with this code for new construction. An existing relocatable building that is undergoing alteration, addition, change of occupancy or relocation shall comply with Chapter 13 of the *International Existing Buildings Code.*

3112.2 Supplemental information. Supplemental information specific to a relocatable building shall be submitted to the authority having jurisdiction. It shall, as a minimum, include all of the following in addition to the information required by Section 105.

1. Manufacturer's name and address.
2. Date of manufacture.
3. Serial number of module.
4. Manufacturer's design drawings.
5. Type of construction in accordance with Section 602.
6. Design loads including: roof live load, roof snow load, floor live load, wind load and seismic site class, use group and design category.
7. Additional building planning and structural design data.
8. Site built structure or appurtenance attached to the relocatable building.

3112.3 Manufacturer's data plate. Each relocatable module shall have a data plate that is permanently attached on or adjacent to the electrical panel, and shall include the following information:

1. Occupancy group.
2. Manufacturer's name and address.
3. Date of manufacture.
4. Serial number of module.
5. Design roof live load, design floor live load, snow load, wind and seismic design.
6. Approved quality assurance agency or approved inspection agency.
7. Codes, and standards of construction.
8. Envelope thermal resistance values.
9. Electrical service size.
10. Fuel burning equipment and size.
11. Special limitations if any.

3112.4 Inspection agencies. The building official is authorized to accept reports of inspections conducted by approved inspection agencies during off-site construction of the relocatable building, and to satisfy the applicable requirements of Sections 110.3 through 110.3.10.1.

Reason: In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled Relocatable Modular Buildings. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Unlike site-built buildings, which are typically intended to remain on their original site for the life of the building, relocatable modular buildings are designed and intended for relocation, reuse and/or repurposing. Many states have statutes that govern the building and relocating of relocatable modular buildings. For those that do not have state mandated requirements, much confusion and inconsistency exists about the requirements for relocatable modular buildings as existing buildings.
The Modular Building Institute (MBI) (www.modular.org) estimates that there are over 600,000 code compliant relocatable buildings in use in North America today. While it is impossible to determine the exact amount owned by the public at large, MBI estimates that public school districts across North America collectively own and operate about 180,000 relocatable classrooms with the industry owning and leasing an additional 120,000. Additionally, the industry owns and leases approximately 280,000 relocatable buildings for various other business occupancies, including construction site offices and temporary sales offices.
Unique characteristics of relocatable modular buildings that are unlike site-built buildings include:
• There are sections of the IBC that are applicable equally to both site-built and relocatable modular buildings, particularly for new construction.

• There are sections of the conflicting code sections that cannot be applied to both site-built and relocatable modular buildings, specifically related to construction documents, inspection, and relocation.
The IBC does not have specific requirements on how to treat these buildings. In the absence of clear definitions and requirements that are specific to both new and existing relocatable modular buildings, many code officials attempt to apply similar, but non-related sections of the building code intended for site built buildings to the relocatable modular industry. There are unique attributes to relocatable modular buildings that warrant their own requirements in a new chapter in this code.
Two proposals have been submitted on the subject of relocatable modular buildings. One proposal for new construction (this proposal) and a second proposal to address the relocation of modular buildings (proposal to the IEBC). This proposal includes:
• The definition has been reproduced from the definition that was added to the 2015 IEBC last cycle.
• Identification and inclusion of relocatables into Special Construction, Chapter 31. This chapter applies to new relocatable buildings, and also new site built structures.
Moving this document forward through the ICC code development process will help the modular building industry comply with the intent of the code, provide a clear and consistent path for enforcement professionals, and for compliance by owners of relocatable buildings who wish to re-use or repurpose their existing buildings.

Cost Impact: Will not increase the cost of construction
This code change proposal will not increase the cost of construction due to the re-usable/relocatable nature of such buildings.

G 223-15 : 3101.1-KULIK4952

G 224-15

3112 (New), 3112.1 (New), 3112.2 (New)

Proponent: Steve Martin, Representing the Florida Division of Emergency Management (steve.martin@em.myflorida.com); Sergio Ascunce, Representing the Building Officials Association of Florida (sascunce@cohb.org)

2015 International Building Code

Add new text as follows:

SECTION3112 PUBLIC USE RESTROOM BUILDINGS IN FLOOD HAZARD AREAS

3112.1 Scope Restroom buildings intended for public use that are located in flood hazard areas shall be in accordance with this section. Public use toilet rooms, bathrooms, showers and changing rooms and spaces that are not elevated or protected in accordance with Section 1612 shall comply with Section 3112.2. Portions of buildings that include uses other than public use toilet rooms, bathrooms, showers and changing rooms and spaces shall be subject to the requirements of Section 1612.

3112.2 Flood resistance Public use restroom buildings and portions of buildings that include public use restrooms, that are located in flood hazard areas shall comply with the applicable requirements of ASCE 24 and shall:

1. Be limited to a footprint of not more than 1,500 square feet.
2. Be located, designed and constructed to resist the effects of flood hazards and flood loads to minimize flood damage from combination of wind and water loads associated with the base flood.
3. Be anchored to prevent flotation, collapse or lateral movement resulting from hydrostatic loads, including the effects of buoyancy during conditions of the design flood.
4. Be constructed of flood damage-resistant materials.
5. Have flood openings, where enclosed by walls.
6. Have mechanical and electrical systems that are located above the design flood elevation.
7. Have plumbing fixtures and plumbing connections that are located above the design flood elevation.
8. Have an emergency plan if the design specifies implementation of protection measures prior to the onset of flooding conditions.

Exceptions:

1. Minimum electric service required to address life safety and electric code requirements is permitted below the design flood elevation provided it conforms to the provisions of the electrical part of this code for wet locations.
2. Plumbing fixtures and connections are permitted below the design flood elevation provided the fixtures and connections are designed and installed to minimize or eliminate infiltration of floodwaters into the sanitary sewage system and discharges from sanitary sewage systems into floodwaters.

Reason: Thousands of communities have public open space and parks along rivers and shorelines. Many communities experience economic value from tourism and public access to areas that feature water resources. Under the current requirements of the IBC, restrooms for public use, if located in flood hazard areas, must meet the same requirements as residential and commercial buildings. In flood hazard areas other than coastal high hazard areas and Coastal A Zones (i.e., in flood zones identified on Federal Emergency Management Agency Flood Insurance Rate Maps with the letter "A"), restroom buildings may be elevated or dry floodproofed. In coastal high hazard areas (flood Zone V) and Coastal A Zones, the current requirements specify that restroom buildings must be elevated.
In Florida and other coastal states, this has resulted in building public use restrooms as high as 7 to 18 feet above grade. This poses many challenges, not the least of which is access. See Figures 1, 2, 3 and 4. While ramps can be built to meet ADA requirements, to reach some heights required in some flood hazard areas the ramps may be as long as 300 feet or the length of a football field. Such exceptionally long ramps defeat the purpose of low slope facilities when the distance of travel still renders restroom facilities inaccessible to many persons with disabilities. Although the IBC (and FEMA) permits elevators to extend below the base flood elevation, installing elevators to provide access to elevated public use restrooms is expensive and creates many maintenance issues, and a high rate of failure to function, especially in beach areas where blowing sand and wind-borne salt aerosols create corrosive conditions.

This proposal creates a new section in IBC Chapter 31, Special Construction to limit the scope to restroom buildings that include public use toilet rooms, bathrooms, showers and changing rooms and spaces. Portions of such buildings that include other uses would have to fully comply with the elevation and other flood resistant requirements of IBC Section 1612, Flood Loads, which references ASCE 24, Flood Resistant Design and Construction.

In recognition that most public use restrooms are built on public land using public funds, the proposal is to limit the exposure of public facilities in two ways: by limiting the footprint to not more than 1,500 square feet and by specifying design requirements. Enabling public use restrooms to be designed to be located below the base flood elevation and to withstand the base flood is a reasonable alternative to the extremely high cost for design, construction and maintenance of elevated structures. Although the proposed design requirements are intended to preclude significant damage during flood conditions up to and including conditions of the design flood (e.g., the base or 100-year flood), more severe floods can and do occur.

The proposal includes requirements for flood resistance similar to those found in IBC Appendix G, Section G1001 for Utility and Miscellaneous Group U and similar to the requirements of ASCE 24-14 for Flood Design Class 1 (which is essentially equivalent to Structure/Risk Category I). Those requirements effectively are the same as the NFIP requirements in 44 Code of Federal Regulations Section 60.3(a)(3)(ii), (iii), and (iv). FEMA deems the flood provisions of the I-Codes, with reference to ASCE 24, to meet or exceed the requirements of the National Flood Insurance Program (NFIP).

The intent is to allow public use restroom buildings to be at-grade, provided they meet the design requirements listed in 3112.1. The proponent acknowledges that, at present, FEMA guidance states that restroom buildings and comfort stations in coastal high hazard areas must be elevated and meet the same design and construction requirements as other buildings. This proposal is intended to meet the intent of the NFIP to minimize flood damage, while acknowledging the special needs and access appropriate for public use restrooms. The Florida Floodplain Management Association prepared a white paper on this subject: Policy and Design Options for Public Restrooms in Special Flood Hazard Areas (2014), ***www.FLfloods.org/ffmawhitepaper***

Figure 1. Florida, flood Zone V. Ramp wraps around entire building. Has composting toilets, battery and solar electric system, emergency plan requires pumping out tank and filling with clean water.

Figure 3. Florida, Gulf Coast, flood Zone V. Ramp built after original elevator determined to be unsustainable due to significant maintenance problems.

Figure 2. Coastal Mississippi, flood Zone V. This facility cost $1.1 million.

Figure 4. Southwest Florida, flood Zone V. Extensive ramp wraps around three sides.

Bibliography: Policy and Design Options for Public Restrooms in Special Flood Hazard Areas, Florida Floodplain Management Associations, 2014.
www.FLfloods.org/ffmawhitepaper

Cost Impact: Will not increase the cost of construction
The cost to build as specified to resist the effects of flood hazards and flood loads will be higher than a typical restroom building in a flood hazard area that is not designed to resist flood loads and flood damage (not currently allowed) but the cost will be less than the cost to elevate and provide extensive ramp systems (current method of compliance).

G 224-15 : 3112 (New)-MARTIN4949

G 225-15

3302.3

Proponent: Anthony Apfelbeck, City of Altamonte Springs Building/Fire Safety, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Building Code

Revise as follows:

3302.3 Fire safety <u>and security</u> during construction. Fire safety<u> and security</u> during construction shall comply with the applicable requirements of this code and the applicable provisions of Chapter 33 of the *International Fire Code.*

Reason: One of the primary fire causes during construction activity is arson. An effective method to mitigate this cause is implimenting basic security actions. While chapter 33 of the IFC does provide a direct reference to NFPA 241 *Safeguarding Construction and Alteration Operations* and NFPA 241 does contain a number of provisions addressing on-site security including references to guard service, security fences and secuirty of entrances, the need to review the security component is not obvious to the user of the code. The current pointer in the IBC to the IFC and NFPA 241 does not leave the user with the impression that security is a core component of the the construction site safety provisions necssary to ensure fire safety and an item to be addressed under the code. By inserting "and security" into the provisions of 3302.3, the importance of the security component is reinforced with the Code Official, contractor and designer.

Cost Impact: Will not increase the cost of construction
The reference to security is already provided in NFPA 241. This poposal does not change that reference.

G 225-15 : 3302.3-APFELBECK5333

G 226-15

3302.3, 3302.3.1 (New)

Proponent: William Hall, Portland Cement Association, representing Portland Cement Association (jhall@cement.org); Jason Thompson (jthompson@ncma.org); Jonathan Humble (jhumble@steel.org)

2015 International Building Code

3302.3 Fire safety during construction. Fire safety during construction shall comply with the applicable requirements of this code and the applicable provisions of Chapter 33 of the *International Fire Code.*

Add new text as follows:

3302.3.1 Special requirements for Type V buildings with combustible framing material. Where a building using combustible framing members exceeds the allowable height or number of stories for designation NS in Tables 504.3 or 504.4, the following shall be required:

1.The fire prevention program superintendent responsibilities required in Section 3308 of the International Fire Code shall be provided by an approved agency. The *approved agency* shall meet the following requirements:

- 1.1. Shall provide all information as necessary for the *building official* to determine that the agency meets the applicable requirements.
- 1.2. Shall be objective, competent and independent from the contractor or owner responsible for the fire prevention program.
- 1.3. Shall employ experienced personnel educated in supervising and evaluating safe jobsite practices to provide services to perform a fire watch and the enforcement of the fire prevention program.

2. Qualified personnel of the approved agency shall be onsite 24 hours of each day starting the day that framing materials are delivered to the site up through completion of the building.

3. Smoking and cooking shall be prohibited.

4. Temporary heating and hot work shall be supervised by the fire prevention program superintendent or agency.

Reason: Fires during construction have been on the increase across the U.S and other countries which utilize combustible construction in multi-story buildings. The intensity of these fires put adjacent buildings, businesses and residents at risk until the project is complete, which can take up to 2 years to complete or more if the project stalls. These fires are caused by a multitude of reasons including, but not limited to, arson, smoking, cooking, heating and hot work. Fire service, even in large well equipped jurisdictions cannot effectively stop these fires and most of these incidents end in total loss of the building under construction as well as damaged or destroyed adjacent buildings. Many times adjacent buildings are at risk due to the extreme heat, flying embers and wind speeds, as seen in the recent Los Angeles fire where paper, laying on a desk in an adjacent high rise structure caught fire and 6 six floors of the high rise were on fire.
The International Fire Code requries a Fire Prevention Program Superintendent be provided on all construction sites. This proposal would require that for combustible construction which is over the base allowable height or story, the agency or superintendent be onsite 24 hours a day to mitigate potential fire and conflagration.

Bibliography: http://magazine.sfpe.org/fire-protection-design/fire-safety-buildings-under-construction

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction for buildings of Type V which are higher or contain more stories than the base allowable. The amount would be the cost difference to provide on a 24 hour basis, rather than daily basis which is already required by the fire code.

G 226-15 : 3302.3.1 (New)-HALL4716

G 227-15

3304.1.5 (New)

Proponent: Alexandrea Shaw, Howard County Government Department of Inspections, Licenses and Permits; Plan Review Division, representing Self (aeshaw@howardcountymd.gov); George Martin (gmartin@howardcountymd.gov)

2015 International Building Code

Add new text as follows:

3304.1.5 Burial of construction debris. The burial of construction debris shall be prohibited on lots that are equal to or less than 20,000 square feet in area and contain Group R (Residential) occupancies.

The burial of inert debris that are not contaminated by hazardous substances in concentrations sufficient to cause environmental contamination shall be prohibited on lots greater than or equal to 20,000 square fee in area and contain Group R (Residential) occupancies, except where the debris is generated on-site.

Construction debris as defined in EPA 40 CFR Part 268 Subpart C, Prohibition on Land Disposal, shall not be buried.

Construction debris shall not be buried in proposed driveway or parking area locations and shall not be located less than 50 feet from existing or proposed buildings.

Existing in-ground swimming pools that are abandoned or are not in use shall not be buried on lots that are equal to or greater than 20,00 square feet in area and contain Group R (Residential) occupancies. The walls and the bottom of buried existing swimming pools shall be provided with ground water drainage holes spaced at not less than 5 feet on center. Vinyl pool liners shall not be buried. Pool coping shall be removed and buried within the pool. Pool related utilites shall ve disonnected and removed. Well drainable soils shall be used as back fill.

Add new standard(s) as follows: Add new standard to Chapter 35 as follows:

EPA U.S. Environmental Protection Agency

40 CFR Part 268, Subpart C - 2005 Prohibition on Land Disposal

Reason: The IBC does not currently address this issue. It is feasible and realistic to have an enforceable policy implemented which outlines a more cost effective solution to handling certain residential construction debris. Additionally, allowing material to be buried rather than removed prevents negative erosion and sedimentation consequences.

Bibliography: "ECFR — Code of Federal Regulations." ECFR — Code of Federal Regulations. US Government Publishing Office, n.d. Web. 09 Jan. 2015. http://www.ecfr.gov/cgi-bin/text-idx?SID=9f532bd60026d6902b386fdf9b392beb&tpl=/ecfrbrowse/Title40/40CIsubchapI.tpl

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction. If anything, this code change proposal will serve to eliminate many costs of having to remove certain building material from the site that would not negativley impact the environment or property otherwise. Costs related to renting equipment for removal of debris and hauling, as well as dumping costs would be saved with this code change proposal.

Analysis: A review of the standard proposed for inclusion in the code, EPA 40 CFR Part 268 Subpart C, Prohibition on Land Disposal, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

G 227-15 : 3304.1.5 (New)-SHAW4884

G 228-15

3304.2 (New)

Proponent: Jonathan Humble, American Iron and Steel Institute, representing American Iron and Steel Institute (jhumble@steel.org); William Hall (jhall@cement.org); Larry Williams (Williams@steelframingassociation.org); Jason Thompson, Masonry Alliance for Codes and Standards, representing Masonry Alliance for Codes and Standards (jthompson@ncma.org)

2015 International Building Code

Add new text as follows:

3304.2 Access for fire fighting A vehicle access plan for fire fighting, complying with Section 3310 of the *International Fire Code*, shall be submitted to the fire departement for review and approval prior to construction. For Type V construction with combustible building elements, four stories or more above grade plane, an approved vehicle access plan shall also demonstrate access to all sides of the building's perimeter for purposes of fire fighting.

Reason: The intent of IBC Chapter 33 (Safeguards During Construction) is to govern the provisions for safety during construction and the protection of adjacent properties. Unfortunately, the Chapter lacks requirements addressing the ability for fire fighters access to construction sites in cases of emergency. While on the surface this may be viewed as solely a fire department issue, we present a case here indicating that coordination should take place to ensure that this aspect is addressed prior to construction.
The first part of this proposal is to have the simple reference to the International Fire Code Section 3310 (Access for Fire Fighting). It is the intent to use this proposal as a reference to what will be expected during construction and/or demolition of a project in accordance with the International Fire Code.

The second part of the proposal is to add planning requirements for buildings constructed of Type V combustible framing. Recent fires have demonstrated a need to recommend an additional enhancement to the provisions of the IBC. In these cases the size and volume of the buildings in those reported fires demonstrated a need to improve fire and life safeguards during construction. The four (4) story value was determined based on two sources; one – a review of other sections within IBC and IFC Chapter 33 where a height value was referenced (Sections 3310 and 3311); and two – analyzing fires of Type V construction and finding that buildings 4 stories or greater appeared to pose the greater threat to the building project and neighboring properties. Type V combustible construction when under construction represents a large quantity of combustible framing that when exposed will contribute to the spread and intensity of a fire.

Without adequate access, fire fighters have little options in extinguishing the fire or to protect adjacent property and occupants. We are therefore proposing to add the requirement for a plan of access for fire apparatus and fire fighters in order to have the opportunity fight the fire and protect adjacent properties with greater efficiency. We further believe that this proposal will compliment the provisions of the International Fire Code Section 3310, and Appendix D.

Cost Impact: Will increase the cost of construction
Providing vehicle access to all sides of the building's perimeter is currently required under IBC Section 3302.3, which sends the user to IFC Section 3310 (Access for Fire Fighting). Therefore, for the first part of this proposal there is no cost impact. However, the second part of this proposal will add a minor increase as the plan must be further enhanced to cover vehicle access to all sides of the project. The additional vehicle access to the project by fire fighters should outweigh that additional cost to prepare an enhanced plan as a result of the benefit of the increase access by the fire fighters, thus potentially reducing the spread of fire and the amount of fire damaged area to rebuild. The additional safety measure may also contribute to reducing the cost for construction insurance.

G 228-15 : 3304.2 (New)-HUMBLE4598

G 229-15

3310.1, [F] 3311.1

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

3310.1 Stairways required. Where~~ a~~ building ~~has been constructed to a *building height* of 50~~construction exceeds 40 feet (~~15 240 mm) or four *stories*, or where an existing building exceeding 50 feet (15 240~~12 192 mm) in ~~*building height* is altered~~height above the lowest level of fire department vehicle access, ~~no fewer than one~~a temporary ~~lighted~~or permanent*stairway* shall be provided~~ unless~~. As construction progresses, such stairway shall be extended to within one ~~or more~~floor of the ~~permanent stairways are erected as the~~highest point of construction ~~progresses~~having secured decking or flooring.

[F] 3311.1 Where required. In buildings required to have standpipes by Section 905.3.1, no fewer than one standpipe shall be provided for use during construction. Such standpipes shall be installed prior to construction exceeding 40 feet (12 192 mm) in height above the lowest level of fire department vehicle access. Such standpipes shall be provided with fire department hose connections at accessible locations adjacent to ~~usable~~ *stairways*complying with Section 3310.1. ~~Such~~As construction progresses, such standpipes shall be extended~~ as construction progresses~~ to within one floor of the highest point of construction having secured decking or flooring.

Reason: This proposal provides consistency of temporary stairway requirements with existing provisions for stair access to temporary standpipes and clarifies the timing of when access stairs shall be provided in a building under construction.
This proposal is submitted by the ICC Building Code Action Committee (BCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

The ICC Fire Code Action Committee (FCAC) also supports this proposal.

Cost Impact: Will increase the cost of construction
May increase or decrease the cost of construction depending on topography of construction site.

G 229-15 : 3310.1-KULIK4629

G 230-15

Section 3312.1 (New)

Proponent: Stephen Skalko, representing Masonry Alliance for Codes and Standards (svskalko@cox.net)

2015 International Building Code

Add new text as follows:

Section 3312.1 Completion during construction. Where an *automatic sprinkler system* is required by this code in buildings four or more stories in height of Types III, IV or V construction, the portion of the building or structure that is more than 40 feet in height above fire department vehicle access shall not begin construction until the *automatic sprinkler system* is operational for all stories below and has been tested and *approved.* Such *automatic sprinkler system* shall be extended as construction progresses to within one floor of the highest point of construction having secured decking or flooring.

Reason: Automatic sprinkler protection systems continue to be depended on to permit buildings to be built to larger heights and areas as allowed in Tables 504.3, 504.4 and 506.2 of the code. With these increases there has been a notable increase in fires, especially for Group R2 Residential Occupancies constructed of combustible framing, while the building is under construction. This has resulted significant loss of property for the building under construction and nearby properties exposed to the fire in part because important fire safety features such as passive fire protection for the combustible framing is not complete and automatic sprinkler system upon which these larger and taller buildings depend have not been made operational.
Besides the damage to the building under construction and to nearby properties some of these fires have required major street closures including interstates, and tied up firefighting resources to the extent that other areas of the communities were left under-protected for extended periods. A recent example is a major fire in LosAngeles with five stories of wood framing over a twostory concrete podium on December 8, 2014 that not only resulted in millions of dollars in damage to the building under construction,but also damaged adjacent buildings. The apartment building knownas the DaVinci was a complete loss after the fire that was fueled by the five stories of wood frame construction. More than 250 firefighters were dispatched to the scene. The burning of the structure's wooden frame forced the closure of northbound Harbor(110) Freeway and affected local streets causing major traffic disruptions for commuters and to the nearby business and residences. Buildings nearby were damaged by exposure to fire from the radiant heat as well as damage inside because the fire activated sprinklers in these adjacent buildings. It has been reported that the heat also melted or damaged computers and partition cubicles in neighboring building as well. The glazing in hundreds of windows of a nearby building was also damaged.

Besides this DaVinci fire other recent large combustible framed building fires that illustrate the risk of exposed combustible framing without operational sprinkler systems include:

1. Monroe Apartments, Portland, OR August8,2013
2. Student Apartments,Kingston,Ontario, CAN December 17, 2013
3. 550 East and 500 South,Salt Lake City, UT February 9,2014
4. Commercial Building,Roxbury, MA, March 3,2014
5. Mission Bay Project, San Francisco, CA March 11, 2014
6. Axis Apartments, Houston, TX , March 25, 2014
7. Beacon Street,Boston, MA March 27,20t4
8. Gables Upper Rock, Rockville, MD April !,2014
9. SE Tech Center Drive, Vancouver, WA, June 19, 2014
10. Victoria Commons,Kitchener,Ontario, CAN, Jul y22, 2014
11. Apollo Way,Madison, WI August 8,2014

Section 3311.1 of the code requires operational standpipes be in place when portions of buildings requiring standpipes are 40 feet or more above the lowest level of fire department vehicle access. This proposal takes a similar approach to the standpipe requirement for fire safety by requiring the sprinkler systems that are necessary to build these taller and larger buildings of combustible construction be operational when the construction reaches the 40 foot height above the fire department vehicle access. Too, like the standpipe requirements, the sprinkler system must be extended as each floor is provided with decking or flooring.

Cost Impact: Will increase the cost of construction
This proposal is expected to increase the cost of construction due to the sprinkler protection system having to be completed on lower floors before construction can begin higher up in the building. This increased cost however is necessary to reduce the risk of damage to adjacent properties due to fire exposure which results in economic hardship for repairs and disruption to businesses and residences, to minimize the impact to the public from traffic disruptions due to the size of the conflagrations, and to reduce the demand for fire service response due to these larger taller combustible framed buildings while under construction.

G 230-15 : 3312.1 (New)-SKALKO5518

G 231-15

3314 (New), 3314.1 (New)

Proponent: Anthony Apfelbeck, City of Alamonte Springs, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Building Code

Add new text as follows:

SECTION 3314
SAFETY OF INSPECTION PERSONNEL

3314.1 General Inspection personnel shall be provided safe access, as approved by the inspector, to conduct inspections in accordance with Section 110.

Reason: Inspectors are frequently placed in the difficult position of feeling pressured to conduct inspection in conditions that they do not deem to be safe. Ladders, floor openings, lifts, scaffolding and other unprotected hazards maybe present and go uncorrected by a contractor since the inspector does not have authority order workplace safety corrections. However, an inspector should never feel pressured to be placed in an unsafe condition in order to complete an inspection. Just as there is an obligation to the public to provide a safe construction site, there is an obligation to ensure our staff is not placed in an inappropriate unsafe environment. This proposal would provide a code section for the inspection staff and building code official to reference when it is unsafe to conduct an inspection.

Cost Impact: Will increase the cost of construction
May increase the cost of construction in some limited circumstances where a inspection request is rejected due to an unsafe environment.

G 231-15 : 3314 (New)-APFELBECK4105

G 232-15

3314 (New), 3314.1 (New)

Proponent: Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

2015 International Building Code

Add new text as follows:

SECTION 3314 FIRE WATCH

3314.1 Fire watch. Where required by the building official or fire code official, fire watch shall be provided during non-working hours for building construction that is combustible construction exceeding 40 feet in height above the lowest adjacent grade. Qualified personnel shall be provided to serve as an on-site fire watch and shall be provided with not less than one approved means for notification of the fire department. The sole duty of personnel providing fire watch shall be to perform constant patrols and watch for the occurrence of fire.

Reason: Add Section 3314 to require fire watch for construction sites with unprotected combustible construction exceeding 40 ft in height. This code change is necessary to protect adjacent properties in the event of fire when a construction site includes no construction activity. Recent fires have demonstrated the need for early notification that can only be provided by fire watch personnel since fire alarm and detection devices are normally not installed a working during framing operations. Early notification will limit the size of the fire and it's impacts on surrounding buildings. Recent fires have demonstrated the tremendous heat release from unprotected combustible framing that impacted buildings more than 80 ft away from the construction site involved. While Section 3304 of the International Fire Code addresses precautions against fire it is mainly focused on construction activities causing a fire. The proposed code change addresses fire safety not caused by construction activities. Table 504.3 permits most Type VB construction with no sprinkler protection to be 40 ft above grade plane. Height above lowest adjacent grade has been selected to facilitate identification by inspection personnel without the need for a survey of the construction site.

Cost Impact: Will increase the cost of construction
This code change is necessary due to public safety concerns for adjoining properties.

G 232-15 : 3314 (New)-FATTAH5008

G 233-15

I103.1

Proponent: Mike Fischer, Kellen Company, representing the Plastic Glazing Coalition of the American Chemistry Council (mfischer@kellencompany.com)

2015 International Building Code

Revise as follows:

I103.1 Enclosure walls. Enclosure walls shall be permitted to be of any configuration, provided the open or glazed area of the longer wall and one additional wall is equal to at least 65 percent of the area below a minimum of 6 feet 8 inches (2032 mm) of each wall, measured from the floor. Openings shall be permitted to be enclosed with insect screening, ~~approved~~ translucent or transparent plastic ~~not more than 0.125 inch (3.2 mm) in thickness~~conforming to the provisions of Sections 2606 through 2611, glass conforming to the provisions of Chapter 24, or any combination of the foregoing.

Reason: The Patio Cover Appendix contains language dating back to the UBC, and an arbitrary thickness limitation on the plastic panels. The history of this limit is related to the use of removable panels; that restriction is no longer applicable or appropriate. Furthermore, the chapter does not provide a clear path to ensuring the requirements in Chapter 26 apply. The proposal removes the maximum thickness and adds in a pointer to the appropriate requirements in Chapter 26.

Cost Impact: Will not increase the cost of construction
The proposal allows more product options and clarifies existing requirements; it does not add in any new restrictions.

G 233-15 : I103.1-FISCHER3639

G 234-15

APPENDIX N (New)

Proponent: Barry Greive, representing Target Corporation (barry.greive@target.com)

2015 International Building Code

Add new text as follows:

APPENDIX N
GUIDELINES FOR REPLICABLE BUILDINGS

SECTION N101
ADMINISTRATION.

N101.1 **Purpose** The purpose of this appendix is to provide a format and direction regarding the implementation of a replicable building program.

N101.2 **Objectives.** Replicable building programs allow a jurisdiction to recover from a natural disaster faster and allow for consistent application of the codes for replicable building projects. Replicable building programs result in faster turnaround for the end user, and a quicker turnaround through the plan review process.

SECTION N102
DEFINITIONS

N102.1 **General.** The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of this code for general defintions.

REPLICABLE BUILDINGS. New and existing structures whose construction plans have been reviewed and deemed code compliant by a designated expert and accepted by the governing authority as substantially code compliant. Plans and associated documents are reviewed by the local authority for compliance with local amendments and conditions only.

SECTION N103
ESTABISHMENT OF REPLICABLE BUILDING GUIDELINE PROGRAM

N103.1 **Referenced guidelines.** The replicable building program shall be implemented in accordance with the ICC G1.

SECTION N104
REFERENCED STANDARDS

GUIDELINES FOR REPLICABLE BUILDINGS

N104.1–ICC G1-2010 Guidelines for Replicable Buildings....103.1.

Add new standard(s) as follows: ICC G1-2010 Guidelines for Replicable Buildings

Reason: In August 2010 the International Code Council published a document titled the "IGG G1-2010 Guideline for Replicable Buildings". The intent of this guideline is to give jurisdictions a tool that they could adopt to help streamline their document review process to ensure code compliance. This code change proposal adds the "Guidelines" into an Appendix chapter so jurisdictions have an legal way of incorporating this concept into their building code adoption process. The intent is to streamline the plan review process at the local level by removing redundant reviews by allowing the plan reviewer to focus on any state and local amendments to the International Family of Codes.

Bibliography: ICC G1-2010 Guideline For Replicable Buildings, ICC, August 2010, p. 8

Cost Impact: Will not increase the cost of construction
This would be an increase in costs because the owner will need to have a third party plan review completed, but in jurisdictions that are using this concept the savings to an owner offset those expenses resulting in a savings.

Analysis: A review of the standard proposed for inclusion in the code, ICC G1-2010, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

G 234-15 : Appendix N (New)-
GREIVE4954

G 235-15

APPENDIX N(New)

Proponent: Barry Greive, Target Corporation, representing Target Corporation (barry.greive@target.com)

2015 International Building Code

Add new text as follows:

APPEENDIX N
GUIDELINES FOR REPLICABLE BUILDINGS

SECTION N101
ADMINISTRATION

N101.1 Purpose. The purpose of this appendix is to provide a format and direction regarding the implementation of a Replicable Building Program.

N101.2 Objectives. Such programs allow a jurisdiction to recover from a natural disaster faster, allow for consistent application of the codes for replicable building projects. It will result in faster turnaround for the end user, and a quicker turnaround through the plan review process.

SECTION N102
DEFINITIONS

N102.1 Definitions. The following words and terms shall, for the purposes of this appendix, have the meanings shown herein.

REPLICABLE BUILDING. A building or structure utilizing a replicable design.

REPLICABLE DESIGN. A prototypical design developed for application in multiple locations with minimal variation or modification.

SECTION N103
REPLICABLE DESIGN REQUIREMENTS

N103.1 Prototypical construction documents. A replicable design shall establish prototypical construction documents for application at multiple locations. The construction documents shall include details appropriate to each wind region, seismic design category, and climate zone for locations in which the replicable design is intended for application. Application of replicable design shall not vary with regard to the following, except for allowable variations in accordance with Section N106.

1. Use and occupancy classification.
2. Building heights and area limitations.
3. Type of construction classification.
4. Fire resistance ratings.
5. Interior finishes.
6. Fire protection system.
7. Means of egress.
8. Accessibility.
9. Structural design criteria.
10. Energy efficiency.
11. Type of mechanical and electrical systems.
12. Type of plumbing system and number of fixtures.

SECTION N104
REPLICABLE DESIGN SUBMITTAL REQUIREMENTS

N104.1 General. A summary description of the replicable design and related construction documents shall be submitted to an approved agency. Where approval is requested for elements of the replicable design not within the scope of the *International Building Code*, the construction documents shall specifically designate the codes for which review is sought. Construction documents shall be signed, sealed and dated by a registered design professional.

N104.1.1 Architectural plans and specifications. Where approval of the architectural requirements of the replicable design is sought, the submittal documents shall include architectural plans and specifications as follows:

1. Description of uses and the proposed occupancy groups for all portions of the building.
2. Proposed type of construction of the building.
3. Fully dimensioned drawings to determine building areas and height.
4. Adequate details and dimensions to evaluate means of egress, including occupant loads for each floor, exit arrangement and sizes, corridors, doors, and stairs.
5. Exit signs and means of egress lighting, including power supply.
6. Accessibility scoping provisions.
7. Description and details of proposed special occupancies such as a covered mall, high-rise, mezzanine, atrium, and public garage.
8. Adequate details to evaluate fire resistive construction requirements, including data substantiating required ratings.
9. Details for plastics, insulation and safety glazing installation.
10. Details of required fire protection systems.
11. Material specifications demonstrating fire resistance criteria.

N104.1.2 Structural plans, specifications, and engineering details. Where approval of the structural requirements of the replicable design is sought, the submittal documents shall include details for each wind region, seismic design category and climate zone for which approval is sought; and shall include the following:

1. Signed and sealed structural design calculations which support the member sizes on the drawings.
2. Design load criteria, including; frost depth, live loads; snow loads; wind loads; earthquake design date; and other special loads
3. Details of foundations and superstructure.
4. Provisions for special inspections.

N104.1.3 Energy conservation details. Where approval of the energy conservation requirements of the replicable design is sought, the submittal documents shall include details for each climate zone for which approval is sought; and shall include the following:

1. Climate zones for which approval is sought.
2. Building envelope details.
3. Building mechanical system details.
4. Details of electrical power and lighting systems.
5. Provisions for system commissioning.

SECTION N105
REVIEW AND APPROVAL OF REPLICABLE DESIGN.

N105.1 General. Proposed replicable designs shall be reviewed by an approved agency. The review shall be applicable only to the replicable design features submitted in accordance with Section N104. The review shall determine compliance with this code and additional codes specified in Section N104.1.

N105.2 Documentation. The results of the review shall be documented indicating compliance with the code requirements.

N105.3 Deficiencies. Where the review of the submitted construction documents identifies elements where the design is deficient and will not comply with the applicable code requirements, the approved agency shall notify the proponent of the replicable design, in writing, of the specific areas of non-compliance and request correction.

N105.4 Approval. Where the review of the submitted construction documents determines that the design is in compliance with the codes designated in Section N104.4, and where deficiencies identified in Section N105.3 have been corrected the approved agency shall issue a summary report of Approved Replicable Design. The summary report shall include any limitations on the approved replicable design including, but not limited to climate zones, wind regions and seismic design categories.

SECTION N106
SITE SPECIFIC APPLICATION OF APPROVED REPLICABLE DESIGN

N106.1 General. Where site specific application of a replicable design that has been approved under the provisions of Section N105 is sought, the construction documents submitted to the building official shall comply with this section.

N106.2 Submittal documents. A summary description of the replicable design and related construction document shall be submitted. Construction documents shall be signed, sealed, and dated by the registered design professional. A statement, signed sealed and dated by the registered design professional, that the replicable design submitted for local review is the same as the replicable design reviewed by the approved agency shall be submitted.

N106.2.1 Architectural plans and specifications. Architectural plans and specifications shall include the following:

1. Construction documents for variations from the replicable design.
2. Construction for portions that are not part of the replicable design.
3. Documents for local requirements as identified by the building official.
4. Construction documents detailing the foundation system.

SECTION N107
SITE SPECIFIC REVIEW AND APPROVAL OF REPLICABLE DESIGN

N107.1 General. Proposed site specific application of replicable design shall be submitted to the building official in accordance with the provisions of Chapter 1 and Appendix N.

N107.2 Site specific review and approval of replicable design. The building official shall verify that the replicable design submitted for site specific application is the same as the approved replicable design reviewed by the approved agency. In addition, the building official shall review the following for code compliance.

1. Construction documents for variations from the replicable design.
2. Construction for portions of the building that are not part of the replicable design.
3. Documents for local requirements as identified by the building official.

Reason: In August 2010 the International Code Council published a document titled the "IGG G1-2010 Guideline for Replicable Buildings". The intent of this guideline is to give jurisdictions a tool that they could adopt to help streamline their document review process to ensure code compliance. This code change proposal adds the "Guidelines" into an Appendix chapter so jurisdictions have an legal way of incorporating this concept into their building code adoption process. The intent is to streamline the plan review process at the local level by removing redundant reviews by allowing the plan reviewer to focus on any state and local amendments to the International Family of Codes.
There are currently many areas that have some form of expedited review process for replicable buildings. The basic approach is captured in the ICC G1-2010 Guidelines for Replicable Buildings.

Bibliography: ICC G-1-2010 Guidelines for Replicable Buildings

Cost Impact: Will not increase the cost of construction
This would be an increase in costs because the owner will need to have a third party plan review completed, but in jurisdictions that are using this concept the savings to an owner offset those expenses resulting in a savings.

G 235-15 : Appendix N (New)-
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N101 (New), N102 (New), N103 (New), N104 (New), N105 (New), N106 (New), N107 (New), N108 (New), N109 (New), N110 (New), N111 (New)

Proponent: William Hall (jhall@cement.org)

2015 International Building Code

Add new text as follows:

APPENDIX N
ENHANCED BUILDING RESILIENCE

SECTION N101
GENERAL

N101.1 Purpose. The purpose of this appendix is to promote enhanced public health, safety and general welfare and to reduce public and private property losses due to hazards and natural disasters associated with fires, flooding, high winds and earthquakes.

SECTION N102
BUILDING HEIGHTS AND AREA

N102.1 General. In order to limit the impact of fires on the building the building shall comply with Sections N102.1 through N102.3 and the requirements for Chapter 5.

N102.2 Building height, number of stories and allowable area. Building height, numbers of stories and allowable area shall be determined in accordance with N102.2.1 through N102.2.4.

N102.2.1 Height in feet. The maximum height, in feet, of a building shall not exceed the limits specified in Table N102 (1). Table N102 (1) shall be used in lieu of Table 504.3.

N102.2.1.1 Towers, spires, steeples and other roof structures. Towers, spires, steeples and other roof structures shall be permitted to meet the requirements in Section 504.3, Height in feet.

N102.2.2 Number of stories. The maximum number of stories of a building shall not exceed the limits specified in Table N102 (2). Table N102 (2) shall be used in lieu of Table 504.4.

N102.2.3 Allowable area factor, A_t. The allowable area factor, A_t, to be used in determining the allowable area of a building in accordance with Section 506.2.1, 506.2.3 or 506.2.4 shall be as specified in Table N102 (3). For application of Equations 5-1, 5-2 and 5-3 , the value of NS shall be equal to the allowable area factor, At, from Table N102 (3). Table N102 (3) shall be used in lieu of Table 506.2.

TABLE N102 (1)[a, b]
ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE

OCCUPANCY CLASSIFICATION	TYPE OF CONSTRUCTION					
	Type I		Type II	Type III	Type IV	Type V
	A	B	A	A	HT	A
A, B, E, F, M, S, U	UL	160	65	65	65	50
H-1, H2, H-3, H-5	UL	160	65	65	65	50
H-4	UL	160	65	65	65	50
I-1, Condition 1, I-3	UL	160	65	65	65	50
I-1, Condition 2, I-2	UL	160	65	65	65	50
I-4	UL	160	65	65	65	50
R	UL	160	65	65	65	50

For SI: 1 foot = 304.8 mm.
Note: UL = Unlimited
a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
b. See Sections 903.2 and N106.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.

TABLE N102 (2)[a, b]
ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE

OCCUPANCY CLASSIFICATION	TYPE OF CONSTRUCTION					
	Type I		Type II	Type III	Type IV	Type V
	A	B	A	A	HT	A
A-1	UL	5	3	3	3	2
A-2	UL	11	3	3	3	2
A-3	UL	11	3	3	3	2
A-4	UL	11	3	3	3	2
A-5	UL	UL	UL	UL	UL	UL

B	UL	11	5	5	5	3
E	UL	5	3	3	3	1
F-1	UL	11	4	3	4	2
F-2	UL	11	5	4	5	3
H-1	1	1	1	1	1	1
H-2	UL	3	2	2	2	1
H-3	UL	6	4	4	4	2
H-4	UL	7	5	5	5	3
H-5	4	3	3	3	3	3
I-1 Condition 1	UL	9	4	4	4	3
I-1 Condition 2	UL	9	4	4	4	3
I-2	UL	4	2	1	1	1
I-3	UL	4	2	2	2	2
I-4	UL	5	3	3	3	1
M	UL	11	4	4	4	3
R-1	UL	11	4	4	4	3
R-2	UL	11	4	4	4	3
R-3	UL	11	4	4	4	3
R-4	UL	11	4	4	4	3
S-1	UL	11	4	3	4	3
S-2	UL	11	5	4	5	4
U	UL	5	4	3	4	2

For SI: 1 foot = 304.8 mm.
Note: UL = Unlimited
a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
b. See Sections 903.2 and N106.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.

TABLE N102 (3)[a, b]
ALLOWABLE AREA FACTOR (A_t) IN SQUARE FEET

OCCUPANCY CLASSIFICATION	TYPE OF CONSTRUCTION					
	Type I		Type II	Type III	Type IV	Type V
	A	B	A	A	HT	A
A-1	UL	Ul	15,500	14,000	15,000	11,500
A-2	UL	UL	15,500	14,000	15,000	11,5000
A-3	UL	UL	15,500	14,000	15,000	11,5000
A-4	UL	UL	15,500	14,000	15,000	11,5000
A-5	UL	UL	UL	UL	UL	UL
B	UL	UL	37,500	28,500	36,000	18,000
E	UL	UL	26,500	23,500	25,500	18,500
F-1	UL	UL	25,000	19,000	33,500	14,000
F-2	UL	UL	37,500	28,500	50,500	21,000
H-1	21,000	16,500	11,000	9,500	10,500	7,500
H-2[d]	21,000	16,500	11,000	9,500	10,500	7,500
H-3[d]	UL	60,000	26,500	17,500	25,500	10,000
H-4	UL	UL	37,500	28,500	36,000	18,000
H-5	UL	UL	37,500	28,500	36,000	18,000
I-1	UL	55,000	19,000	16,500	18,000	10,500
I-2	UL	UL	15,000	12,000	12,000	9,500
I-3	UL	UL	15,000	10,500	12,000	7,500
I-4	UL	60,500	26,500	23,500	25,500	18,500
M	UL	UL	21,500	18,500	20,500	14,000

R-1	UL	UL	24,000	24,000	20,500	12,000
R-2	UL	UL	24,000	24,000	20,500	12,000
R-3	UL	UL	UL	UL	UL	UL
R-4	UL	UL	24,000	24,000	20,500	12,000
S-1	UL	48,000	26,000	26,000	25,500	14,000
S-2[b, c]	UL	79,000	39,000	39,000	38,500	21,000
U[c]	UL	35,500	19,000	14,000	18,000	9,000

Note: UL = Unlimited
For SI: 1 square foot = 0.0929 m2
a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
b. See Sections 903.2 and N106.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.

N102.3 Mixed occupancy and incidental use separations. All buildings containing mixed occupancies and incidental uses shall be provided with fire rated separations in accordance with Sections N102.3.1 and N102.3.2.

N102.3.1 Mixed occupancy separations. All occupancies except incidental uses in Table N102 (5) shall be separated from each other by fire barriers in accordance with Table N102 (4). Table N102 (4) shall be used in lieu of Table 508.4.

TABLE N102 (4)
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)[d]

Occupancy	**A,E**	**B**	**I**	**R[a]**	**F-2, S-2[b], U**	**F-1, S-1, M**	**H-1**	**H-2**	**H-3, H-4, H-5**
A, E,	2	2	2	2	1	2	NP	4	3
B	—	N	2	2	1	2	NP	3	2
I	—	—	2	2	2	2	NP	NP	NP
R[a]	—	—	—	2	2[c]	2	NP	NP	NP
F-2, S-2[b], U	—	—	—	—	1	2	NP	4	3
F-1, S-1, M	—	—	—	—	—	2	NP	3	2
H-1	—	—	—	—	—	—	N	NP	NP
H-2	—	—	—	—	—	—	—	N	1
H-3, H-4, H-5	—	—	—	—	—	—	—	—	1

N = No fire rated separation requirement.
NP = Not permitted.
a See Section 420.
b. The required separation from areas used only for private or pleasure vehicles shall be reduced by 1 hour but to not less than 1 hour.
c. See Section 406.3.4.
d. Except as required in Section N104.7.1, N104.7.2, N104.9.1 and N104.9.2, separation is not required between occupancies of the same classification.

N102.3.2 Separation of incidental uses. Incidental accessory occupancies shall be separated from the remainder of the building by fire barriers with a fire resistance rating in accordance with Table N102 (5). Table N102 (5) shall be used in lieu of Table 509.

TABLE N102 (5)
INCIDENTAL USES

ROOM OR AREA	**SEPARATION AND/OR PROTECTION**
Furnace room where any piece of equipment is over 400,000 Btu per hour input	1 hour
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower	1 hour
Refrigerant machinery rooms	1 hour
Hydrogen cut-off rooms, not classified as Group H	1-hour in Group B, F, M, S and U occupancies. 2-hours in Group A, E, I and R occupancies.
Incinerator rooms	2 hour and provide *automatic sprinkler system*
Paint shops, not classified as Group H, located in occupancies other than Group F	2 hours and provide automatic fire-extinguishing system
In Group E occupancies, laboratories and vocational shops not classified as Group H	1 hour
In Group I-2 occupancies, laboratories not classified as Group H	1 hour and provide *automatic sprinkler system*

In ambulatory care facilities, laboratories not classified as Group H	1 hour or provide *automatic sprinkler system*
In Group I-2 laundry rooms over 100 square feet	1 hour
Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces	1 hour
In Group I-2, physical plant maintenance shops	1 hour
In ambulatory care facilities or Group I-2 occupancies waste and linen collection rooms with containers that have an aggregate volume of 10 cubic feet or greater	1 hour
In other than ambulatory care facilities and Group I- 2 occupancies, waste and linen collection rooms over 100 square feet	1 hour
In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet	1 hour
Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons for flooded lead-acid, nickel cadmium or VRLA , or more than 1000 pounds for lithium-ion and lithium metal polymer used for facility standby power, emergency power or uninterrupted power supplies	1-hour in Group B, F, M, S and U occupancies. 2-hours in Group A, E, I and R occupancies.

SECTION N103
TYPES OF CONSTRUCTION

N103.1 General. In order to limit the impact of fires on the building the building shall comply with Section N103.2 and the requirements in Chapter 6.
N103.2 Fire-resistance rating. Building elements shall have a fire resistance rating not less than that specified in Table N103 (1) and exterior walls shall have a fire resistance rating not less than that specified in Table 602 . Table N103 (1) shall be used in lieu of Table 601.

TABLE N103 (1)
FIRE-RESISTANCE RATING REQUIREMENT FOR BUILDING ELEMENTS (HOURS)[a]

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A	B	A	B	HT	A	B
Primary Structural Frame[g,h]	3[b]	2[b]	1	NP	1	NP	HT	1	NP
Bearing Walls	-	-	-	-	-	-	-	-	-
Exterior[f,g]	3	2	1	NP	2	NP	2	1	NP
Interior	3[b]	2[b]	1	NP	1	NP	1/HT	1	NP
Tenant Separation	-								
Residential spaces	See Section N104.7.1 and N104.9.1								
Non-residential spaces	See Section N104.7.2 and N104.9.2								
Mall tenant spaces	See Section 402.4.2.1								
Non-bearing Walls and Partitions	-	-	-	-	-	-		-	-
Interior[e]	0	0	0	NP	0	NP	See Section 602.4.6	0	NP
Floor Construction and Secondary Members[h]	2	2	1	NP	1	NP	HT	1	NP
Roof Construction and Secondary Members[h]	1½[b]	1[c,d]	1[c,d]	NP	1[c,d]	NP	HT	1[c,d]	NP

For SI: 1 foot = 304.8 mm.
NP = Not Permitted.
[a] The requirements in this table take precedence over Table 601, *Fire resistance rating for building elements*.
[b] Roof supports: Fire-resistance rating of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.
[c] Fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire retardant wood members shall be allowed to be used for such unprotected members.
[d] In all occupancies, heavy timber shall be allowed where 1-hour or less fire-resistance rating is required.
[e] Not less than the fire-resistance rating required by other Sections.
[f] Not less than the fire-resistance rating based on fire separation distance (see Table 602).
[g] Not less than the fire-resistance rating as referenced in Section 704.10.
[h] See Section 202 , *Definitions*.

SECTION N104
FIRE PROTECTION FEATURES

N104.1 General. In order to limit the impact of fires on the building the building shall comply with Sections N104.1 through N104.12 and the requirements for Chapter 7.
N104.2 Buildings on the same lot. Exception 2 for the reduced fire resistance rated opening protective for R-2 buildings in Section 705.3, Buildings on the same lot shall not be permitted.

N104.3 Allowable area of openings. The maximum area of unprotected and protected openings permitted in an exterior wall in any story of the building shall not exceed the percentages specified in Table N104 (1). Table N104 (1) shall be used in lieu of Table 705.8.

N104.4 Protected openings. The exception for opening protectives in Section 705.8.2, Protected openings shall not be permitted.

N104.5 Vertical separation of openings. Exception 2 that eliminates vertical separation of openings where automatic sprinklers are present in Section 705.8.5, Vertical separation of openings shall not be permitted.

N104.6 Parapets. Exceptions 4 and 5 in Section 705.11, Parapet construction that eliminates exterior wall parapets shall not be permitted for Group R-2 occupancies.

N104.7 Fire walls. Fire walls shall meet the requirements of this section.

N104.7.1 Materials. Fire walls for all types of construction shall be of any approved noncombustible material permitted in NFPA 221.

N104.7.2 Fire-resistance rating. The fire-resistance ratings shall meet or exceed the ratings provided in Table N104 (2). Table N104 (2) shall be used in lieu of Table 706.4.

N104.7.3 Exceptions 2 and 4 in Section 706.6, Vertical continuity that allows termination of fire walls at the underside of roof sheathing or decks shall not be permitted.

N104.7.4 Exception 2 in Section 706.8, Openings that allows increased area of openings through fire walls where *automatic sprinkler systems* are present shall not be permitted.

N104.8 Fire barriers. Fire barriers shall comply with the provisions of this section.

N104.8.1 Separation of *dwelling units* and *sleeping units*. The separation between individual *dwelling units* and *sleeping units*, and between *dwelling units* and *sleeping units* and other spaces in the building shall be *fire barrier* assemblies or *horizontal assemblies* with a minimum *fire-resistance rating* of 2-hour.

N104.8.2 Separation of tenant spaces. Individual tenant spaces in a building shall be separated by *fire barrier assemblies* or *horizontal assemblies*, or both, with a minimum *fire-resistance rating* of 1-hour and the requirements of Section 508 Mixed Use and Occupancy.

N104.8.3 Exception 1 in Section 707.6, Openings that allows openings in a fire barrier to be larger than 156 square feet where *automatic sprinkler systems* are provided shall not be permitted.

N104.9 Fire partitions. Fire partitions shall comply with the provisions of this section.

N104.9.1 Fire partitions in Section 708.1 shall not be permitted for walls separating dwelling units in the same building.

N104.9.2 Fire partitions in Section 708.1 shall not be permitted for walls separating sleeping units in the same building.

N104.9.3 Fire partitions in Section 708.3, Fire-resistance rating shall not be permitted for corridor walls separating corridors from dwelling units or sleeping units in the same building.

N104.9.4 Exceptions 1 and 2 in Section 708.3, Fire-resistance rating that allows a reduction in the fire resistance rating of corridors and separations between dwelling units and sleeping units shall not be permitted.

N104.9.5 Exception 6 in Section 708.4, that allows elimination of fireblocking or draftstopping shall not be permitted.

N104.10 Horizontal assemblies. Horizontal assemblies shall comply with the requirements of this Section.

N104.10.1 Separation of *dwelling units* and *sleeping units*. The separation between individual *dwelling units* and *sleeping units*, and between *dwelling units* and *sleeping units* and other spaces in the building shall be *fire barrier* assemblies or *horizontal assemblies* with a minimum *fire-resistance rating* of 2-hour.

N104.10.2 Separation of tenant spaces. Individual tenant spaces in a building shall be separated by *fire barrier* assemblies or *horizontal assemblies*, or both, with a minimum *fire-resistance rating* of 1-hour and the requirements of Section 508, Mixed Use and Occupancy.

N104.10.3 The exception in Section 711.2.4.3 that allows a reduction of the fire-resistance rating of separations between dwelling unit and sleeping unit where *automatic sprinkler systems* are present shall not be permitted.

N104.11 Enclosed elevator lobby. Sprinkler protection or smoke partitions shall not be permitted to substitute for fire partitions in accordance with Section 708 for elevator lobby enclosures in Section 3007 Elevator lobbies where fire partitions are required.

N104.12 Opening protectives. The provisions of this section shall apply to opening protectives.

N104.12.1 The Exception in Section 716.5.5 that eliminate the maximum transmitted temperature requirements shall not be permitted.

N104.13 Concealed spaces. The provisions of this section shall apply to concealed spaces.

N104.13.1 Groups R-1, R-2, R-3 and R-4. Exceptions 1 and 2 in Section 718.3.2 that eliminate draftstopping where automatic sprinkler systems are present shall not be permitted for Groups R-1, R-2 or R-4 occupancies.

N104.13.2 Other groups. The exception in Section 718.3.3 that eliminates draftstopping where automatic sprinkler systems are present shall not be permitted.

TABLE N104 (1)

MAXIMUM AREA OF EXTERIOR WALL OPENING BASED ON FIRE SEPARATION DISTANCE AND DEGREE OF OPENING PROTECTION[a]

Fire Separation Distance (feet)	Degree of Opening Protection	Allowable Areas[b]
0 to less than 3[c,d]	Unprotected (UP)	Not Permitted
	Protected (P)	Not Permitted
	-	
3 to less than 5[e]	Unprotected (UP	Not Permitted
	Protected (P)	15%
	-	
5 to less than 10[g]	Unprotected (UP	10%
	Protected (P)	25%
	-	
10 to less than 15[f,g]	Unprotected (UP)	15%
Protected (P)	45%	
	-	
15 to less than 20[f,g]	Unprotected (UP)	25%

	Protected (P)	75%
-		
20 to less than 25[f,g]	Unprotected (UP)	45%
	Protected (P)	No Limit
-		
25 to less than 30[f,g]	Unprotected (UP)	70%
	Protected (P)	No Limit
-		
30 or greater	Unprotected (UP)	No Limit
	Protected (P)	Not Required

For SI: 1 foot = 304.8 mm
UP = Unprotected openings in buildings
P = Openings protected with an opening protective assembly in accordance with Section 705.8.2
[a] The requirements in this table take precedence over Table 705.8.
[b] Values indicated are the percentage of the area of the exterior wall per story.
[c] For the requirements for fire walls of buildings with differing heights see Section 706.6.1.
[d] For openings in a fire wall for buildings on the same lot, see Section 705.8.
[e] The maximum percentage of unprotected and protected openings shall be 25 percent for Group R-3 occupancies.
[f] The area of unprotected and protected openings shall not be limited for Group R-3 occupancies with a fire separation distance of 5 feet or greater.
[g] Includes buildings accessory to Group R-3.

TABLE N104 (2)
FIRE WALL FIRE-RESISTANCE RATINGS

GROUP	FIRE-RESISTANCE RATING (hours)
A, B, E, H-4, I, R-1, R-2, U	3
F-1, H-3[a], H-5, M, S-1	3
H-1, H-2	4[a]
F-2, S-2, R-3, R-4	2

a. For Group H-1, H-2 or H-3 buildings, also see Sections 415.4 and 415.5.

SECTION N105
INTERIOR FINISHES

N105. 1 General. In order to limit the impact of fires on the *building* the *building* shall comply with Sections N105.1 through N105.3 and the requirements for Chapter 8.
N105.2 Interior wall and ceiling finishes. Interior wall and ceiling finishes and conform to the requirements of this section.

N105.2.1 Finish by occupancy. Interior wall and ceiling finishes based on occupancy shall conform to the requirements in Table N105 (1). Table N105 (1) shall be used in lieu of Table 803.9.

TABLE N105 (1)
INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY

GROUP	Interior exit stairways and ramps and exit passageways[a]	Corridors and enclosure for exit access stairways and ramps	Rooms and enclosed spaces[b]
A-1, A-2	A	A	B
A-3, A-4, A-5	A	A	C
B, E, M, R-1, R-4	A	B	C
F	B	C	C
H	A	A	B
I-1	A	B	B
R-2	B	B	C
R-3	A	C	C
S	B	B	C
U	No Restrictions		

For SI: 1 inch = 25.4 mm, 1 square inch = 0.0929m^2
[a] Class C interior finish materials shall be permitted for wainscoting or paneling of not more than 1,000 square feet of applied surface area in the grade lobby where applied directly to a noncombustible base or over furring strips applied to a noncombustible base and fire blocked as required by Section 803.11.1 .
[b] Requirements for rooms and enclosed spaces shall be based upon spaces enclosed by partitions. Where a fire-resistance rating is required for

structural elements, the enclosing partitions shall extend from the floor to the ceiling. Partitions that do not comply with this shall be considered enclosing spaces and rooms or spaces on both sides shall be considered as one. In determining the applicable requirements for rooms and enclosed spaces, the specific occupancy thereof shall be the governing factor regardless of the group classification of the building or structure.

N105.2.2 Set-out construction. Exception 1 in Section 803.11.2 shall not be permitted.

N105.3 Interior floor finishes. The Exception in Section 804.4.2 which eliminates the requirement for minimum critical radiant flux for floor finishes and floor coverings in exit enclosures, exit passageways, and corridors where *automatic sprinkler systems* are provided shall not be permitted.

SECTION N106
FIRE PROTECTION SYSTEMS

N106.1 General. In order to limit the impact of fires on the *building* the *building* shall comply with Sections N106.2 through N106.5 and the requirements for Chapter 9.

N106.2 Automatic sprinkler protection. An *approved automatic sprinkler system* shall be provided throughout all new buildings in accordance with Section 903.2 and Sections N106.2.1 through N106.2.7.

N106.2.1 Group A. An *automatic sprinkler system* shall be provided throughout buildings and portions thereof used as Group A occupancies as provided in this section.

N106.2.1.1 Group A-1. An a*utomatic sprinkler system* shall be provided for Group A-1 occupancies where one of the following conditions exists:

1. The *fire area* exceeds 6,000 square feet (557.5 m^2);
2. The *fire area* has an *occupant load* of 150 or more;
3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies; or
4. The *fire area* contains a multitheater complex.

N106.2.1.2 Group A-2. An *automatic sprinkler system* shall be provided for Group A-2 occupancies where one of the following conditions exists:

1. The *fire area* exceeds 2,500 square feet (232.2 m^2);
2. The *fire area* has an *occupant load* of 50 or more; or
3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies.

N106.2.1.3 Group A-3. An *automatic sprinkler system* shall be provided for Group A-3 occupancies where one of the following conditions exists:

1. The *fire area* exceeds 6,000 square feet (557.5 m^2);
2. The *fire area* has an *occupant load* of 150 or more; or
3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies.

N106.2.1.4 Group A-4. An *automatic sprinkler system* shall be provided for Group A-4 occupancies where one of the following conditions exists:

1. The *fire area* exceeds 6,000 square feet (557.5 m^2);
2. The *fire area* has an *occupant load* of 150 or more; or
3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies.

N106.2.2 Group E. An *automatic sprinkler system* shall be provided for Group E occupancies as provided in this section:

1. Throughout all Group E *fire areas* greater than 6,000 square feet (557.5 m^2) in area.
2. Throughout every portion of educational buildings below the lowest *level of exit discharge* serving that portion of the building.

Exception: An *automatic sprinkler system* is not required in any area below the lowest *level of exit discharge* serving that area where every classroom throughout the building has at least one exterior *exit* door at ground level.

N106.2.3 Group F-1. An *automatic sprinkler system* shall be provided throughout all buildings containing a Group F-1 occupancy where one of the following conditions exists:

1. A Group F-1 *fire area* exceeds 6,000 square feet (557.5 m^2);
2. A Group F-1 *fire area* is located more than three stories above *grade plane.*
3. The combined area of all Group F-1 *fire areas* on all floors, including any mezzanines, exceeds 12,000 square feet (1105 m^2).
4. A Group F-1 occupancy used for the manufacture of upholstered furniture or mattresses exceeds 2,500 square feet (232 m^2).

N106.2.3.1 Woodworking operations. An *automatic sprinkler system* shall be provided throughout all Group F-1 occupancy *fire areas* that contain woodworking operations in excess of 2,500 square feet (232 m^2) in area which generate finely divided combustible waste or use finely divided combustible materials.

N106.2.4 Group M. An *automatic sprinkler system* shall be provided throughout buildings containing a Group M occupancy where one of the following conditions exists:

1. A Group M *fire area* exceeds 6,000 square feet (557.5 m^2);
2. A Group M *fire area* is located more than three stories above *grade plane*.
3. The combined area of all Group M *fire areas* on all floors, including any mezzanines, exceeds 12,000 square feet (1105 m^2).
4. A Group M occupancy used for the display and sale of upholstered furniture or mattresses exceeds 2,500 square feet (232 m^2).

N106.2.5 Group S-1. An *automatic sprinkler system* shall be provided throughout all buildings containing a Group S-1 occupancy where one of the following conditions exists:

1. A Group S-1 *fire area* exceeds 6,000 square feet (557.5 m^2);
2. A Group S-1 *fire area* is located more than three stories above *grade plane.*
3. The combined area of all Group S-1 *fire areas* on all floors, including any mezzanines, exceeds 12,000 square feet (1105 m^2).
4. A Group S-1 *fire area* used for the storage of commercial trucks or buses where the *fire area* exceeds 2,500 square feet (232 m^2).

5. A Group S-1 occupancy used for the display and sale of upholstered furniture or mattresses exceeds 2,500 square feet (2326 m^2).

N106.2.5.1 Repair garages. An *automatic sprinkler system* shall be provided throughout all buildings used as repair garages in accordance with Section 406 , as shown:

1. Buildings having two or more stories above grade plane, including basements, with a *fire area* containing a repair garage exceeding 5000 square feet (464 m^2).
2. Buildings no more than one story above *grade plane*, with a *fire area* containing a repair garage exceeding 6,000 square feet (557.5 m^2).
3. Buildings with repair garages servicing vehicles parked in basements.
4. A Group S-1 fire area used for the repair of commercial trucks or buses where the *fire area* exceeds 2,500 square feet (232 m^2).

N106.2.5.2 Bulk storage of tires. Buildings and structures where the area for the storage of tires exceeds 10,000 cubic feet (283 m3) shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

N106.2.6 Group S-2 enclosed parking garages. An *automatic sprinkler system* shall be provided throughout buildings classified as enclosed parking garages in accordance with Section 406.4 as follows:

1. Where the *fire area* of the enclosed parking garage exceeds 6,000 square feet (557.5 m^2); or
2. Where the enclosed parking garage is located beneath other groups.

Exception: Enclosed parking garages located beneath Group R-3 occupancies.

N106.2.6.1 Commercial parking garages. An *automatic sprinkler system* shall be provided throughout buildings used for storage of commercial trucks or buses where the *fire area* exceeds 2,500 square feet (232 m^2).

N106.2.7 Group B. An *automatic sprinkler system* shall be provided throughout buildings containing a Group B occupancy where one of the following conditions exists:

1. A Group B *fire area* exceeds 6,000 square feet (556 m^2).
2. A Group B *fire area* is located more than three stories above *grade plane.*
3. The combined area of all Group B *fire areas* on all floors, including any mezzanines, exceeds 12,000 square feet (1,115 m^2).

N106.3 Automatic Sprinkler Systems. Sprinkler systems shall be designed and installed in accordance with Section 903.3.1.1 NFPA 13 sprinkler systems. Sprinkler systems designed and installed in accordance with Section 903.3.1.2 NFPA 13R sprinkler systems shall not be permitted.

N106.4 Standpipes. Standpipes shall comply with the requirements of this Section.

N106.4.1 The exception to Section 905.4.1, Protection that allows elimination of the fire-resistance rated enclosure for laterals where *automatic sprinkler systems* are provided shall not be permitted.

N106.5 Fire Alarm and Detection Systems. Fire alarms and detection systems shall comply with the provisions of this Section.

N106.5.1 Manual pull station. The number of manual pull stations required in Section 907 Fire alarm and detection systems for fire alarm systems shall not be permitted to be reduced or eliminated where *automatic sprinkler systems* are provided.

SECTION N107
MEANS OF EGRESS

N107. 1 General. In order to limit the impact of fires on the *building* the *building* shall comply with Sections N107.1 through N107.7 and the requirements for Chapter 10.

N107.2. Means of egress capacity factor. The means of egress capacity factor used for calculating the egress capacity for stairways in Section 1005.3.1 shall be 0.3 inch (7.6 mm) per occupant with no reduction for automatic sprinkler protection in the building. The means of egress capacity factor used for calculating the egress capacity for other egress components in Section 1005.3.2 shall be 0.2 inch (5.1 mm) per occupant with no reduction for automatic sprinkler protection in the building.

N107.2. Accessible means of egress. Accessible means of egress shall comply with the requirements of this Section.

N107.2.1 Exception 2 of Section 1009.3, Stairways that reduces in the clear width between handrails shall not be permitted.

N107.2.2 Exception 5 of Section 1009.3, Stairways that eliminates of areas of refuge shall not be permitted.

N107.2.3 Exception 2 of Section 1009.4, Elevators that eliminates requirements for elevator access from areas of refuge or horizontal exit shall not be permitted.

N107.3 Stairways. The exception for Section 1009.7.4 Stairways that reduces in the clear width between handrails shall not be permitted.

N107.4 Exits and exit access. The exit and exit access shall comply with the requirements in Tables N107 (1) and N107 (2). Table N107 (1) shall be used in lieu of Table 1006.3.2 (1). Table N107 (2) shall be used in lieu of Table 1006.3.2 (2).

TABLE N107 (1)
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM NUMBERS OF DWELLING UNITS	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, first, or second story above grade plane	R-2[a, b]	4 dwelling units	125 feet
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.
NP – Not Permitted
NA – Not Applicable
a. Buildings classified as Group R-2 equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 and provided with *emergency escape* and *rescue openings* in accordance with Section 1030.
b. This table is used for R-2 occupancies consisting of *dwelling units*. For R-2 occupancies consisting of *sleeping units*, use Table N107 (2).

TABLE N107 (2)

STORIES WITH ONE EXIT OF ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)
First story above or below grade plane	A, B, E, F , M, U	49	75
	H-2, H-3	3	25
	H-4, H-5, I, R-1, R-2[a, b], R-4	10	75
	S[c]	29	75
Second story above grade plane	B, F, M, S[c]	29	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.
NP – Not Permitted
NA – Not Applicable
a. Buildings classified as Group R-2 equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 and provided with *emergency escape* and *rescue openings* in accordance with Section 1030.
b. This table is used for R-2 occupancies consisting of *sleeping units*. For R-2 occupancies consisting of *dwelling units*, use Table 1006.3.2(1).
c. The length of *exit access* travel distance in a Group S-2 *open parking garage* shall be not more than 100 feet.

N107.5 Exits and exit access doorways. Exits and exit access doorways shall comply with the requirements of this Section.

N107.5.1 Exception 1 in Section 1006.2.1, Egress based on occupant load and common path of egress travel, that reduces the number of means of egress shall not be permitted.

N107.5.2 Exception 2 of Section 1007.1.1, Two exits or exit access doorways, that reduces the separation distance between exit doors and between exit access doors shall not be permitted.

N107.6 Exit access travel distance. Exit access travel distance shall comply with the requirements in Table N107 (2) and this Section. Table N107 (3) shall be used in lieu of Table 1017.2.

TABLE N107 (3)
EXIT ACCESS TRAVEL DISTANCE[a]

OCCUPANCY	DISTANCE (feet)
A, E, F-1, M, R, S-1	200
I-1,I-2	200
B	200
F-2, S-2, U	300
H-1	75
H-2	100
H-3	150
H-4	175
H-5	200
I-3, I-4	150

For SI: 1 foot = 304.8 mm.
a. See the following sections for modifications to *exit access* travel distance requirements:
Section 402.8: For the distance limitation in *malls*.
Section 404.9: For the distance limitation through an *atrium space*.
Section 407.4: For the distance limitation in Group I-2.
Sections 408.6.1 and 408.8.1: For the distance limitations in Group I-3.
Section 411.4: For the distance limitation in special amusement buildings.
Section 412.7: For the distance limitation in aircraft manufacturing facilities.
Section 1006.2.2.2: For the distance limitation in refrigeration machinery rooms.
Section 1006.2.2.3: For the distance limitation in refrigerated rooms and spaces.
Section 1006.3.2: For buildings with one *exit*.
Section 1017.2.2: For increased distance limitation in Groups F-1 and S-1.
Section 1029.7: For increased limitation in assembly seating.
Section 1028.7: For increased limitation for assembly open-air seating.
Section 3103.4: For temporary structures.
Section 3104.9: For pedestrian walkways.

N107.6.1 Distance limitations through atrium spaces shall conform to Section 404.

N107.6.2 Exit access in buildings with one exit shall conform to Section 1006.3.2.

N107.7 Corridors. Corridors shall comply with the requirements of this section.

N107.7.1 The fire-resistance rating of corridor walls shall be at least 1-hour.

N107.7.2 Exception 2 in Section 1020.4, Dead ends that increases the length of dead-end corridors shall not be permitted.

SECTION N108

EXTERIOR WALLS

N108. 1 General. Exterior wall coverings shall comply with Sections N108.2 through N108.4 and the requirements for exterior walls in Chapter 14 and plastics in Chapter 26.

N108.2 Exterior wall covering limitations for reduced damage from fire. Exterior wall coverings shall comply with N108.2.1 and N108.2.2 to reduce damage from fire exposure. Exception. These criteria shall not apply where Sections 1406.2.1 through 1406.2.3 are satisfied.

N108.2.1 Vinyl siding and Exterior insulation and finish systems (EIFS). Vinyl siding and Exterior insulation and finish systems (EIFS) shall only be permitted to be installed on exterior walls of buildings with a minimum fire separation distance of 30 feet.

N108.2.2 Fire Separation 5 Feet or Less. Combustible exterior wall coverings are not permitted on exterior walls having a fire separation distance or 5 feet (1524 mm) or less.

N108.3 Exterior wall covering limitations for reduced damage from hail. Vinyl siding and Exterior insulation and finish systems (EIFS) shall comply with sections N108.3.1 and N108.3.2.

N108.3.1 Hail Exposure regions. Hail exposure regions in Figure N108 (1) shall be as follows:

1. **Moderate** – Three but less than six hail reports per 100 square miles.
2. **Severe** - Six or more hail reports per 100 square miles.

N108.3.2 Exterior wall coverings subject to hail exposure. Wall coverings used in regions where hail exposure is Moderate or Severe, as determined in accordance with Section N108.3.1 and Figure N108 (1), shall be tested, classified, and labeled in accordance with UL 2218 or FM 4473.

N108.4 Exterior wall covering limitations for reduced damage from wind. Vinyl siding and Exterior insulation and finish systems (EIFS) shall only be permitted to be installed on exterior walls of buildings located as follows:

1. Regardless of the Risk Category, in areas where V_{ult} as determined in accordance with Figure 1609A does not exceed 115 miles per hour (45 m/s) and the *building height* is less than or equal to 40 feet (12 192 mm) in Exposure C.
2. Regardless of the Risk Category, in areas where V_{ult} as determined in accordance with Figure 1609A exceeds 115 miles per hour (45 m/s) or the *building height* is equal to 40 feet (12192 mm) or greater in Exposure C, vinyl siding or EIFS shall be permitted on exterior walls when tested in accordance with ASTM D5206 or E330 using wind speed not less than the wind speed applicable for the building location determined in accordance with N110.4.
3. Regardless of the Risk Category, in areas where the wind speed is less than 250 mph (98 m/s) according to Figure 304.2(1) of ICC/NSSA 500 or the *building height* is equal to 40 feet (12192 mm) or greater in Exposure C, vinyl siding or EIFS shall be permitted on exterior walls when tested in accordance with ASTM D5206 or E330 using wind speed not less than the wind speed applicable for the building location determined in accordance with N110.4.

FIGURE N108 (1)
AVERAGE FREQUENCY OF HAIL (1-INCH OR LARGER) REPORTS PER 100 SQUARE MILES

SECTION N109
ROOF ASSEMBLIES

N109.1 General. Roof coverings shall also comply with Sections N109.2 through N109.4 and the requirements for Chapter 15.

N109.2 Non-classified roofs. Non-classified roof coverings in accordance with Section 1505.5 Non-classified roofing shall not be permitted on *buildings.*

N109.3 Roofs in Warm and Dry Climates. Roofs in climate zones 1, 2, 3, 4, 5B (dry), and 6B (dry) of the *International Energy Conservation Code* shall have a Class A roof covering or Class A roof assembly according to ASTM E108 or UL 790. For roof coverings where the profile allows a space between the roof covering and roof decking, the space at the eave ends shall be firestopped to preclude entry of flames or embers.

N109.4 Roof coverings subject to hail exposure. Roof coverings used in regions where hail exposure is Moderate or Severe, as determined in accordance with Section N109.4.1 and Figure N108 (1), shall be tested, classified, and labeled in accordance with UL 2218 or FM 4473.

N109.4.1 Hail Exposure regions in Figure N108 (1) shall be as follows:

1. **Moderate** – Three but less than six hail reports per 100 square miles.
2. **Severe** - Six or more hail reports per 100 square miles.

N109.5 Roof drain protection. All roof drains on low-slope roofs located in severe exposure areas in Figure 1904.2 shall have heating strips (heat trace) installed around them to prevent blockage of the drains by ice or ice dams.

SECTION N110
STRUCTURAL

N110.1 General. In order to limit the impact of loads from snow, ice, wind, floods and earthquakes on the *building* the *building* shall comply with Sections N110.1 through N110.9 and the requirements for Chapters 4 and 16.

N110.2 Importance factors by risk category. The minimum design loads for buildings shall be based on the Importance Factors in Table N110 (1).

TABLE N110 (1)
IMPORTANCE FACTORS BY RISK CATEGORY

Risk Category From Table 1604.5 in the IBC	Snow Importance Factor, I_s	Ice Importance Factor, I_i	Wind Importance Factor, I_w	Seismic Importance Factor, I_e	
				0.2 spectral response	
					> 0.40g
I	0.95	0.95	1.20	1.00	1.20
II	1.20	1.20	1.20	1.00	1.20

III	1.25	1.40	1.15	1.25	1.40
IV	1.30	1.40	1.15	1.50	1.65

N110.3 Snowloads. In order to limit the impact of snow on the *building* the Snow Load Importance Factor, I_S, shall be determined from Table N110 (1).

N110.4 Wind loads. In order to limit the impact of wind on the *building* the Wind Load Importance Factor, I_W, shall be determined from Table N110 (1). Component and cladding loads shall be determined for the design wind speed determined in accordance with Section 1609.1.1 Determination of wind loads and defined assuming terrain Exposure C regardless of the actual local exposure and the Wind Load Importance Factor, I_W, determined from Table N110 (1).

N110.4.1 Special wind region requirements. The following items are required in Wind Zones 3 or 4 determined in accordance with Section 1609.1.2.2;

1. Structural roof sheathing panels shall be rated for maximum deflection between supports of L/160 when subjected to a uniform live load of 100 pounds per square foot.
2. Connections and fasteners of structural roof sheathing panels shall be designed to provide panel resistance uplift with a minimum factor of safety of 2.0 based on a design wind pressure using terrain Exposure C.

N110.5 Flood loads. Buildings designed and constructed in flood hazard areas defined in Section 1612.2 Definitions shall comply with the following.

N110.5.1 Floors above base flood elevation. Floors required by ASCE 24 to be built above base flood elevations shall have the floor and their lowest horizontal supporting member not less than the higher of the following:

(a) Design flood elevation,
(b) Base flood elevation plus 3 feet, or
(c) advisory base flood elevation plus 3 feet, or
(d) 500-year flood, if known

N110.5.2 Flood protective works. Buildings designed and constructed in accordance with ASCE 24 shall not consider levees or floodwalls for providing flood protection during the design flood.

N110.5.3 Protection of mechanical, plumbing and electrical systems. Mechanical, plumbing and electrical systems, including plumbing fixtures and utility connections, shall comply with the following:

1. All components shall be elevated above the design *flood* elevation.

   Exception: Electrical systems, equipment and components, and heating, ventilating, air conditioning, and plumbing appliances, plumbing fixtures, duct systems and other service equipment shall be permitted to be located below the design flood elevation provided that all elements are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy. Electrical wiring systems shall be permitted to be located below the design flood elevation provided they conform to the provisions of NFPA70.

2. Where break away wall systems are required, vertical runs extending below the lowest habitable floor shall be protected by columns or other structural elements that are not part of any break away wall system and shall not be connected to any break away elements.

N110.6 Earthquake loads. In order to limit the impact of seismic events on the *building* the Seismic Load Importance Factor, Ie, shall be determined from Table N110 (1). The building shall also comply with Sections N110.6.1 and N110.6.2.

N110.6.1 Near fault sites. Buildings are not permitted on sites where the ground surface has the known potential to rupture at the structure due to ground motion. Determination shall be based on fault zones (areas subject to severe ground dislocations) that have been established and mapped.

N110.6.2 Seismic Design Categories C, D, E and F. Where the *seismic design category* is determined to be C, D, E or F in accordance with Section 1613.3.5, the building shall be designed by a *registered design professional*.

N110.7 Atmospheric ice loads. In order to limit the impact of atmospheric ice load events on the *building* the ice importance factor, I_i, shall be determined from Table N110 (1).

N110.8 Storm Shelters. *Buildings* and structures shall be provided with storm shelters in accordance with Section 423 and where required by Section N110.8.1 and N110.8.2.

N110.8.1 Other occupancies. Storm shelters shall be provided for buildings of Group A-3 (community halls, schools and libraries), B (civic administration), Group E (day care facilities, accessory to places of religious worship, and occupancies less than 50), I-1, I-2, I-3, M, and R occupants located in:

1. *Hurricane prone regions*
2. Tornado areas where the shelter design wind speed for tornadoes of Figure 304.2(1) of ICC/NSSA 500 is 250 mph or greater.

Exceptions:

1.
   1.1. *Buildings* meeting the requirements for shelter design in ICC/NSSA 500.
   1.2. Where the occupants of the proposed *building* have an *approved* storm shelters within 1/4-mile of travel distance of the proposed building available for use and the storm shelter has adequate size to accommodate the added occupant load of the proposed *building*.
   1.3. Where the code official determines the building size, location or occupant load does not warrant a shelter.

N110.8.2 Combined hurricane and tornado shelters. Where combined hurricane and tornado shelters are provided, the shelter shall comply with the more stringent requirements of ICC/NSSA-500 for both types of shelters.

N110.9 Wildland. In order to limit the impact of wildland fires on the building the building shall comply with Sections N110.9.1 through N110.9.3 N110.9.1 Wildland Fires. The provisions of the *International Wildland-Urban Interface Code* shall apply to the construction, alteration, movement, repair, maintenance and use of any building, structure or premises within the wildland interface areas in this jurisdiction.

N110.9.2 Exterior walls. Exterior wall requirements shall be based on the Fire Hazard Severity specified in Table 502.1 in the *International Wildland-Urban Interface Code.*

N110.9.3 Smoke Detection. An automatic smoke detection system in accordance with Section 907 shall be installed throughout buildings located within areas designated by the jurisdiction as being a wild land urban interface area.

SECTION N111
REFERENCED STANDARDS

ASCE/SEI

American Society of Civil Engineers
Structural Engineers Institute
1801 Alexander Bell Drive
Reston, VA 20191-4400

Standard reference number	Title	Referenced in code section number
24-13	Flood Resistant Design and Construction	N110.5.1 N110.5.2

ASTM

ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959

Standard reference number	Title	Referenced in code section number
E108-11	Standard Test Methods for Fire Tests of Roof Coverings	N109.3
E330-14	Test Methods for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference	N108.4
D5206-13	Standard Test Method for Windload Resistance of Rigid Plastic Siding	N108.4

FM

Factory Mutual Global Research
Standards Laboratories Department
1301 Atwood Avenue, P.O. Box 7500
Johnston, RI 02919

Standard reference number	Title	Referenced in code section number
FM 4473-11	Specification Test Standard for Impact Resistance Testing of Rigid Roof Materials by Impacting With Freezer Ice Balls	N108.3.2 N109.4

ICC

International Code Council, Inc.
500 New Jersey Ave, NW
6th Floor
Washington, DC 20001

Standard reference number	Title	Referenced in code section number
IECC—15	International Energy Conservation Code®	N109.3
IWUIC—15	International Wildland-Urban Interface Code®	N110.9.1 N110.9.2
ICC 500-14	ICC/NSSA Standard on the Design and Construction of Storm Shelters	N110.8.1 N110.8.1.2

NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02269

Standard reference number	Title	Referenced in code section number
NFPA 13-13	Standard for the Installation of Sprinkler Systems	N106.3
NFPA 13R-13	Standard for the Installation of Sprinkler Systems in Residential Occupancies Up to and Including Four Stories in Height	N106.3

UL

Underwriters Laboratories Inc.
333 Pfingsten Road
Northbrook, IL 60062

Standard reference number	Title	Referenced in code section number
UL 790-04	Standard Test Methods for Fire Tests of Roof Coverings— with revisions through October 2008	N109.3
UL 2218-10	Impact Resistance of Prepared Roof Covering Materials	N108.3.2 N109.4

Reason: This reason statement has the following four segments to explain the reasons for this change: (A) Background on these criteria with regard to the ICC code development process; (B) Substantiation for sustainability through enhanced resilience; (C) Additional life safety benefits for occupants through enhanced resilience and (D)

General background information identifying the need for enhanced property protection and functional resilience to strengthen the built environment.

(A)

Similar criteria were submitted as proposed mandatory provisions of the 2012 edition of the International Green Construction Code. Committee members identified these types of criteria as having merit but recommended that they be proposed to the International Building Code. Proposals were submitted as mandatory requirements within the body of the code and also as an optional appendix. Both approaches where disapproved for the IBC as not being minimum requirements for general construction.

It is noteworthy that state and local jurisdictions are considering criteria for enhanced resilience in their general building code, superseding the criteria of the I-Codes. For example the State of Georgia, under a U.S. Department of Housing and Urban Development grant and adopted an optional appendix to their statewide code to permit jurisdictions to adopt and enforce criteria for enhanced resiliency. Many jurisdictions like Lake County Illinois have adopted flood criteria that is more stringent the than the criteria in the I-Codes. As jurisdictions are adopting more stringent criteria for all buildings, criteria for enhanced resilience should be a prerequisite for all green or sustainable buildings to provide acceptable levels of longevity, durability, robustness, improved life safety, ease of adaptability for reuse as well as resistance to disasters. Such provisions will reduce time and resources for disaster response and recovery as well as helping to assure community continuity by better maintaining revenues and places for employment and to house employees.

The sustainability benefits of enhanced resiliency in building design and construction are not limited to the general continuity and welfare of communities but also have a significant role to minimize negative environmental impacts should disasters occur. The U.S. Army Corps of engineers reported that 44 million cubic yard of building materials and contents were disposed of in land following Hurricane Katrina. Most of the materials were not salvageable because they were contaminated. This is the equivalent of laying 21 cubic foot refrigerators end to end twice around the equator. Provisions for enhanced resiliency such as elevating habitable spaces above a specific natural flood elevation can significantly minimize the amount of materials disposed because they are damaged and contaminated. Reports after the tornado strike in Moore, Oklahoma advised that is placed on a single debris pile the pile of debris would have been more than a mile high. More resilient construction would clearly minimize the amount of damage, may not from a direct path of the funnel of an EF5 tornado, but at least for the lower perimeter wind forces and flying debris.

(B)

The following are reports of dollar loss to property from wind, cold weather and fire disasters.

- The American Society of Civil Engineers reported in *Normalized Hurricane Damage in the United States, 1900 – 2005*, National Hazard Review, ASCE 2008, that property damage from hurricanes was 81 billion dollars in 2005.
- The National Weather Service reports that U.S. property damage due to winter storms and ice exceeded 1.5 billion dollars in 2009.
- *Fire Losses in the United States During 2009* by the National Fire Protection Association, August 2010 shows that property loss due to structure fires in buildings other than one and two family dwellings was approximately 4.5 billion dollars.

Increasing the stringency of the design criteria of buildings for hazards such as wind, snow or fire results in more robust buildings. Such requirements reduce the amount of energy and resources required for repair, removal, disposal and replacement of building components and systems damaged from these disasters. A further benefit is a reduction in the amount of damaged building materials and content entering landfills.

While there has not been a proportionate increase in either frequency of events (which have remained relatively constant) construction put in place (which has maintained an upward trend of trend of 10% per decade or 40% over last four decades) or demographics (population growth even in the fastest growing regions has 10% per decade or 40% over the same time period) property losses due to natural disasters, adjusted to 2010 dollars, have increased by over a staggering 3500%, see Figure 1. Losses from fire, adjusted to 2010 dollars, have increased by 85% per fire, see Figure 2.

Figure 1: Increase in Property Losses Due to Natural Disasters, excluding Flood[1]

[1]Flood losses not collected by private insurance companies

Figure 1: Increase in Fire Losses Per Structure Fire[1]

These specific requirements help reduce commonly occurring property losses.

Flooding:

Hurricanes:

Source: U.S. Navy photo by Chief Petty Officer Johnny Bivera
Katrina Aftermath

Seismic Events:

Source: Federal Emergency Management Agency
Earthquake damage to personal property.

Snow Loads:

Source: Institute for Business and Home Safety
In many instances roof collapse due to snow loads not only results in damage to roof and building contents below but may also remove lateral support, allowing walls to collapse.

Wind:

Source: Federal Emergency Management Agency, photograph taken by Lara Shane of FEMA
Homes and businesses that are not designed and constructed to provide an appropriate level of resilience are at greater risk in high wind exposures.

Tornadoes:

Source: Oklahoma Department of Emergency Management
Storm shelters and safe rooms really work.

Structure Fires:

Source: Northeast Fire Safety Construction Advisory Council
Fire containment achieved with compartmentation minimizes damage due to fire, smoke and water used for suppression.

External Fire Exposure:

Source: Brick Institute of America Region 9
Siding on a building nearly 100 feet away from a burning building needs to be replaced.

Wildland Fires and Conflagrations After Disasters:

Source: Federal Emergency Management Agency
Topography, vegetative fuels and drought contribute to the potential for devastating wildfires.

Wind Damage - Attachment:

Source: Portland Cement Association, photo by Steve Skalko

Damage to siding and sheathing as a result of high winds.

Wind Damage – System Failure:

Source: Institute for Business & Home Safety
Wind damage to lightweight exterior wall covering.

Hail Impact - Horizontal Surfaces:

Source: National Oceanic and Atmospheric Administration, National Weather Service
Roof shingles need to be removed, disposed and replaced due to hail damage.

Hail Impact - Vertical Surfaces:

Source: National Oceanic and Atmospheric Administration, National Weather Service
Siding needs to be removed, disposed and replaced due to hail damage.

Rodentproofing:

Source: Image provided with permission from Alternative Building Services, www.altbuildingservices.com
Building elements in need of repair due to rodent damage. Undetected damage can compromise the integrity of the building thermal envelope and moisture protection.

Further benefits are enhanced security and occupant comfort; potentially less demand on community resources required for emergency response; and allowing facilities to be more readily adapted for re-use if there is a change of occupancy in the future.

(C)

The 1987 landmark report "America Burning" (Report of the National Commission on Fire Prevention and Control) recommended the increased use of automatic sprinkler systems, and the sprinkler trade-off concept as a financial incentive to encourage the installation of sprinklers in buildings to enhance life safety to the benefit of the building occupants. Automatic fire sprinklers designed for the intended fire load that are installed correctly and maintained to operate with adequate water supply are undoubtedly have contributed significantly to reduced loss of life and reduced property damage. However, for the last two decades hundreds of sprinkler trade-offs have been incorporated into model building codes such as the International Building Code that drastically reduce built-in fire protection when sprinklers are present. The result is considerably less fire safety layers in a building and significant reliance only on the sprinkler system for occupant safety.

There is increasing concern about the reduction or complete elimination of fire rated assemblies based on reliance of automatic sprinklers. To address this concern this proposal removes many of the sprinkler trade-offs in order to encourage increase fire safety and resilience of buildings through a combination of fire resistant construction and sprinklers protection.

Too, natural disasters such earthquakes, hurricanes and floods disrupt water supplies and power to buildings adversely affecting the life safety systems such as sprinkler protection and fire alarm systems. These events also damage gas mains serving buildings resulting in gas leaks and increased fire incidents. Without the fire safety layers of sprinklers and fire alarms, the building will not be able to withstand as big of a fire and will fail sooner, putting occupants and especially firefighters at great risk. This proposal encourages enhanced resilience to these natural disasters to reduce fire safety risk to the occupants.

It has been widely accepted that when buildings are constructed with an appropriate combination of active and passive fire protection using the concept of fire safety layering, they are more resilient and better able to ensure continuity of operations, improved sustainability, increased durability, increased adaptability for reuse, increased resistance to disasters, and improved life safety for occupants and firefighters.

(D)

Minimum building requirements whether through energy codes, plumbing codes, mechanical codes, zoning codes, or basic building codes, do not encourage truly sustainable buildings. The proposal attempts to integrate the concepts of the Whole Building Design Guide (WBDG) into the International Building Code as a non-mandatory Appendix. This allows adopting jurisdictions the option of incorporating code requirements into the building code to improve the resilience of the built environment without the need to add another code to the community requirements.

The WBDG, developed in partnership between the National Institute of Building Sciences (NIBS) and the Sustainable Building Industries Council (SBIC), has as its key concepts: accessible, aesthetics, costeffective, functional/operational, historic preservation, productive, secure/safe, and sustainable.

There are numerous references about the economic, societal, and environmental benefits that result when enhanced functional resilience for resource minimization are integrated into building design and construction. Six examples demonstrating the importance and supporting the concepts are:

1. ***Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation Activities -*** National Institute of Building Sciences Multi-Hazard Mitigation Council - 2005

   One of the findings in this report is "The analysis of the statistically representative sample of FEMA grants awarded during the study period indicates that a dollar spent on disaster mitigation saves society an average of $4." The programs studied often addressed issues and strategies other than enhanced disaster resistance of buildings and other structures. However, more disaster-resistant buildings enhance life safety; reduce costs and environmental impacts associated with repair, removal, disposal, and replacement; and reduce the time and resources required for community recovery.

2. ***Five Years Later – Are we better prepared? -*** Institute for Business and Home Safety - 2010

   This IBHS report states: "When Hurricane Katrina made landfall on Aug. 29, 2005, it caused an estimated $41.1 billion in insured losses across six states, and took an incalculable economic and social toll on many communities. Five years later, the recovery continues and some residents in the most severely affected states of Alabama, Louisiana and Mississippi are still struggling. There is no question that no one wants a repeat performance of this devastating event that left at least 1,300 people dead. Yet, the steps taken to improve the quality of the building stock, whether through rebuilding or new construction, call into question the commitment of some key stakeholders to ensuring that past mistakes are not repeated." This report indicates that there is a need to implement provisions to make buildings more disaster-resistant. Clearly this suggests that functional resilience should at least be integrated into the design and construction of sustainable buildings.

3. ***National Weather Service Office of Climate, Water and Weather Services -*** National Oceanic and Atmospheric Administration (NOAA) - 2010

   Data provided on the NOAA website [www.weather.gov/os/hazstats.shtml] indicates that the average annual direct property loss due to natural disasters in the United States exceeds of $35,000,000,000. This does not include indirect costs associated with loss of residences, business closures, and resources expended for emergency response and management. These direct property losses also do not reflect the direct environmental impact due to reconstruction after the disasters. Functional resilience will help alleviate the environmental impact and minimize both direct and indirect losses from natural disasters.

4. ***Global Climate Change Impacts in the United States -*** U.S. Global Change Research Program (USGCRP) - 2009

   The USGCRP includes the departments of Agriculture, Commerce, Defense, Energy, Health and Human Services, Interior, State and Transportation; National Aeronautic and Space Administration; Environmental Protection Agency, USA International Development, National Science Foundation and Smithsonian Institution

   The report identifies that: "Climate changes are underway in the United States and are projected to grow. Climate-related changes are already observed in the United States and its coastal waters. These include increases in heavy downpours, rising temperature and sea level, rapidly retreating glaciers, thawing permafrost, lengthening growing seasons, lengthening ice-free seasons in the ocean and on lakes and rivers, earlier snowmelt, and alterations in river flows. These changes are projected to grow." The report further identifies that the: "Threats to human health will increase. Health impacts of climate change are related to heat stress, waterborne diseases, poor air quality, extreme weather events, and diseases transmitted by insects and rodents. Robust public health infrastructure can reduce the potential for negative impacts." Key messages in the report on societal impacts include:

-
    - "City residents and city infrastructure have unique vulnerabilities to climate change."

- "Climate change affects communities through changes in climate-sensitive resources that occur both locally and at great distances."
- "Insurance is one of the industries particularly vulnerable to increasing extreme weather events such as severe storms, but it can also help society manage the risks."

Sustainable building design and construction cannot be about protecting the natural environment without consideration of the projected growth in severe weather. Minimum codes primarily based on past natural events are not appropriate for truly sustainable buildings. Buildings expected to have long term positive impacts on the environment must be protected from these extreme changes in the natural environment. The provisions for improved property protections are necessary to reduce the amount of energy and resources associated with repair, removal, disposal, and replacement due to routine maintenance and damage from disasters. Further such provisions reduce the time and resources required for community disaster recovery.

5. ***Sustainable Stewardship - Historic preservation plays an essential role in fighting climate change -*** Traditional Building, National Trust for Historic Preservation - 2008

   In the article Richard Moe summarizes the results of a study by the Brookings Institution which projects that by 2030 we will have demolished and replaced 82 billion square feet of our current building stock, or nearly 1/3 of our existing buildings, largely because the vast majority of them weren't designed and built to last any longer. Durability, as a component of functional resilience, can reduce these losses.

6. ***Opportunities for Integrating Disaster Mitigation and Energy Retrofit Programs -*** Senate Environment and Public Works Committee Room, Dirksen Senate Office Building, Washington, D.C. - 2010

   During this panel discussion a representative of the National Conference of State Historic Preservation Officers noted that more robust buildings erected prior to 1950 tend to be more adaptable for reuse and renovation. Prior to the mid-1950s most local jurisdictions developed their own building code requirements that uniquely addressed the community's needs, issues and concerns. Pre-1950 building codes typically resulted in more durable and robust construction that lasts longer. The total environmental impact of insulation, high efficiency equipment, components, and appliances, lowflow plumbing fixtures, and other building materials and contents are relatively insignificant when rendered irreparable or contaminated and must be disposed of in landfills after disasters. The US Army Corps of Engineers estimated that after Hurricane Katrina nearly 1.2 billion cubic feet of building materials and contents ended up in landfills. This is analogous to stacking enough refrigerators a fifth of the way to the moon or placing them end to end around the equator of the Earth twice.

Cost Impact: Will increase the cost of construction
Will increase the cost of construction.

Analysis: A review of the standards proposed for inclusion in the code, ASTM D 5206-13, FM 4473-11 and UL 2218-10, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28), will be posted on the ICC website on or before April 2, 2014. All other
standards proposed for inclusion into the code are already in Chapter 35 of the 2015 IBC.

G 236-15 : Appendix N (New)-Hall
5883

G 237-15

202

Proponent: Victor Cuevas, representing City of Los Angeles (victor.cuevas@lacity.org)

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

ATTIC The space between the ceiling ~~beams~~ framing of the top *story* and the roof rafters.

Reason: Not all ceilings have beams, but all ceilings have "framing".

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction.

G 237-15 : 202-ATTIC-CUEVAS4543

2015 GROUP A – PROPOSED CHANGES TO THE INTERNATIONAL BUILDING CODE – MEANS OF EGRESS

MEANS OF EGRESS CODE COMMITTEE

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TENTATIVE ORDER OF DISCUSSION
2015 PROPOSED CHANGES TO THE INTERNATIONAL BUILDING CODE
(MEANS OF EGRESS)

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

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

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406.4.1, 1003.2, 1003.3.1, 1003.3.2, 1003.3.3, 1003.4, 1012.5.2, 1208.2; (IFC[BE] 1003.2, 1003.3.1, 1003.3.2, 1003.3.3, 1003.4, 1012.5.2)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

406.4.1 Clear height. The clear height of each floor level in vehicle and pedestrian traffic areas shall be not less than 7 feet (2134 mm). ~~Vehicle~~The parking spaces, access aisles and ~~pedestrian areas accommodating~~ vehicle route serving van-accessible parking shall comply with Section 1106.5.

1003.2 Ceiling height. The *means of egress* shall have a ceiling height of not less than 7 feet 6 inches (2286 mm) above the finished floor.

Exceptions:

1. Sloped ceilings in accordance with Section 1208.2.
2. Ceilings of *dwelling units* and *sleeping units* within residential occupancies in accordance with Section 1208.2.
3. Allowable projections in accordance with Section 1003.3.
4. *Stair* headroom in accordance with Section 1011.3.
5. Door height in accordance with Section 1010.1.1.
6. *Ramp* headroom in accordance with Section 1012.5.2.
7. The clear height of floor levels in vehicular and pedestrian traffic areas of public and private parking garages in accordance with Section 406.4.1.
8. Areas above and below *mezzanine* floors in accordance with Section 505.2.

1003.3 Protruding objects. Protruding objects on *circulation paths* shall comply with the requirements of Sections 1003.3.1 through 1003.3.4.

1003.3.1 Headroom. Protruding objects are permitted to extend below the minimum ceiling height required by Section 1003.2 where a minimum headroom of 80 inches (2032 mm) is provided over any ~~walking surface~~circulation paths, including walks, *corridors*, *aisles* and passageways. Not more than 50 percent of the ceiling area of a *means of egress* shall be reduced in height by protruding objects.

Exception: Door closers and stops shall not reduce headroom to less than 78 inches (1981 mm).

A barrier shall be provided where the vertical clearance above a circulation path is less than 80 inches (2032 mm) high above the finished floor. The leading edge of such a barrier shall be located 27 inches (686 mm) maximum above the finished floor.

1003.3.2 Post-mounted objects. A free-standing object mounted on a post or pylon shall not overhang that post or pylon more than 4 inches (102 mm) where the lowest point of the leading edge is more than 27 inches (686 mm) and less than 80 inches (2032 mm) above the ~~walking surface~~finished floor. Where a sign or other obstruction is mounted between posts or pylons and the clear distance between the posts or pylons is greater than 12 inches (305 mm), the lowest edge of such sign or obstruction shall be 27 inches (686 mm) maximum or 80 inches (2032 mm) minimum above the finished floor~~ or ground~~.

Exception: These requirements shall not apply to sloping portions of *handrails* between the top and bottom riser of *stairs* and above the *ramp* run.

1003.3.3 Horizontal projections. Objects with leading edges more than 27 inches (685 mm) and not more than 80 inches (2030 mm) above the finished floor shall not project horizontally more than 4 inches (102 mm) into the *circulation path* .

Exception:*Handrails* are permitted to protrude $4^{1}/_{2}$ inches (114 mm) from the wall or guard.

1003.4 ~~Floor~~Slip-resistant surface. ~~Walking surfaces~~ Circulation paths of the *means of egress* shall have a slip-resistant surface and be securely attached.

1012.5.2 Headroom. The minimum headroom in all parts of the *means of egress*~~ramp~~ramp shall be not less than 80 inches (2032 mm) above the finished floor of the ramp run and any intermediate landings. The minimum clearance shall be maintained for the full width of the ramp and landing.

1208.2 Minimum ceiling heights. Occupiable spaces, *habitable spaces* and *corridors* shall have a ceiling height of not less than 7 feet 6 inches (2286 mm) above the finished floor. Bathrooms, toilet rooms, kitchens, storage rooms and laundry rooms shall have a ceiling height of not less than 7 feet (2134 mm) above the finished floor.

Exceptions:

1. In one- and two-family *dwellings* , beams or girders spaced not less than 4 feet (1219 mm) on center shall be permitted to project not more than 6 inches (152 mm) below the required ceiling height.
2. If any room in a building has a sloped ceiling, the prescribed ceiling height for the room is required in one-half the area thereof. Any portion of the room measuring less than 5 feet (1524 mm) from the finished floor to the ceiling shall not be included in any computation of the minimum area thereof.
3. The height of *mezzanines* and spaces below *mezzanines* shall be in accordance with Section 505.1.
4. Corridors contained within a *dwelling unit* or *sleeping unit* in a Group R occupancy shall have a ceiling height of not less than 7 feet (2134 mm) above the finished floor.

Reason: The intent of this proposal is consistency in language and coordination with E10-12 for where headroom clearances are important/relevant and to what they are measured. This language would be consistent with Section 505.2, 1103.3 and 1106.5. The new text is coordinated with A117.1, and lets the parking lot designer know where additional headroom clearance is required.
In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification and coordination of current requirements; therefore, there is no impact on the cost.

E 1-15 : 1003-KULIK3340

E 2-15

202(New), 1003.4, 1011.5.4, 1011.7.1, 1012.7.1, 1029.11.1, Chapter 35; (IFC[BE] 1003.4, 1011.5.4, 1011.7.1, 1012.7.1, 1029.11.1)

Proponent: Russell Kendzior, The National Floor Safety Institute (NFSI), representing National Floor Safety Institute (russk@nfsi.org)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

HIGH TRACTION. The physical property of a floor or walkway surface that is designed to mitigate slipping during normal human ambulation by providing a reasonably sufficient level of available contact friction.

Revise as follows:

1003.4 Floor surface. Walking surfaces of the *means of egress* shall have a ~~slip-resistant~~high-traction surface ~~and be~~that is securely attached. Walking surfaces that are subject to wet conditions shall have a high-traction surface that complies with ANSI/NFSI B101.1 or ANSI/NFSI B101.3.

1011.5.4.1 Nonuniform height risers. Where the bottom or top riser adjoins a sloping *public way*, walkway or driveway having an established grade and serving as a landing, the bottom or top riser is permitted to be reduced along the slope to less than 4 inches (102 mm) in height, with the variation in height of the bottom or top riser not to exceed one unit vertical in 12 units horizontal (8-percent slope) of *stair* width. The *nosings* or leading edges of treads at such nonuniform height risers shall have a distinctive marking stripe, different from any other *nosing* marking provided on the *stair flight*. The distinctive marking stripe shall be visible in descent of the *stair* and shall have a ~~slip-resistant~~high-traction surface. Marking stripes shall have a width of not less than 1 inch (25 mm) but not more than 2 inches (51 mm).

1011.7.1 Stairway walking surface. The walking surface of treads and landings of a *stairway* shall not be sloped steeper than one unit vertical in 48 units horizontal (2-percent slope) in any direction. *Stairway* treads and landings shall have a solid surface. ~~Finish floor~~Walking surfaces shall ~~be~~have a high-traction surface that is securely attached.

Exceptions:

1. Openings in *stair* walking surfaces shall be a size that does not permit the passage of $^1/_2$-inch-diameter (12.7 mm) sphere. Elongated openings shall be placed so that the long dimension is perpendicular to the direction of travel.
2. In Group F, H and S occupancies, other than areas of parking structures accessible to the public, openings in treads and landings shall not be prohibited provided a sphere with a diameter of $1^1/_8$ inches (29 mm) cannot pass through the opening.

1012.7.1 Ramp surface. The walking surface of *ramps* shall ~~be of slip-resistant materials~~have a high-traction surface that ~~are~~is securely attached.

1029.11.1 Walking surface. The surface of *aisles*, stepped *aisles* and ramped *aisles* shall ~~be of slip-resistant materials~~have a high-traction surface that ~~are~~is securely attached. The surface for stepped *aisles* shall comply with Section 1011.7.1.

Add new standard(s) as follows:

ANSI/NFSI B101.1-2005 "Test Method for Measuring Wet SCOF (static coefficient of friction) of Common Hard-Surface Floor Materials"

ANSI/NFSI B101.3-2012 "Test Method for Measuring Wet DCOF (dynamic coefficient of friction) of Common Hard-Surface Floor Materials"

Reason: Ambiguous Terminology

The term "Slip Resistant" is currently used in section 1003.4 "Floor Surface" as well as Section 1012.7.1 "Ramp surface" and applies to the list of sections named within this proposal to describe a safe walking surface however the term is not defined in the 2012 International Building Code nor is it defined by way of any nationally recognized industry consensus test standard (ie: ASTM, ANSI). Although commonly used in the past, the term Slip-Resistant is an ambiguous adjective which implies a safety benefit but is not defined by way of a measurable industry consensus test method and therefore is meaningless to those who seek to make their walkways safe (ie: property owners, architects, etc.). In short, because of the failure to properly define the term all walkways are by default perceived by property owners, architects, and end-users, etc., to be "Slip Resistant" even if they may not safe for pedestrian foot traffic.

The phrase Slip Resistant should, be omitted from all the relevant sections of the 2012 International Building Code and replaced with the term "High-Traction" which is defined by way of two nationally recognized consensus test methods/standards specifically the ANSI/NFSI B101.1-2009 "Test Method for Measuring Wet SCOF of Common Hard-Surface Floor Materials" and the ANSI/NFSI B101.3-2012 "Test Method for Measuring Wet DCOF of Common Hard-Surface Floor Materials" standards (attached). Both of these industry consensus test methods/standards speak directly to the subject of walkway safety and directly impacts the safety of all pedestrians especially those with disabilities. Therefore replacing the undefined term Slip Resistant with the well defined term High-Traction will better serve the general publics need for safe walking surfaces.

Furthermore, the term High-Traction should be added to Section 202 "Definitions" and should apply to the referenced sections included in this proposal. The definition of the term High-Traction should be listed in Section 202 and defined as it is defined in the ANSI/NFSI B101.1-2009 standard as: "The physical property of a floor or walkway surface that is designed to mitigate slipping during normal human ambulation by providing a reasonably sufficient level of available contact friction." Finally, a reference to the ANSI/NFSI B101.1-200 standard should be cited in Section 202 of the 2015 International Building Code.

Reference to ANSI A137.1

Historically the International Building Code has referenced the ANSI A137.1 "Specifications for Ceramic Tile" standard, which the most recent version cited, is that of the 2008 version. In 2012 the ANSI A137.1 standard was revised whereby they abandoned their long standing reference to the ASTM C-1028 dry SCOF test method and now reference an industry specific, wet DCOF test method, one which was created by and for the ceramic tile industry. Subsequently, the ASTM C-1028 standard was withdrawn by the ASTM and is no longer a recognized test method.

Historically the subject of how to measure a floors slip resistance has been hotly debated to which there were two camps of thought, one, which supported SCOF "drag sled" testing as described in ASTM D-2047 (polishes) and ASTM C-1028 (withdrawn) standards and the other camp, which supported a dynamic version or DCOF testing. In 2006 the ANSI B101 committee on slip, trip and fall prevention was established and has since published five slip and fall prevention standards including an SCOF (ANSI/NFSI B101.1-2009) and a DCOF (ANSI/NFSI B101.3-2012) test method, both of which are not specific to any type of flooring material or industry but rather can be used on any type of hard surface walkway both in the laboratory (manufacturing) as well as in-situ.

NFSI vs. TCNA

The NFSI is a 501(c)-3 non-for-profit organization and is an ANSI Standard Developing Organization (SDO) which in 2006 established the ANSI B101 committee on "slip, trip and fall prevention." The NFSI's mission is "to aid in the prevention of slips, trips, and falls through education, research, and standards development." The Tile Council of North America (TCNA) which serves as the SDO of the A108 committee which authored the A137.1 standard is a for-profit industry trade association which according to their website "… was created with the sole purpose of expanding the ceramic tile market in the United States." In-short, the ANSI B101 committee author's walkway safety standards while the ANSI A108 committee authors ceramic tile manufacturing specifications.

ANSI A137.1-2012

According to Section 1.0 "Purpose" of the ANSI A137.1-2012 standard states that: "these specifications serve as a reference standard for buyers and specifiers of Standard Grade and Second Grade ceramic tile, Decorative Tile, and Specialty Tile. These specifications are also a guide to producers in maintaining quality control of the manufacture of such ceramic tile" therefore the standard is as it states "a guide to producers in maintaining quality control" of un-installed tile and does not purport to describe any safety specifically slip and fall prevention capabilities of ceramic tile.

Section 2.0 "Scope" of the ANSI A137.1-2012 further states that: "These Specifications describe the normally available sizes and shapes of ceramic tile: the physical properties of Standard Grade and Second Grade Ceramic Tile, Decorative Tile and Specialty Tile; the basis for acceptance and methods of testing prior to installation; the marking and certification of ceramic tile; and the definitions of terms employed in these specifications." The ANSI A137.1 standard only applies to un-installed ceramic tile and not installed floors. Uninstalled ceramic tile is not considered a floor until it's installed. By way of example, a wooden 2"X4" is simply that, a piece of wood measuring 2"X4" in size. Although commonly used to construct walls, a wooden 2"X4" is not a wall until it is installed as such. The same is true for uninstalled ceramic tile. It becomes a floor after its installed to which the A137.1 standard does not govern the characteristics of installed tile.

Safety managers, risk managers, property/facility managers, and all other parties whose responsibility is to insure the safety of their walkways are only concerned with installed floors and not uninstalled materials and require an in-situ test method to insure compliance. Therefore, because of the limitations of the ANSI A137.1 standard as a laboratory lab test for quality control purposes only that it should no longer be referenced within the International Building Code.

Furthermore, it is estimated that only 12.9% of all installed floorcoverings are ceramic tile and 1.1% is stone. In-fact, according to the most recent research*, more vinyl sheet & floor tile is in use (16% of the total square footage sold), than that of ceramic tile, stone and laminate flooring combined! The A137.1-2012 standard only applies to ceramic tile and is not applicable to the remaining 87% of hard surface flooring materials used by property owners.

In contrast, the scope statements of the ANSI/NFSI B101.1 and B101.3 standards provide specific test methods and defined traction ranges for both laboratory (un-installed) as well as in-situ (installed) flooring materials and applies to all types of hard surface flooring materials.

Financial Burden to Industry

Although the ANSI A137.1 standard has been cited in previous versions of the International Building Code, with the recent development of the ANSI B101 walkway safety standards which have been widely embraced by the flooring, floor care, legal and insurance industries. Given the broad use and industry acceptance of the ANSI B101 standards we are requesting that any reference to the A137.1 standard as it relates to the measurement of slip resistance be removed and replaced with references to the ANSI B101.1-2009 and ANSI B101-3-2012 standards respectively.

Since the publication of the ANSI/NFSI B101.1 standard in 2009, hundreds of flooring manufacturers products have voluntarily submitted to the NFSI for certification. A wide range of industries have adopted the ANSI/NFSI B101 standards and have come to rely upon the NFSI to perform independent slip resistance testing, all of which are done in compliance with the ANSI/NFSI B101.1 or B101.3 standards.

One example is that of the polished concrete industry who shortly after the publication of the ANSI/NFSI B101.3 standard publicly announced their support. The polished concrete industry, through its representative trade association the Concrete Polishing Association of America (CPAA) openly adopted the ANSI/NFSI B101.3 standard (see enclosed CPAA press release) to which the NFSI has been awarding certificates of compliance (NFSI Certification) to manufacturers of polished concrete systems for many years. The economic burden to the floorcovering and floor care industries to abandon the tried and true published ANSI B101 walkway safety standards would be financially burdensome.

Bibliography: 2013 "Statistical Report 13" as published in Floor Covering Weekly magazine, July 21, 2014

Cost Impact: Will not increase the cost of construction
There is no cost impact to this proposal since manufacturers of flooring materials are and have been measuring their products safety performance to the ANSI/NFSI B101.1-2005 and ANSI/NFSI B101.3-2012 standards for years.

Analysis: A review of the standard proposed for inclusion in the code, ANSI/NFSI B101.1-2009 and ANSI/NFSI B101.3-2012, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

E 2-15 : 1003.4-KENDZIOR4911

E 3-15

1003.4.1 (New), (IFC[BE] 1003.4.1(New))

Proponent: Eric Astrachan, Tile Council of North America, representing Tile Council of North America (eastrachan@tileusa.com); James Hieb, Marble Institute of America (Jhieb@marble-institute.com); Nathaniel Mohler, Concrete Polishing Association of America (Nate.Mohler@cpaa-us.org); Jennifer Faller, Diamatic USA (Jennifer.faller@diamaticusa.com); Richard Bruns, National Terrazzo and Mosaic Association (rbruns@ntma.com)

2015 International Building Code

Add new text as follows:

1003.4 Floor surface. Walking surfaces of the *means of egress* shall have a slip-resistant surface and be securely attached.

1003.4.1 **Hard Surface Flooring.** Walking surfaces of the means of egress made of ceramic tiles, porcelain tiles, terrazzo, stone or polished concrete and subject to wet conditions shall have a slip-resistant surface complying with ANSI A137.1, Section 6.2.2.1.10 substituting the type of flooring where the word "tile" is used.

Reason: Currently, Section 1003.4 requires that walking surfaces of the means of egress be "slip resistant" with no method of measurement, quantitative threshold, or general principles to help the specifier, end-user, and code official. Given the Code's lack of criteria for "slip resistant," materials are sometimes being inappropriately specified, and accidents are occurring in areas of the means of egress. This can be especially dangerous for emergency responders who are entering a building for the first time, potentially under conditions with water and limited visibility (smoke).
The purpose of this revision is to provide slip resistance criteria for hard surface flooring used in interior walking surfaces of the means of egress. Section 6.2.2.1.10 of the ANSI A137.1-2012 standard for ceramic tile sets forth a quantitative minimum threshold, means of measurement, and general principles regarding slip resistance based on the consensus of a broad range of stakeholders, including the Construction Specifications Institute (CSI), Marble Institute of America (MIA), National Association of Homebuilders (NAHB), Underwriter Laboratories (UL), National Tile Contractors Association (NTCA), Tile Council of North America, and 52 additional stakeholders on the ASC-A108 Committee (for a total of 58). In addition to ceramic and porcelain tile, this Section of ANSI A137.1 is utilized and directly referenced within specifications for other types of hard surface flooring, including terrazzo, stone, and polished concrete.

This proposal to add the above language to the building code is supported by the Tile Council of North America (TCNA), executives of the Marble Institute of America (MIA - with a board vote to take place in the first quarter of 2015), the Executive Committee of the Concrete Polishing Association of America (CPAA) and their Subcommittee on slip resistance (with a board vote to take place in the first quarter of 2015), and the President of the National Terrazzo and Mosaic Association (NTMA - with a board vote to take place in the first quarter of 2015) and many other organizations.

When references to ANSI A137.1 Section 6.2.2.1.10 were proposed in 2012, the Means of Egress Code Committee spoke favorably regarding the criteria and encouraged the proponent to resubmit the proposal in 2015 when the referenced standard was more widely available in print.

Today, copies of ANSI A137.1 are easily accessible both in print and electronically, and all provisions pertinent to ANSI A137.1 Section 6.2.2.1.10 are available for free online via www.TCNAtile.com. Furthermore, these provisions are widely understood and specified throughout the architectural community with hard surface manufacturers/suppliers/installers providing the information needed by code officials as part of standard product submittals and information.

The section proposed to be referenced reads as follows:

6.2.2.1.10 Coefficient of Friction.

The coefficient of friction (COF) measurement provided in this standard is an evaluation of a tile surface under known conditions using a standardized sensor material prepared according to a specific protocol. As such it can provide a useful comparison of tile surfaces, but it does not predict the likelihood a person will or will not slip on a tile surface.

There are many factors that affect the possibility of a slip occurring on a tile surface including by way of example, but not in limitation, the following: the material of the shoe sole and the degree of its wear; the presence and nature of surface contaminants; the speed and length of stride at the time of a slip; the physical and mental condition of the individual at the time of a slip; whether the floor is flat or inclined, and how the tile surface is used and maintained; and the COF of the tile, how the tile is structured, and how drainage takes place if liquids are involved. Because many variables affect the risk of a slip occurring, the COF shall not be the only factor in determining the appropriateness of a tile for a particular application.

Unless otherwise specified, tiles suitable for level[1] interior spaces expected to be walked upon when wet shall have a wet DCOF of 0.42 or greater when tested using SLS solution as per the procedure in section 9.6.1. However, tiles with a DCOF of 0.42 or greater are not necessarily suitable for all projects. The specifier shall determine tiles appropriate for specific project conditions, considering by way of example, but not in limitation, type of use, traffic, expected contaminants, expected maintenance, expected wear[2] , and manufacturers' guidelines and recommendations.

Some specifiers find it useful to compare dry DCOF measurements to wet DCOF measurements to assess the risk of a slip when transitioning from dry to wet conditions. If dry DCOF measurements using the BOT 3000 are desired, the testing procedure found in section 9.6.2 shall be followed. Alternatively, a dry static coefficient of friction (SCOF) measurement can be made per the ASTM C1028 test method.

When wet SCOF measurements of tiles previously tested per ASTM C1028 are desired for direct comparison to historical values, the C1028 test method shall be followed. While BOT 3000 wet SCOF measurements with a Neolite sensor and distilled water generally correlate overall with ASTM C1028 measurements, results on individual tiles may not correlate and therefore cannot be directly compared.

The presence on installed tiles of water (including standing water as can exist on floors which are not properly sloped for drainage or on exterior tiles immediately after a rain storm or on which snow is melting), oil, grease, and/or any other elements which reduce traction, creates slippery conditions where the risk of a slip cannot be completely eliminated. Tile installations with exposure to such elements require extra caution in product selection, use, and maintenance. The risk of a slip can be diminished but not eliminated in these installations by installing tiles with a structured/textured surface, mosaic tiles, or certain extruded unglazed quarry tiles. The specifier shall follow manufacturers' guidelines and recommendations for these products.

When tested using SLS solution as per the procedure in section 9.6.1, tiles with a wet DCOF of less than 0.42 (including by way of example, but not in limitation, polished tiles), shall only be installed when the surface will be kept dry when walked upon and proper safety procedures will be followed when cleaning the tiles.

1. *Tiles appropriate for ramp applications shall be chosen for the specific properties and use of the ramp and require a wet DCOF greater than 0.42 if the ramp will be used under wet conditions. Specifier shall determine tiles appropriate for specific project conditions, considering by way of example, but*

not in limitation, type of use, traffic, grade of ramp, expected contaminants, expected maintenance, expected wear, and manufacturers' guidelines and recommendations.

2. *The COF of installed tiles can change over time as a result of wear and surface contaminants. In addition to regular cleaning, deep cleaning and traction-enhancing maintenance may be needed periodically to maintain DCOF values.*

The proposed reference is in the 2012 edition of ANSI A137.1. An update to this edition will be proposed for the Group B Administrative changes. This language is not in the 2008 edition of ANSI A137.1 that is currently referenced in the code for the definition for Porcelain tile.

Bibliography: [Handbook for Ceramic, Glass, and Stone Tile Installation] [TCNA] [2014] [Page 5-6]
[http://www.tcnatile.com/trade-news/dcof-acutest.html]
[Interiors and Sources][DCOF: Legal Liabilities, Stopping the Falls] [Elianne Halbersberg] [2013] [Page 58-60]
[http://www.interiorsandsources.com/article-details/articleid/16530/title/stopping-the-falls.aspx]

[Interiors and Sources][Stranger than Friction] [Robert Nieminen][11/2013] [Pages 54-55]
[http://www.interiorsandsources.com/article-details/articleid/16571/title/stranger-than-friction.aspx]

[Floor Focus][TILE FILES: What is friction, and how does it relate to slip resistance?] [Jim Neel] [10/2013] [Pages 74-75] [http://www.floordaily.net/flooring-news/jim_neel_discusses_coefficients_of_friction.aspx]

Cost Impact: Will not increase the cost of construction
Hard surface flooring that meets or exceeds the criteria of Section 6.2.2.1.10 of the ANSI A137.1-2012 standard is not different in price from hard surface flooring that is below the threshold criteria.

E 3-15 : 1003.4.1 (New)-ASTRACHAN5126

E 4-15

1003.4.1 (New), (IFC[BE]1003.4.1 (New))

Proponent: Eric Astrachan, Tile Council of North America, representing Tile Council of North America (eastrachan@tileusa.com)

2015 International Building Code

Add new text as follows:

1003.4 Floor surface. Walking surfaces of the *means of egress* shall have a slip-resistant surface and be securely attached.

1003.4.1 Ceramic and Porcelain Tile. Walking surfaces of the means of egress made of ceramic tiles or porcelain tiles and subject to wet conditions shall have a slip-resistant surface complying with ANSI A137.1, Section 6.2.2.1.10.

Reason: Currently, Section 1003.4 requires that walking surfaces of the means of egress be "slip resistant" with no method of measurement, quantitative threshold, or general principles to help the specifier, end-user, and code official. Given the Code's lack of criteria for "slip resistant," materials are sometimes being inappropriately specified, and accidents are occurring in areas of the means of egress. This can be especially dangerous for emergency responders who are entering a building for the first time, potentially under conditions with water and limited visibility (smoke).
The purpose of this revision is to provide slip resistance criteria for ceramic tiles used in interior walking surfaces of the means of egress. Section 6.2.2.1.10 of the ANSI A137.1-2012 standard for ceramic tile sets forth a quantitative minimum threshold, means of measurement, and general principles regarding slip resistance based on the consensus of a broad range of stakeholders, including the Construction Specifications Institute (CSI), Marble Institute of America (MIA), National Association of Homebuilders (NAHB), Underwriter Laboratories (UL), National Tile Contractors Association (NTCA), and many more.

When this same revision was proposed in 2012, the Means of Egress Code Committee spoke favorably regarding the criteria and encouraged the proponent to resubmit the proposal in 2015 when the referenced standard was more widely available in print. Today, copies of ANSI A137.1 are easily accessible both in print and electronically, and all provisions pertinent to ANSI A137.1 Section 6.2.2.1.10 are available for free online via www.TCNAtile.com. Furthermore, these provisions are referenced in their entirety in the "TCNA Handbook for Ceramic, Glass, and Stone Tile Installation" (commonly known as the "TCA Handbook" and referenced in Section 9300 specifications), and are widely understood and specified throughout the architectural community. Additionally, manufacturers provide the information needed by code officials as part of standard product information.

The section proposed to be referenced is as follows:

6.2.2.1.10 Coefficient of Friction.

The coefficient of friction (COF) measurement provided in this standard is an evaluation of a tile surface under known conditions using a standardized sensor material prepared according to a specific protocol. As such it can provide a useful comparison of tile surfaces, but it does not predict the likelihood a person will or will not slip on a tile surface.

There are many factors that affect the possibility of a slip occurring on a tile surface including by way of example, but not in limitation, the following: the material of the shoe sole and the degree of its wear; the presence and nature of surface contaminants; the speed and length of stride at the time of a slip; the physical and mental condition of the individual at the time of a slip; whether the floor is flat or inclined, and how the tile surface is used and maintained; and the COF of the tile, how the tile is structured, and how drainage takes place if liquids are involved. Because many variables affect the risk of a slip occurring, the COF shall not be the only factor in determining the appropriateness of a tile for a particular application.

Unless otherwise specified, tiles suitable for level[1] interior spaces expected to be walked upon when wet shall have a wet DCOF of 0.42 or greater when tested using SLS solution as per the procedure in section 9.6.1. However, tiles with a DCOF of 0.42 or greater are not necessarily suitable for all projects. The specifier shall determine tiles appropriate for specific project conditions, considering by way of example, but not in limitation, type of use, traffic, expected contaminants, expected maintenance, expected wear[2] , and manufacturers' guidelines and recommendations.

Some specifiers find it useful to compare dry DCOF measurements to wet DCOF measurements to assess the risk of a slip when transitioning from dry to wet conditions. If dry DCOF measurements using the BOT 3000 are desired, the testing procedure found in section 9.6.2 shall be followed. Alternatively, a dry static coefficient of friction (SCOF) measurement can be made per the ASTM C1028 test method.

When wet SCOF measurements of tiles previously tested per ASTM C1028 are desired for direct comparison to historical values, the C1028 test method shall be followed. While BOT 3000 wet SCOF measurements with a Neolite sensor and distilled water generally correlate overall with ASTM C1028 measurements, results on individual tiles may not correlate and therefore cannot be directly compared.

The presence on installed tiles of water (including standing water as can exist on floors which are not properly sloped for drainage or on exterior tiles immediately after a rain storm or on which snow is melting), oil, grease, and/or any other elements which reduce traction, creates slippery conditions where the risk of a slip cannot be completely eliminated. Tile installations with exposure to such elements require extra caution in product selection, use, and maintenance. The risk of a slip can be diminished but not eliminated in these installations by installing tiles with a structured/textured surface, mosaic tiles, or certain extruded unglazed quarry tiles. The specifier shall follow manufacturers' guidelines and recommendations for these products.

When tested using SLS solution as per the procedure in section 9.6.1, tiles with a wet DCOF of less than 0.42 (including by way of example, but not in limitation, polished tiles), shall only be installed when the surface will be kept dry when walked upon and proper safety procedures will be followed when cleaning the tiles.

1. *Tiles appropriate for ramp applications shall be chosen for the specific properties and use of the ramp and require a wet DCOF greater than 0.42 if the ramp will be used under wet conditions. Specifier shall determine tiles appropriate for specific project conditions, considering by way of example, but not in limitation, type of use, traffic, grade of ramp, expected contaminants, expected maintenance, expected wear, and manufacturers' guidelines and recommendations.*
2. *The COF of installed tiles can change over time as a result of wear and surface contaminants. In addition to regular cleaning, deep cleaning and traction-enhancing maintenance may be needed periodically to maintain DCOF values.*

The proposed reference is in the 2012 edition of ANSI A137.1. An update to this edition will be proposed for the Group B Administrative changes. This language is not in the 2008 edition of ANSI A137.1 that is currently referenced in the code for the definition for Porcelain tile.

Bibliography: [Handbook for Ceramic, Glass, and Stone Tile Installation] [TCNA] [2014] [Pages 5-6] [http://www.tcnatile.com/trade-news/dcof-acutest.html]
[Interiors and Sources][DCOF: Legal Liabilities, Stopping the Falls] [Elianne Halbersberg] [11/2013] [Pages 58-60] [http://www.interiorsandsources.com/article-details/articleid/16530/title/stopping-the-falls.aspx]

[Interiors and Sources][Stranger than Friction] [Robert Nieminen][11/2013] [Pages 54-55] [http://www.interiorsandsources.com/article-details/articleid/16571/title/stranger-than-friction.aspx]

[Floor Focus][TILE FILES: What is friction, and how does it relate to slip resistance?] [Jim Neel] [10/2013] [Pages 74-75] [http://www.floordaily.net/flooring-news/jim_neel_discusses_coefficients_of_friction.aspx]

Cost Impact: Will not increase the cost of construction
Ceramic and porcelain tiles that meet or exceed the criteria of Section 6.2.2.1.10 of the ANSI A137.1-2012 standard are not different in price from tiles that are below the threshold criteria.

E 4-15 : 1003.4.1 (New)-ASTRACHAN3424

E 5-15

Part I:
1004.1 (IFC[BE]1004.1)
Part II:
Chapter 3, 301, 301.1, 302, 302.1, 302.2 (New)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC-MEANS OF EGRESS COMMITTEE. PART II WILL BE HEARD BY THE IBC-GENERAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

Part I

2015 International Building Code

Revise as follows:

1004.1 Design occupant load. In determining *means of egress* requirements, the number of occupants for whom *means of egress* facilities are provided shall be determined in accordance with this section. The determination of occupant loads for the purposes of means of egress design is based on the function of the area, room or space under consideration as listed in Table 1004.1.2. The assigned function of the space establishes an occupant load factor based on typical usage.

Part II

2015 International Building Code

Revise as follows:

CHAPTER 3

~~USE AND~~ OCCUPANCY CLASSIFICATION AND USE

SECTION 301 ~~GENERAL~~SCOPE

301.1 ~~Scope.~~General The provisions of this chapter shall control the classification of all buildings and structures as to ~~use~~occupancy and use. Different classifications of occupancy and use represent varying levels of hazard and risk to building occupants.

SECTION 302 OCCUPANCY CLASSIFICATION AND USE DESIGNATION

302.1 Occupancy classification. ~~General.~~~~Structures or portions of structures shall be classified with respect to occupancy in one or more of the groups listed in this section.~~Occupancy classification is the formal designation of the primary purpose of the building, structure or portion thereof. Structures shall be classified into one or more of the occupancy groups listed in this section based on the nature of the hazards and risks to building occupants generally associated with the intended purpose of the building or structure.An area,~~A~~ room or space that is intended to be occupied at different times for different purposes shall comply with all ~~of the~~ applicable requirements ~~that are applicable to each of the purposes for which the room or space will be occupied~~associated with such potential multi-purpose. Structures~~ with~~containing multiple occupancy groups~~occupancies or uses~~ shall comply with Section 508. Where a structure is proposed for a purpose that is not specifically ~~provided for in this code~~listed in this section such structure shall be classified in the ~~group that the~~ occupancy most nearly resembles~~, according to~~based on the fire safety and relative hazard ~~involved~~.

1. Assembly (see Section 303): Groups A-1, A-2, A-3, A-4 and A-5.
2. Business (see Section 304): Group B.
3. Educational (see Section 305): Group E.
4. Factory and Industrial (see Section 306): Groups F-1 and F-2.
5. High Hazard (see Section 307): Groups H-1, H-2, H-3, H-4 and H-5.
6. Institutional (see Section 308): Groups I-1, I-2, I-3 and I-4.
7. Mercantile (see Section 309): Group M.
8. Residential (see Section 310): Groups R-1, R-2, R-3 and R-4.
9. Storage (see Section 311): Groups S-1 and S-2.
10. Utility and Miscellaneous (see Section 312): Group U.

Add new text as follows:

302.2 Use designation. Occupancy groups contain subordinate uses having similar hazards and risks to building occupants. Uses include, but are not limited to, those functional designations listed within the occupancy group descriptions in this section. Certain uses require specific limitations and controls in accordance with the provisions of Chapter 4 and elsewhere in this code.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
Properly classifying the purpose of a given building or structure is the very important first step in the design or analysis process. The reason for this is that the various designations account for the inherent hazards and risks typically associated with the intended purpose. Based on those hazards and risks, appropriate limitations and controls are assigned to the building or structure. The International Building Code uses several specific terms to identify the purpose of the building or structure. Those are: occupancy classification, use and function. Occupancy classification and use are often confused and function is misunderstood.

The purpose of this code change is to simply formalize these terms and explain their relationship. This will assist code practitioners in properly establishing applicable code requirements and improve uniformity and continuity in the identification of appropriate provisions. Some of the current confusion is owed to the fact that the legacy codes used these terms, however, in different ways. For instance, BOCA used "use group" as the major designation with "occupancy" being the subordinate term. On the other hand, ICBO used "occupancy/division" as the major designation with "use" as the secondary term. The IBC was created using provisions from each of the legacy codes and the terms are often seen out of technical context.

This proposal will inform users of the IBC system of building classification and assist all concerned in the proper communication of applicable code requirements.

Cost Impact:

Part I: Will not increase the cost of construction
Provisions simply provide clarification of current requirements.

Part II: Will not increase the cost of construction
Provisions simply provide clarification of current requirements.

E 5-15 : 1004.1-KULIK5034

E 6-15

1004.1.1.1, 1026.4; (IFC[BE] 1004.1.1.1, 1026.4)

Proponent: Gregory Keith, Professional heuristic Development, representing The Boeing Company (grkeith@mac.com)

2015 International Building Code

Revise as follows:

1004.1.1.1 Intervening spaces or accessory areas. Where occupants egress from one or more rooms, areas or spaces through others, the design *occupant load* shall be the combined *occupant load* of interconnected accessory or intervening spaces. Design of egress path capacity shall be based on the cumulative portion of *occupant loads* of all rooms, areas or spaces to that point along the path of egress travel. <u>The anticipated occupant load from adjacent rooms, areas or spaces shall be based on either the capacity of the means of egress components providing access to the space under consideration, or the design occupant load of the adjacent space, whichever is less.</u>

1026.4 Refuge area. The refuge area of a *horizontal exit* shall be a space occupied by the same tenant or a public area and each such refuge area shall be adequate to accommodate the original *occupant load* of the refuge area plus the *occupant load* anticipated from the adjoining compartment. The anticipated *occupant load* from the adjoining compartment shall be based on the capacity of the *horizontal exit doors* entering the refuge area<u>, or the design occupant load of the adjoining compartment, whichever is less</u>.

Reason: Cumulative occupant load provisions were clarified in the 2015 IBC. This proposal is intended to provide further clarification. Section 1004.1.1.1 states, "Design of egress path capacity shall be based on the cumulative portion of occupant loads of all rooms, areas or spaces to that point along the path of egress travel." If a room, area or space having multiple exits or exit access doorways has one exit access doorway leading through an adjoining or intervening room providing an egress path to an exit, the question arises as to what portion of the occupant load of the original space is included in the cumulative occupant load? Some may simply divide the occupant load of the space by the number of exits or exit access doorways to determine the contribution. Based on the distribution of the required capacity within the space under consideration, that may or may not be an appropriate number. This proposal clarifies that the anticipated occupant load to be included in the cumulatative occupant load calculation is based on the actual capacity of the means of egress components providing access to the intervening room, area or space. This calculation technique is currently used in Section 1026.4 to determine the size of refuge areas serving horizontal exits. It was recognized that when determining the cumulative occupant load based on the capacity of egress doors, the resultant occupant load may actually exceed the design occupant load of the adjoining space. A single egress door can serve up to 160 occupants. If the design occupant load of the adjoining space was less than 160, the cumulative occupant loads based on capacity would be overly restrictive. Therefore, a design occupant load condition has been developed and has been added to both Sections 1004.1.1.1 and 1026.4 for purposes of practicality and uniformity. This method is an objective and consistent way of establishing contributing occupant loads from adjacent areas. Approval of this proposal would lead to more uniform interpretations and application of this fundamental IBC means of egress provision.

Cost Impact: Will not increase the cost of construction
This proposal is intended to provide clarification of current IBC provisions.

E 6-15 : 1004.1.1.1-KEITH4375

E 7-15

1004, 1004.1.3 (New); (IFC[BE] 1004, 1004.1.3 (New))

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Revise as follows:

SECTION 1004 OCCUPANT LOAD

1004.1 Design occupant load. *No change to text.*

~~**1004.1.1**~~**1004.2** **Cumulative occupant loads.** *No change to text.*

~~**1004.1.1.1**~~**1004.2.1** **Intervening spaces or accessory areas.** *No change to text.*

~~**1004.1.1.2**~~**1004.2.2** **Adjacent levels for mezzanines.** *No change to text.*

~~**1004.1.1.3**~~**1004.2.3** **Adjacent stories.***No change to text.*

Add new text as follows:

1004.3 **Multiple Function Occupant Load.** Where functions with both gross and net, or different occupant load factors of gross or net are on the same floor they shall be included in the calculation of the design occupant load using the area of each function calculated independently.

Revise as follows:

~~**1004.6**~~**1004.4** **Multiple occupancies.** *No change to text.*

~~**1004.1.2**~~**1004.5** **Areas without fixed seating.** The number of occupants shall be computed at the rate of one occupant per unit of area as prescribed in Table ~~1004.1.2~~1004.5. For areas without *fixed seating*, the occupant load shall be not less than that number determined by dividing the floor area under consideration by the *occupant load* factor assigned to the function of the space as set forth in Table ~~1004.1.2~~1004.5. Where an intended function is not listed in Table ~~1004.1.2~~1004.5, the *building official* shall establish a function based on a listed function that most nearly resembles the intended function.

> **Exception:** Where *approved* by the *building official*, the actual number of occupants for whom each occupied space, floor or building is designed, although less than those determined by calculation, shall be permitted to be used in the determination of the design *occupant load*.

TABLE ~~1004.1.2~~1004.5
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

No change to table or footnotes.

~~**1004.2**~~**1004.5.1** **Increased occupant load.** The *occupant load* permitted in any building, or portion thereof, is permitted to be increased from that number established for the occupancies in Table ~~1004.1.2~~1004.5, provided that all other requirements of the code are met based on such modified number and the *occupant load* does not exceed one occupant per 7 square feet (0.65 m^2) of occupiable floor space. Where required by the *building official*, an *approved aisle*, seating or fixed equipment diagram substantiating any increase in *occupant load* shall be submitted. Where required by the *building official*, such diagram shall be posted.

~~**1004.4**~~**1004.6** **Fixed seating.** For areas having *fixed seats* and *aisles*, the *occupant load* shall be determined by the number of *fixed seats* installed therein. The *occupant load* for areas in which *fixed seating* is not installed, such as waiting spaces, shall be determined in accordance with Section ~~1004.1.2~~1004.5 and added to the number of *fixed seats*.

The *occupant load* of *wheelchair spaces* and the associated companion seat shall be based on one occupant for each *wheelchair space* and one occupant for the associated companion seat provided in accordance with Section 1108.2.3.

For areas having *fixed seating* without dividing arms, the *occupant load* shall be not less than the number of seats based on one person for each 18 inches (457 mm) of seating length.

The *occupant load* of seating booths shall be based on one person for each 24 inches (610 mm) of booth seat length measured at the backrest of the seating booth.

~~**1004.5**~~**1004.7** **Outdoor areas.** *No change to text.*

~~**1004.3**~~**1004.8** **Posting of occupant load.** *No change to text.*

Reason: The purpose for adding Section 1004.3, Multiple function occupanc load: The current table for determining the occupant load for a space or a building uses the term function. Since many of the activities noted in the table are not occupant specific that logic appears to be correct. However, there are differing ways to determine what the occupant load is based on the measurement by net or gross area. Both terms are defined in the code, and both are exclusive of each other (they don't overlap). However, within most buildings there are more than one function and quite often more than one occupancy. The application of Table 1004.1.2 does not provide guidance as to how to determine which load factor to use.
One very common area of confusion is often found in office buildings. The table indicates that for "business areas" that 100 sf. of gross area would provide the

basis for the occupant load. Gross floor area is by definition the entire building floor. So, a 10,000 sf. floor for business would have 100 occupants. However, within a typical office there are other functions as well, such assembly. The code specifically anticipates this in Chapter 3 and notes that assembly space within an office, with an occupant load of less than 50 is allowed to be classified as a B occupancy, thus eliminating a "mixed-use" condition. Assembly occupant loads are measured either by fixed seats or by net area. That leaves the assembly function in the business occupancy with no direction as to what is intended by the code for calculation of its occupant load.

The question that is constantly raised bby code users is what number should be used and what areas are they applied to? If the 100 sf. per person anticipates all the functional activities within a business function (stairs, hallways, restrooms, etc., etc.), then does it or doesn't it include the assembly functions? If it does, then the occupant load is simple to calculate. If it doesn't, then how do you determine what area to ascribe to the assembly space? Do you then subtract that area from the business space?

Using the simplest example of a 10,000 sf. office floor, with a 600 sf. conference room with no chairs, the occupant load could either be calculated by the gross number (100) based on the simultaneous use concept. Or should the net area for the assembly function could be deleted from the gross area. Assuming tables and chairs in the conference room, the occupant load for the space for that function would be 40, and the remaining office occupant load would be 94. The occupant load for design of the means of egress from the floor would then be 144.

The reason for reorganization: The current organization for this section is random. With this reorganization of Section 1004, Section 1004.2 through 1004.4 would be how spaces worked together, and Section 1004.5 through 1004.7 would be the specifics for calculating the occupant load of each space. This will also set up this section so that where specific spaces need unique criteria (e.g. the conference room proposal also submitted for consideration) there is a logical place to locate those sections. The final section, Section 1004.8, is for when that occupant load needs to be posted.

Cost Impact: Will not increase the cost of construction
There should be little impact as this is simply clarifying how to determine the occupant load for a floor with varying functions.

E 7-15 : 1004.1.3 (New)-COLLINS4481

E 8-15

Table 1004.1.2, 1004.1.3 (New); (IFC[BE] Table 1004.1.2, 1004.1.3 (New))

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Add new text as follows:

1004.1.3 Conference and meeting rooms in Group B. In Group B buildings, the occupant load factor for determining *means of egress* requirements for conference and meeting rooms with fewer than 50 occupants, shall be 100 gross square feet per person.

Revise as follows:

TABLE 1004.1.2
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Business areas	100 gross
Conference and meeting rooms in business areas	See Section 1004.1.3

(Portions of table not shown remain unchanged.)

For SI: 1 square foot = 0.0929 m^2, 1 foot = 304.8 mm.

a. Floor area in square feet per occupant.

Reason: This change is proposed for two reasons: 1) The cumulative occupant load for meeting rooms based on 15 square feet per person can far exceed a reasonable number of actual occupants in Group B, particularly without simultaneous use of work areas and meeting areas. The change will provide a more accurate reflection of the number of occupants for means of egress requirements only. 2) In consideration of the above, this code has been troublesome for tenant improvement projects for business areas when egress requirements are significantly more stringent than shell and core projects. The underlying basis of design for egress requirements in Group B shell and core projects is 100 square feet per occupant and the inclusion of meeting room areas at 15 square feet per occupant has triggered existing stairs to be widened and elevators added to meet the means of egress requirements. This is not necessary to meet the intent of use.

Cost Impact: Will not increase the cost of construction
The impact should reduce the cost of construction. Under the current code additional elements of egress may be required that are not warranted.

E 8-15 : T1004.1.2-COLLINS4480

E 9-15

Table 1004.1.2, 1004.6 (New); (IFC[BE] Table 1004.1.2, 1004.6 (New))

Proponent: Dave Frable, representing US General Services Administration

2015 International Building Code

TABLE 1004.1.2
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Business area Concentrated business use areas	~~100~~150 gross See Section 1004.6

(Portions of table not shown remain unchanged)

For SI: 1 square foot = 0.0929 m^2, 1 foot = 304.8 mm.

a. Floor area in square feet per occupant.

Add new text as follows:

1004.6 Concentrated business use areas The occupant load factor for concentrated business use shall be applied to telephone call centers, trading floors, electronic data processing centers and similar business use areas with a higher density of occupants than would normally be expected in a typical business occupancy environment. The occupant load for concentrated business use areas shall be the actual occupant load, where approved by the code official, but not less than one occupant per 100 square foot gross of occupiable floor space.

Reason: The intent of this code change proposal is to revise the current maximum floor area allowance per occupant in Table 1004.1.2 for business occupancies from 100 ft^2/occupant (gross) to 150 ft^2/occupant (gross) for determining the means of egress requirements in business areas and to create a new occupant load sub-category for concentrated use areas in business occupancies having a higher density of occupants than would normally be expected in a typical business occupancy environment.

Our rationale is based on several past research studies that have concluded that the 100 ft^2/occupant (gross) occupant load factor for business occupancies is very conservative which has led to requiring Group B occupancies and office buildings in general to have additional egress capacity and a greater number of exits to accommodate an "over-estimated" building population. We believe the increase from 100 ft^2/occupant (gross) to 150 ft^2/occupant (gross) for business occupancies is still a conservative figure; yet reasonable, based on recent changes in office building design as well as changes in the North American workplace and work style trends; such as work station configurations, flexible work schedules, telecommuting, work at home, etc.

The existing occupant load factor of 100 ft^2/occupant (gross) for business occupancies first appeared in the 3rd edition of the Building Exits Code that was published in 1934. The occupant load factor of 100 ft^2/occupant (gross) was specified for office, factory, and workrooms. All occupant load factors were based on the gross floor area of the building, such that no deduction was permitted for corridors, closets, restrooms, or other subdivisions. To our knowledge there is no formal record indicating the basis of the occupant load factors included in the 1934 Buildings Exits Code. However, it seems likely that the results from a National Bureau of Standards (NBS) [now referred to as National Institute of Standards and Technology (NIST)] study published in 1935 were the most likely basis of the occupant load factors adopted into the 1934 Code. However, since the initial NBS study in 1935, several other studies have been conducted to determine the occupant load factors for various occupancies. One common similarity of each of the studies was that all of the subsequent studies have concluded that the 100 ft^2/occupant (gross) occupant load factor for business occupancies is conservative. Studies conducted between 1966 and 1992 have indicated that occupant load factors in business occupancies ranged from 150 ft^2/occupant (gross) to 278 ft^2/occupant (gross). In addition, a 1995 study of 23 Federal sector and private sector office buildings also indicated a mean occupant load factor of 248 ft^2/occupant for all office buildings.Lastly, a recent project to study the appropriateness of the 100 ft^2/occupant load factor for business occupancies has been undertaken by the NFPA Fire Protection Research Foundation. The study was conducted by WPI undergrad students. The recommendations of this study have indicated that it is reasonable to increase the occupant load factor to 150 ft^2/occupant in business occupancies and to create a new occupant load sub-category for concentrated use areas in business occupancies.

Based on the points stated above and the occupant load factor ranges cited in recent studies, I believe it would be reasonable to increase the occupant load factor of 100 ft^2/occupant (gross) in Table 1004.1.2 for determining the means of egress requirements in Business areas to 150 ft^2/occupant (gross) and to create a new occupant load sub-category for concentrated use areas in business occupancies having a range between 50 ft^2-100 ft^2/occupant depending on the work environment configuration.

Cost Impact: Will not increase the cost of construction
The overall outcome of this code change should not increase the cost of construction in most situations.

E 9-15 : T1004.1.2-FRABLE5100

E 10-15

TABLE 1004.1.2; (IFC[BE] TABLE 1004.1.2)

Proponent: Raymond Grill, Arup, representing Arup (ray.grill@arup.com)

2015 International Building Code

Revise as follows:

TABLE 1004.1.2
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Business areas[b]	100 gross

(Portions of table not shown remain unchanged)

For SI: 1 square foot = 0.0929 m^2, 1 foot = 304.8 mm.

a. Floor area in square feet per occupant.

b. Uses incidental to the business use, such as conference rooms or break rooms, shall be included in the gross area calculation.

Reason: Incidental uses such as break rooms and conference rooms that are intended to be used by the occupants of the business use should not be loaded as if they were standalone assembly areas. Speculative office developments have regullarly been designed for egress and plumbing fixtures based on the gross area of the floor. The increase in build to suit office projects should not increase the occupant loads of a building and require increased egress width and more plumbing fixtures.
A independant study performed by the Univeristy of Maryland and published by NIST (Evaluation of Survey Procedures for Determining Occupant Load Factors in Contemporary Office Buildings, Issued September 1996) reported on the evaluation of a broad range of types of office buildings. Quoting from the study abstract, "Buildings that are primarily composed of open plan office designs are found to have greater occupant load factors than buildings composed of well-compartmented office designs. County government office buildings are found to be slightly greater occupant load factors than federal government buildings. Federal government buildings have lesser occupant load factors than private office buildings. The mean occupant load factor found in the study for all of the buildings is 248 ft^2/person."

Designers and reviewers who are unfamiliar with the origin and history of the code often over design or require over design when designing build to suit projects by counting conference rooms and break rooms to be considered as assembly uses with simutaneous occupancy with the office areas.
This significanlty increases the occupant load. The model codes historically had never been applied in this fashion and the occupant load study referenced above reinforces that is should not be applied in a manner that inappropriately increases the occupant load of the building.

Over design results in a waste of resources when we are collectively trying to achieve sustainable designs.

Cost Impact: Will not increase the cost of construction
This proposed code change will not increase the cost of compliance and could reduce the cost of code compliance.

E 10-15 : T1004.1.2-GRILL5198

E 11-15

TABLE 1004.1.2; (IFC[BE] TABLE 1004.1.2)

Proponent: Stephen Thomas, Colorado Code Consulting, LLC, representing International Association of Building Officials (sthomas@coloradocode.net)

2015 International Building Code

Revise as follows:

TABLE 1004.1.2
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Industrial areas	~~100~~300 gross

(Portions of table not shown remain unchanged.)

For SI: 1 square foot = 0.0929 m^2, 1 foot = 304.8 mm.

a. Floor area in square feet per occupant.

Reason: The current occupant load factor for industrial areas has been around for decades. The Occupant load was appropriate for factories in the early 1900's. However, our factories are much different than they were back then. They have become more automated, requiring less factory workers. Therefore, I believe that the code should reflect how industrial areas are occupied today. Therefore, we have recommended that the occupant load factor be increased resulting in an overall lower occupant load for factories. The factor is based on storage areas and similar spaces.

Cost Impact: Will not increase the cost of construction
This change will reduce cost of construction. It will reduce the number of plumbing fixtures and exit required for such occupancies.

E 11-15 : T1004.1.2-THOMAS5294

E 12-15

TABLE 1004.1.2; (IFC[BE] TABLE 1004.1.2)

Proponent: Masoud Sabounchi, Representing Colorado Chapter of ICC , representing masoud sabounchi (masoud@acecode.com)

2015 International Building Code

Revise as follows:

TABLE 1004.1.2
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Skating rinks, swimming pools	
Rink and pool	50 gross
Decks	15[b] gross

(Portions of table not shown remain unchanged.)

For SI: 1 square foot = 0.0929 m^2, 1 foot = 304.8 mm.

a. Floor area in square feet per occupant.

b. For swimming pools that serve Group R-2 and R-3 occupancies, the occupant load factor for the pool deck shall be 30 square feet gross.

Reason: Apartment buildings have swimming pools and decks that serve the apartment building only. Application of occupant load factor of 1:15 results in occupant loads that are very high and not reflecting the use of these decks as amenity spaces for the apartment buildings and unlike a public pool deck. In most cases the calculated occupant loads on these decks is much higher than considering all apartment residents using the decks. The proposed use of the 1:30 occupant load factor is in concert with other nationally recognized codes and more closely reflects the anticipated occupant loads on these decks.

Cost Impact: Will not increase the cost of construction
This proposal will not increase cost of construction

E 12-15 : T1004.1.2-SABOUNCHI4396

E 13-15

1004.3; (IFC[BE] 1004.3)

Proponent: William Freer, representing New York State Office of Fire Prevention and Control (wfreer@dhses.ny.gov)

2015 International Building Code

Revise as follows:

1004.3 Posting of occupant load. Every room or space that is an assembly occupancy shall have the *occupant load* of the room or space posted in a conspicuous place, near the main *exit* or *exit access doorway* from the room or space, for the intended configurations. Posted signs shall be of an approved legible permanent design and shall be maintained by the owner or the owner's authorized agent.

Reason: Many assembly occupancies have become multi-purpose. In many cases these rooms or spaces have been posted for the maximum occupant load as if the space was wide open and being used for standing room only. In these cases the posting would allow for too many persons. Section 1029.5 of the Fire Code states that it is prohibited to overcrowd a building or portion thereof, but without the appropriate occupancy load being posted it would be impossible to enforce this section as intended.
Many jurisdictions have started to require multiple postings for rooms having multiple configurations. Unfortunately that is not currently in the code and may become confusing. By adding for the 'intended configuration' in the code it would confirm that the code enforcement official could require that correct signage was posted.

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction.

E 13-15 : 1004.3-FREER3784

E 14-15

1004.5; (IFC[BE] 1004.5)

Proponent: Timothy Pate, representing Colorado Chapter Code Change Committee, representing City and County of Broomfield (tpate@broomfield.org)

2015 International Building Code

Revise as follows:

1004.5 Outdoor areas. *Yards*, patios, <u>occupied roofs,</u> *courts* and similar outdoor areas accessible to and usable by the building occupants shall be provided with *means of egress* as required by this chapter. The *occupant load* of such outdoor areas shall be assigned by the *building official* in accordance with the anticipated use. Where outdoor areas are to be used by persons in addition to the occupants of the building, and the path of egress travel from the outdoor areas passes through the building, *means of egress* requirements for the building shall be based on the sum of the *occupant loads* of the building plus the outdoor areas.

Exceptions:

1. Outdoor areas used exclusively for service of the building need only have one *means of egress*.
2. Both outdoor areas associated with Group R-3 and individual dwelling units of Group R-2.

Reason: This proposal will add the language "occupied roofs" to this section which will allow the code user to understand that occupied roofs which are open to the sky will also need to meet means of egress requirements. There was this same language added to the 2012 IBC Section 1021.1 which is now section 1006.3 in the 2015 IBC This added language will also clarify that you would need to assign an occupant load based on the anticipated use and design exit system per that occupant load. There has been considerable confusion among building officials and designers on this issue and this should help tie this section to the language in section 1006.3.

Cost Impact: Will not increase the cost of construction
This proposal is only to help clarify the existing code requirements

E 14-15 : 1004.5-PATE4753

E 15-15

Part I:
1005.3.1, 1005.3.2
Part II:
402.6 (New), 403.2 (New), 407.4 (New), 408.3 (New), 704.2 (New), 1005.2 (New), 1012.4.3, 1107 (New), 1107.1 (New), 1203.4 (New), 1401.6.11, Table 1401.6.11(1) (New), 1401.6.11.1

THIS IS A 2 PART CODE CHANGE. PART I AND II WILL BE HEARD BY THE IBC-MEANS OF EGRESS COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THIS COMMITTEE.

Proponent: Dave Frable, representing US General Services Administration (dave.frable@gsa.gov)

Part I

2015 International Building Code

Revise as follows:

1005.3.1 Stairways. The capacity, in inches, of *means of egress stairways* shall be calculated by multiplying the *occupant load* served by such *stairways* by a means of egress capacity factor of 0.3 inch (7.6 mm) per occupant. Where *stairways* serve more than one story, only the occupant load of each story considered individually shall be used in calculating the required capacity of the *stairways* serving that story.

Exceptions:

~~1. For other than Group H and I-2 occupancies, the capacity, in inches, of *means of egress stairways* shall be calculated by multiplying the *occupant load* served by such *stairways* by a means of egress capacity factor of 0.2 inch (5.1 mm) per occupant in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an *emergency voice/alarm communication* system in accordance with Section 907.5.2.2.~~

<u>1.</u> Facilities with *smoke-protected assembly seating* shall be permitted to use the capacity factors in Table 1029.6.2 indicated for stepped aisles for *exit access* or *exit stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is provided with a smoke control system complying with Section 909.

2. Facilities with outdoor *smoke-protected assembly seating* shall be permitted to the capacity factors in Section 1029.6.3 indicated for stepped aisles for *exit access* or *exit stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is open to the outdoors.

1005.3.2 Other egress components. The capacity, in inches, of *means of egress* components other than *stairways* shall be calculated by multiplying the *occupant load* served by such component by a means of egress capacity factor of 0.2 inch (5.1 mm) per occupant.

Exceptions:

~~1. For other than Group H and I-2 occupancies, the capacity, in inches, of *means of egress* components other than *stairways* shall be calculated by multiplying the *occupant load* served by such component by a means of egress capacity factor of 0.15 inch (3.8 mm) per occupant in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an *emergency voice/alarm communication* system in accordance with Section 907.5.2.2.~~

<u>1.</u> Facilities with *smoke-protected assembly seating* shall be permitted to use the capacity factors in Table 1029.6.2 indicated for level or ramped *aisles* for *means of egress* components other than *stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is provided with a smoke control system complying with Section 909.

2. Facilities with outdoor *smoke-protected assembly seating* shall be permitted to the capacity factors in Section 1029.6.3 indicated for level or ramped *aisles* for *means of egress* components other than *stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is open to the outdoors.

Part II

2015 International Existing Building Code

Add new text as follows:

<u>**402.6 Means of egress capacity factors.** Where an addition is made to an existing building or structure, the existing building or structure together with its additions shall not be subject to the egress width factors in Sections 1005.3.1and 1005.3.2 of the International Building Code for new construction in determining the minimum egress widths in an existing building or structure. The minimum egress widths for the components of the means of egress shall be based on the means of egress width factors in the building code under which the building was constructed, and shall be considered as complying means of egress for any existing building together with its additions if, in the opinion of the code official, they do not constitute a distinct hazard to life.</u>

<u>**403.2 Means of egress capacity factors** Alterations to any existing building shall not be subject to the egress width factors in</u>

Sections 1005.3.1and 1005.3.2 of the *International Building Code* for new construction in determining the minimum egress widths in an existing building. The minimum egress widths for the components of the means of egress shall be based on the means of egress width factors in the building code under which the building was constructed, and shall be considered as complying means of egress for any alteration if, in the opinion of the code official, they do not constitute a distinct hazard to life.

407.4 Means of egress capacity factors An exisiting building undergoing a change of occupancy shall not be subject to the egress width factors in Sections 1005.3.1and 1005.3.2 of the International Building Code for new construction in determining the minimum egress widths in an existing building. The minimum egress widths for the components of the means of egress shall be based on the means of egress width factors in the building code under which the building was constructed, and shall be considered as complying means of egress for a change of occupancy if, in the opinion of the code official, it does not constitute a distinct hazard to life.

408.3 Means of egress capacity factors A historic building shall not be subject to the egress width factors in Sections 1005.3.1and 1005.3.2 of the International Building Code for new construction in determining the minimum egress widths in an existing building. The minimum egress widths for the components of the means of egress shall be based on the means of egress width factors in the building code under which the building was constructed, and shall be considered as complying means of egress for any alteration if, in the opinion of the code official, they do not constitute a distinct hazard to life.

704.2 Means of egress capacity factors Alterations to any existing building shall not be subject to the egress width factors in Sections 1005.3.1and 1005.3.2 of the International Building Code for new construction in determining the minimum egress widths in an existing building. The minimum egress widths for the components of the means of egress shall be based on the means of egress width factors in the building code under which the building was constructed, and shall be considered as complying means of egress for any alteration if, in the opinion of the code official, they do not constitute a distinct hazard to life.

1005.2 Means of egress capacity factors An exisitng building undergoing a change of occupancy shall not be subject to the egress width factors in Sections 1005.3.1and 1005.3.2 of the International Building Code for new construction in determining the minimum egress widths in an existing building. The minimum egress widths for the components of the means of egress shall be based on the means of egress width factors in the building code under which the building was constructed, and shall be considered as complying means of egress for a change of occupancy if, in the opinion of the code official, it does not constitute a distinct hazard to life.

Revise as follows:

1012.4.3 ~~Egress~~Means of egress capacity factors. ~~Egress capacity~~
An exisitng building undergoing a change of occupancy shall ~~meet or exceed~~not be subject to the ~~occupant load as specified~~egress width factors in Sections 1005.3.1and 1005.3.2 of the *International Building Code* for new construction in determining the minimum egress widths in an existing building. The minimum egress widths for the ~~new~~components of the means of egress shall be based on the means of egress width factors in the building code under which the building was constructed, and shall be considered as complying means of egress for a change of occupancy if, in the opinion of the code official, it does not constitute a distinct hazard to life.

Add new text as follows:

SECTION1107 MEANS OF EGRESS

1107.1 Means of egress capacity factors. Where an addition is made to an existing building or structure, the existing building or structure together with its additions shall not be subject to the egress width factors in Sections 1005.3.1and 1005.3.2 of the International Building Code for new construction in determining the minimum egress widths in an existing building or structure. The minimum egress widths for the components of the means of egress shall be based on the means of egress width factors in the building code under which the building was constructed, and shall be considered as complying means of egress for any existing building together with its additions if, in the opinion of the code official, they do not constitute a distinct hazard to life.

1203.4 Means of egress capacity factors A historic building shall not be subject to the egress width factors in Sections 1005.3.1and 1005.3.2 of the International Building Code for new construction in determining the minimum egress widths in an existing building. The minimum egress widths for the components of the means of egress shall be based on the means of egress width factors in the building code under which the building was constructed, and shall be considered as complying means of egress for any alteration if, in the opinion of the code official, they do not constitute a distinct hazard to life.

Revise as follows:

1401.6.11 Means of egress capacity and number. Evaluate the means of egress capacity and the number of exits available to the building occupants. In applying this section, the means of egress are required to conform to the following sections of the *International Building Code:* 1003.7, 1004, ~~1005.1~~1005, 1006, 1007, 1016.2, 1025.1, 1028.2, 1028.5, 1029.2, 1029.3, 1029.4 and 1030, except that for existing buildings the minimum width required by this Section can also be determined solely by the width for the required capacity in accordance with Table 1401.6.11(1). The number of exits credited is the number that is available to each occupant of the area being evaluated. Existing fire escapes shall be accepted as a component in the means of egress when conforming to Section 405.

Under the categories and occupancies in Table ~~1401.6.11~~1401.6.11(2), determine the appropriate value and enter that value into Table 1401.7 under Safety Parameter 1401.6.11, Means of Egress Capacity, for means of egress and general safety.

Add new table as follows:

TABLE 1401.6.11(1)
EGRESS WIDTH PER OCCUPANT SERVED

OCCUPANCY	Without sprinkler system and emergency voice/alarm communication system		With sprinkler system and emergency voice/alarn communiction system[a]	
	Stairways (inches pre occupant)	Other egress components (inches per occupant)	Stairways (inches per occupant)	Other egress componenets (inches per occupant)
Occupancies other than listed below	0.3	0.2	0.2	0.15
Hazardous: H-1, H-2, H-3, H-4	0.7	0.4	0.3	0.2
Institutional: I-2	N/A	N/A	0.3	0.2

For SI: 1 inch = 25.4 mm. N/A = Not applicable.
a. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.

Revise as follows:

TABLE ~~1401.6.11~~1401.6.11(2)
MEANS OF EGRESS VALUES[a]

OCCUPANCY	CATEGORIES				
	a	b	c	d	e
A-1, A-2, A-3, A-4, E, I-2	-10	0	2	8	10
M	-3	0	1	2	4
B, F, S	-1	0	0	0	0
R	-3	0	0	0	0

a. The values indicated are for buildings six stories or less in height. For buildings over six stories above grade plane, add an additional -10 points.

1401.6.11.1 Categories. The categories for means-ofegress capacity and number of exits are:

1. Category a—Compliance with the minimum required means-of-egress capacity or number of exits is achieved through the use of a fire escape in accordance with Section 405.
2. Category b—Capacity of the means of egress complies with Section ~~1004~~1005 of the *International Building Code* or Table 1401.6.11(1), and the number of exits complies with the minimum number required by Section ~~1021~~1006 of the *International Building Code*.
3. Category c—Capacity of the means of egress is equal to or exceeds 125 percent of the required means-of-egress capacity, the means of egress complies with the minimum required width dimensions specified in the *International Building Code* or Table 1401.6.11(1), and the number of exits complies with the minimum number required by Section 1006 of the *International Building Code*.
4. Category d—The number of exits provided exceeds the number of exits required by Section 1006 of the *International Building Code*. Exits shall be located a distance apart from each other equal to not less than that specified in Section ~~1015.2~~1007 of the *International Building Code*.
5. Category e—The area being evaluated meets both Categories c and d.

Reason: The intent of this code change is to revise the egress capacity factors referenced in Sections 1005.3.1 and 1005.3.2 such that the concept of determining egress capacity for the components of the means of egress within a building is not a function of whether or not a building is protected by an automatic fire sprinkler system. Not all building emergencies that necessitate occupant egress either out of the building or within a building to a safe area are dependent on a fire sprinkler system and a evacuation voice/alarm communication system. In addition, revisions have also been incorporated into the IEBC to ensure existing buildings utilizing previously approved egress capacity factors are not significantly impacted by this code change.
The geometry of a building, its occupancy and related occupant load, travel distance to exits dictate, in large measure, the location of exits, the number of exits, the capacity of other egress components, and the capacity of exits and access thereto. As a consequence, the exits themselves influence the plan and layout of the entire means of egress system. The number of people that the means of egress system can accommodate is determined primarily by the

capacity (i.e., width) of the exits but it also is affected by the number of occupants each component within the exit access and exit discharge can accommodate. Therefore, exit stair capacity and the capacity factor for "other means of egress" components are stand-alone life safety fundamental concepts that need to be addressed properly, just as providing sprinkler protection and occupant notification via a voice/alarm communication system in building, to help ensure a reasonable level of safety in a building.
The number of occupants or occupant load for which a means of egress system must provide egress capacity is calculated. The occupant load is to reflect the maximum number of occupants anticipated to occupy the building rooms or spaces at any given time under all probable situations. The occupant load must not be based only on normal occupancy.
Currently, the base requirements in the IBC for determining egress capacity for exit stairways state that the egress capacity for exit stairways and means of egress components shall be based on a capacity factor of 0.3 inches/occupant and 0.2 inches/occupant respectively. However, the IBC has exceptions that permit a building that is equipped throughout by an automatic sprinkler system and an emergency alarm communication system to use a capacity factor of 0.2 inches/occupant for exit stairways and 0.15 inches/occupant for other means of egress components. The resulting action of these 2 exceptions can be demonstrated in the four scenarios described below:

Scenario 1; if the egress capacity of a 44 inch wide exit stair uses a capacity factor of 0.3 inches width/occupant, it would equate to 146 occupants for that stair. Therefore, if a floor has 2 similar configured exit stairways as stated above, Scenario 1 will limit the maximum allowable number of occupants on the floor to 292 occupants

Scenario 2; if the egress capacity of a 44 inch wide exit stair uses a capacity factor of 0.2 inches width/occupant, it would equate to 220 occupants for that stair. Therefore, if a floor has 2 similar configured exit stairways as stated above, Scenario 2 will limit the maximum allowable number of occupants on the floor to 440 occupants.

Scenario 3; if the egress capacity of a 36-inch door uses a capacity factor of 0.2 inches width/occupant, it would equate to 180 occupants egressing through that door.

Scenario 4; if the egress capacity of a 36-inch wide door uses a capacity factor of 0.15 inches width/occupant, it would equate to 240 occupants egressing through that door.

However, we strongly believe the exceptions permitted in the IBC do not take into account other types of life safety events not related to fire that have a comparable impact on occupants evacuating a building. For example, non-related fire emergencies such as, but not limited to, hazardous substance spills and leaks, suspicious packages, natural disasters, medical emergencies, etc. may necessitate all occupants, including those with mobility impairments, to take immediate action to evacuate a building in an efficient manner where evacuation time may be a critical factor in ensuring occupant safety. Therefore, reducing the exit stair capacity factor to 0.2 inches/occupant and reducing the capacity factor for "other egress components" to 0.15 inches/occupant may increase the overall occupant evacuation times which may impact occupant safety in these critical situations. In addition, reducing these core fundamental capacity factors in the means of egress may also impact occupant safety if the needed automatic sprinkler system and/or emergency voice/alarm communication system fails to operate.

Therefore, based on our substantiation, we believe the respective 2 exceptions should be deleted since in our opinion the current exceptions do not present any clear and substantial justification to reduce the exit stair capacity factor from 0.3 inches/occupant to 0.2 inches/occupant and the "other egress components" from 0.2 inches/occupant to 0.15 inches/occupant.

Cost Impact:

Part I: Will increase the cost of construction
This code change will probbaly increase constrcution costs to meet the new requirements but will enhance overall building safety during a building evacution. Howeevr, there should be no cost impact on exisiting buildings.

Part II: Will increase the cost of construction
This code change will probbaly increase constrcution costs to meet the new requirements but will enhance overall building safety during a building evacution. Howeevr, there should be no cost impact on exisiting buildings.

E 15-15 : 1005.3.1-FRABLE5123

E 16-15

1006.2.1, 1006.3; (IFC[BE] 1006.2.1, 1006.3)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1006.2.1 Egress based on occupant load and common path of egress travel distance. Two *exits* or *exit access doorways* from any space shall be provided where the design *occupant load* or the *common path of egress travel* distance exceeds the values listed in Table 1006.2.1. The portion of the occupant load from adjacent rooms, areas or spaces shall be based on the capacity of the means of egress components providing access to the space under consideration.

Exceptions:

1. The number of exits from foyers, lobbies, vestibules or similar spaces need not be based on cumulative occupant loads for areas discharging through such spaces, but the capacity of the exits from such spaces shall be based on applicable cumulative occupant loads.
2. In Group R-2 and R-3 occupancies, one *means of egress* is permitted within and from individual *dwelling units* with a maximum *occupant load* of 20 where the *dwelling unit* is equipped throughout with an *automatic sprinkler* system in accordance with Section 903.3.1.1 or 903.3.1.2 and the *common path of egress travel* does not exceed 125 feet (38 100 mm).
3. *Care suites* in Group I-2 occupancies complying with Section 407.4.

1006.3 Egress from stories or occupied roofs. The *means of egress* system serving any *story* or occupied roof shall be provided with the number of *exits* or access to *exits* based on the aggregate *occupant load* served in accordance with this section. The *path of egress travel* to an *exit* shall not pass through more than one adjacent *story*. Where stairways serve more that one story, only the occupant load of each story considered individually shall be used in caculating the required number of exits or access to *exits* serving that story.

Exception: Where the only access to requried exits from a mezzanines is through and adjacent story, the entire occupant load of such mezzanines shall be added to the load of the adjacent story.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
Cumulative occupant load provisions were clarified in the 2015 IBC. There were several proposals initially submitted to address these provisions. For the final action hearings, proponents agreed to support one proposal: E15-12. E15 addressed the concerns by modifying Section 1004.1, Cumulative occupant loads.

This proposal is intended to enhance the functionality of these requirements by placing them in context with the applicable means of egress design requirements. For example, Section 1004.1.1.1 states, "Design of egress path capacity shall be based on the cumulative portion of the occupant loads of all rooms, areas or spaces to that point along the path of egress travel." This proposal places the same requirement at Section 1006.2.1 in the context of using capacity to determine the required number of exits or access to exits.

A new Exception 1 to Section 1006.2.1 has been added. This language was contained in proposal E16-12 and was lost in the consolidation. Nevertheless, it is a logical concern. Literally interpreted, a building with an occupant load of 4,000 and having four required exits with one of those exits having a foyer, lobby, vestibule or similar space would require four exits from such space based on the cumulative occupant load of 1,000. The number of exits from such space would be based on the occupant load of the space; however, the capacity of that exit(s) would be based on the cumulative occupant load served.

Perhaps the most important feature of the 2015 code change was that it clarified that cumulative occupant loads are not considered when calculating the required number of exits or access to exits serving an adjacent story. An exception clarifies that occupant loads from isolated mezzanines will be considered in determining the number of required exits from the adjacent story.

Some seasoned practitioners consult a specific code provision without reviewing the applicable general requirements when researching a given design condition. If for instance, a design professional or plans examiner is verifying the procedure for the determination of the required number of exits or access to exits, he or she will likely consult Section1006 although many other general provisions potentially apply to the situation, to include Section 1004. This proposal is intended to be user friendly in that it restates important cumulative occupant load provisions in technical context without providing a generic cross-reference.

Approval of this proposal will improve the consistency in the determination and application of fundamental IBC means of egress provisions.

Cost Impact: Will not increase the cost of construction
None. Provisions simply provide clarification of current requirements.

Staff note: Section 1006.3 has a published errata. The proposal includes the errata as existing text.

E 16-15 : 1006.2.1-KULIK3684

E 17-15

1006.2.1, TABLE 1006.2.1; (IFC[BE] 1006.2.1, TABLE 1006.2.1)

Proponent: Lee Kranz, City of Bellevue, Washington, representing Washington Association of Building Officials Technical Code Development Committee

2015 International Building Code

Revise as follows:

1006.2.1 Egress based on occupant load and common path of egress travel distance. Two *exits* or *exit access doorways* from any space shall be provided where the design *occupant load* or the *common path of egress travel* distance exceeds the values listed in Table 1006.2.1.

~~Exceptions~~Exception:

~~1.~~ ~~In Group R-2 and R-3 occupancies, one *means of egress* is permitted within and from individual *dwelling units* with a maximum *occupant load* of 20 where the *dwelling unit* is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2 and the *common path of egress travel* does not exceed 125 feet (38 100 mm).~~

1. *Care suites* in Group I-2 occupancies complying with Section 407.4.

TABLE 1006.2.1
SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

OCCUPANCY	MAXIMUM OCCUPANT LOAD OF SPACE	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)		
		Without Sprinkler System (feet)		With Sprinkler System (feet)
		Occupant Load		
		OL ≤ 30	OL 30	
A[c], E, M	49	75	75	75[a]
B	49	100	75	100[a]
F	49	75	75	100[a]
H-1, H-2, H-3	3	NP	NP	25[b]
H-4, H-5	10	NP	NP	75[b]
I-1, I-2[d], I-4	10	NP	NP	75[a]
I-3	10	NP	NP	100[a]
R-1	10	NP	NP	75[a]
R-2	~~10~~ 20	NP	NP	125[a]
R-3[e]	~~10~~20	NP	NP	125[a]
R-4[e]	~~10~~20	75	75	125[a]
S[f]	29	100	75	100[a]
U	49	100	75	75[a]

For SI: 1 foot = 304.8 mm.

NP = Not Permitted

a. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where *automatic sprinkler systems* are permitted in accordance with Section 903.3.1.2.

b. Group H occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.5.

c. For a room or space used for assembly purposes having *fixed seating*, see Section 1029.8.

d. For the travel distance limitations in Group I-2, see Section 407.4.

e. The ~~length of~~*common path of egress travel* distance shall only apply in a Group R-3 occupancy located in a mixed occupancy building or within a Group R-3 or R-4 *congregate living facility*.

f. The length of *common path of egress travel* distance in a Group S-2 *open parking garage* shall be not more than 100 feet.

Reason: Exception #1 of Section 1006.2.1 is essentially an exception to the maximum occupant load limits of 10 in Table 1006.2.1 for R-2 and R-3. Increasing the maximum occupant load from 10 to 20 in the table for R-2, R-3 and R-4 and deleting exception #1 is appropriate since all Group R occupancies require sprinkler protection per Section 903.2.8 (NFPA 13 and NFPA 13-R system) and the 125' common path limit in the exception is consistent with the table so the exception is no longer needed.
The occupant load limit for R-4 in the table is also proposed to be modified from 10 to 20. Section 310.6 limits R-4 occupancies to 16 residents but does not include "staff" so it is likely that the occupant load will be 17 or more.

The change in footnote e is intended to clarify the intent and make it easier to understand.

Cost Impact: Will not increase the cost of construction
This code change eliminates a redundant provision and will not affect the cost of construction.

E 17-15 : 1006.2.1-KRANZ3767

E 18-15

TABLE 1006.2.1; (IFC[BE] TABLE 1006.2.1)

Proponent: Victor Cuevas, representing City of Los Angeles

2015 International Building Code

Revise as follows:

TABLE 1006.2.1
SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

OCCUPANCY	MAXIMUM OCCUPANT LOAD OF SPACE	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)		
		Without Sprinkler System (feet)		With Sprinkler System (feet)
		Occupant Load		
		OL ≤ 30	OL>30	
A[c] , E, M	49	75	75	75[a]
B	49	100	75	100[a]
F	49	75	75	100[a]
H-1, H-2, H-3	3	NP	NP	25[b]
H-4, H-5	10	NP	NP	75[b]
I-1, I-2[d] , I-4	10	NP	NP	75[a]
I-3	10	NP	NP	100[a]
R-1	10	~~NP~~75	~~NP~~75	75[a]
R-2	10	~~NP~~75	~~NP~~75	125[a]
R-3[e]	10	~~NP~~75	~~NP~~75	125[a]
R-4[e]	10	75	75	125[a]
S[f]	29	100	75	100[a]
U	49	100	75	75[a]

For SI: 1 foot = 304.8 mm.

NP = Not Permitted

a. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where *automatic sprinkler systems* are permitted in accordance with Section 903.3.1.2.

b. Group H occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.5.

c. For a room or space used for assembly purposes having *fixed seating*, see Section 1029.8.

d. For the travel distance limitations in Group I-2, see Section 407.4.

e. The length of *common path of egress travel* distance in a Group R-3 occupancy located in a mixed occupancy building or within a Group R-3 or R-4 *congregate living facility*.

f. The length of *common path of egress travel* distance in a Group S-2 *open parking garage* shall be not more than 100 feet.

Reason: The purpose of this proposal is to allow a maximum common path of egress travel distance to be 75' for Group R-1, R-2 and R-3. Without this change, any addition to an existing non-sprinklered building would require two exits from any room without any allowance for the common path of egress travle distance. This travel distance is the same as what was permitted in the code before all Group R was required to be sprinklered.

Cost Impact: Will not increase the cost of construction
There is not change in requirements.

E 18-15 : T1006.2.1-CUEVAS4824

E 19-15

TABLE 1006.2.1; (IFC[BE] TABLE 1006.2.1)

Proponent: Kathleen Petrie, representing City of Seattle, Department of Planning and Development (kathleen.petrie@seattle.gov)

2015 International Building Code

Revise as follows:

TABLE 1006.2.1
SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

OCCUPANCY	MAXIMUM OCCUPANT LOAD OF SPACE	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)		
		Without Sprinkler System (feet)		With Sprinkler System (feet)
		Occupant Load		
		OL ≤ 30	OL >30	
A[c] , E, M	49	75	75	75[a]
B	49	100	75	100[a]
F	49	75	75	100[a]
H-1, H-2, H-3	3	NP	NP	25[b]
H-4, H-5	10	NP	NP	75[b]
I-1, I-2[d] , I-4	10	NP	NP	75[a]
I-3	10	NP	NP	100[a]
R-1	10	NP	NP	75[a]
R-2	10	NP	NP	125[a]
R-3[e]	10	NP	NP	125[a]
R-4[e]	10	75	75	125[a]
S[f]	29	100	75	100[a]
U	49	100	75	75[a]

For SI: 1 foot = 304.8 mm.

NP = Not Permitted

a. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where *automatic sprinkler systems* are permitted in accordance with Section 903.3.1.2.

b. Group H occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.5.

c. For a room or space used for assembly purposes having *fixed seating*, see Section 1029.8.

d. For the travel distance limitations in Group I-2, see Section 407.4.

e. The length of *common path of egress travel* distance in a Group R-3 occupancy located in a mixed occupancy building or within a Group R-3 or R-4 *congregate living facility*.

~~f. The length of *common path of egress travel* distance in a Group S-2 *open parking garage* shall be not more than 100 feet.~~

Reason: This proposal deletes footnote 'f' in Table 1006.2.1 because it is unnecessary and adds confusion. Footnote 'f' currently limits the maximum common path of egress travel distance to 100 feet for open parking garages with an S-2 Occupancy. However, 100 feet is the maximum distance for any S Occupancy, so it is unnecessary to single out open parking garages. This footnote may also result in prompting the user to unnecessarily search for a requirement applying to enclosed parking garages.

Cost Impact: Will not increase the cost of construction
This proposal is a clarification of the requirement so there is no impact to the cost of construction

E 19-15 : T1006.2.1-PETRIE4005

E 20-15

1006.2.2.1, 1006.2.2.2 (New), 1006.2.2.2, 1010.1.10; (IFC[BE] 1006.2.2.1, 1006.2.2.2 (New), 1006.2.2.2, 1010.1.10)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1006.2.2.1 Boiler, incinerator and furnace rooms. Two *exit access doorways* are required in boiler, incinerator and furnace rooms where the area is over 500 square feet (46 m^2) and any fuel-fired equipment exceeds 400,000 British thermal units (Btu) (422 000 KJ) input capacity. Where two *exit access doorways* are required, one is permitted to be a fixed ladder or an *alternating tread device*. *Exit access doorways* shall be separated by a horizontal distance equal to one-half the length of the maximum overall diagonal dimension of the room.
Doors shall swing in the direction of egress travel, regardless of the occupancy load served. Doors shall be provided with panic hardware or fire exit hardware.

Add new text as follows:

1006.2.2.2 Electrical Equipment Space. Entrance to and egress from the working space for electrical equipment shall be in compliance with the *International Fire Code* and Sections 110.26 and 110.33 of NFPA 70, as applicable.

Doors shall swing in the direction of egress travel, regardless of the occupancy load served. Doors shall be provided with panic hardware or fire exit hardware.

Revise as follows:

~~**1006.2.2.2**~~**1006.2.2.3 Refrigeration machinery rooms.** Machinery rooms larger than 1,000 square feet (93 m^2) shall have not less than two *exits* or *exit access doorways*. Where two *exit access doorways* are required, one such doorway is permitted to be served by a fixed ladder or an *alternating tread device*. *Exit access doorways* shall be separated by a horizontal distance equal to one-half the maximum horizontal dimension of the room.

All portions of machinery rooms shall be within 150 feet (45 720 mm) of an *exit* or *exit access doorway*. An increase in *exit access* travel distance is permitted in accordance with Section 1017.1.

Doors shall swing in the direction of egress travel, regardless of the *occupant load* served. Doors shall be tight fitting and self-closing. Doors shall be provided with panic hardware or fire exit hardware.

1010.1.10 Panic and fire exit hardware. Doors serving a Group H occupancy and doors serving rooms or spaces with an *occupant load* of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than *panic hardware* or *fire exit hardware*.

Exceptions:

1. A main *exit* of a Group A occupancy shall be permitted to be locking in accordance with Section 1010.1.9.3, Item 2.
2. Doors serving a Group A or E occupancy shall be permitted to be electromagnetically locked in accordance with Section 1010.1.9.9.

~~Electrical rooms with equipment rated 1,200 amperes or more and over 6 feet (1829 mm) wide, and that contain overcurrent devices, switching devices or control devices with *exit* or *exit access doors*, shall be equipped with *panic hardware* or *fire exit hardware*. The doors shall swing in the direction of egress travel.~~

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
Requirements for access and working space to and about electrical equipment is covered in the National Electrical Code, NFPA 70, and the International Fire Code. The requirements for electrical equipment rated 600 volts or less are covered in Section 110.26 of NFPA 70. The requirements for electrical equipment rated more than 600 volts are covered in Sections 110.32 and 110.33 of NFPA 70. These requirements are more detailed than what is currently in the building code, and apply to electrical equipment in all occupancies.

Section 2701.1 of the IBC requires electrical components, equipment, and systems to be designed and constructed in accordance with NFPA 70. By including a specific reference in Chapter 10 of the building code to the access and working space requirements in NFPA 70, registered design professionals will be aware to incorporate these requirements into the design of the building before starting construction.

The door requirements are added to current Sections 1006.2.2.1 and 1006.2.2.2 for consistency with these types of mechanical spaces.

Cost Impact: Will not increase the cost of construction
This code change proposal will not increase the cost of construction. This code proposal may actually decrease the cost of construction, because the design

of the building will include the requirements that are already required elsewhere in this code.

E 20-15 : 1006.2.2.2 (NEW)-KULIK3668

E 21-15

1006.2.2.2 (New); (IFC[BE] 1006.2.2.2 (New))

Proponent: Lee Kranz, City of Bellevue, WA, representing Washington Association of Building Officials Technical Code Development Committee

2015 International Building Code

Add new text as follows:

1006.2.2.2 **Electrical equipment rooms.** Rooms containing electrical equipment shall be provided with the number of exit or exit access doorways in accordance with NFPA70 Article 110 where all of the following apply:

1. The electrical equipment is rated at 1,200 amperes or more.
2. The electrical equipment is over 6 feet (1829 mm) wide;
3. The electrical equipment contains overcurrent devices, switching devices or control devices.

(Renumber subsequent sections.)

Reason: This code change is needed to create consistency with the NEC. NEC Article 110.26 (C) (2) requires a 2nd exit when large electrical equipment (over 6 feet wide) exceeding 1,200 amperes where the equipment contains overcurrent devices, switching devices or control devices. Most building code reviewers are not aware of the need for the 2nd exit in the NEC and the requirement is often not identified until after construction begins when it is costly to modify the architectural design. Rather than requiring a second exit or exit access doorway, the proposal specifies that the number of exits or exit access doorways shall be in accordance with NEC Article 110. This approach was taken due to several exceptions contained in Article 110 exempting the second exit doorway and which would not be appropriate to duplicate in the IBC.
Similar provisions are located in Section 1010.1.10 to require panic hardware or fire exit hardware for electrical rooms with large electrical equipment.

Cost Impact: Will not increase the cost of construction
This code change will save money by reducing costly change orders when the NEC requirement for a 2nd exit is not cought during plan review.

E 21-15 : 1006.2.2.2 (New)-KRANZ4099

E 22-15

1006.2.2.2; (IFC[BE] 1006.2.2.2)

Proponent: Jeffrey Shapiro, International Institute of Ammonia Refrigeration, representing International Institute of Ammonia Refrigeration (jeff.shapiro@intlcodeconsultants.com)

2015 International Building Code

Revise as follows:

1006.2.2.2 Refrigeration machinery rooms. Machinery rooms larger than 1,000 square feet (93 m^2) shall have not less than two *exits* or *exit access doorways*. Where two *exit access doorways* are required, one such doorway is permitted to be served by a fixed ladder or an *alternating tread device*. *Exit access doorways* shall be separated by a horizontal distance equal to one-half the maximum horizontal dimension of the room.

All portions of machinery rooms shall be within 150 feet (45 720 mm) of an *exit* or *exit access doorway*. An increase in *exit access* travel distance is permitted in accordance with Section 1017.1.

~~Doors~~ *Exit and exit access doorways* shall swing in the direction of egress travel, regardless of the *occupant load* served. ~~Doors~~*Exit* and exit access doorways shall be tight fitting and self-closing.

Reason: The proposed revision clarifies of how the code should currently be applied. The intent of this section is limited to regulating exit and exit access doors, but as currently written, the code incorrectly suggests that any door, even a door to an auxiliary space that doesn't lead to an exit, must swing in the direction of egress.

Cost Impact: Will not increase the cost of construction
The change has no impact on the cost of construction.

E 22-15 : 1006.2.2.2-SHAPIRO4702

E 23-15

1006.2.2.4, Table 1017.2, Table 1020.1; (IFC[BE] 1006.2.2.4, Table 1017.2, Table 1020.1)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

1006.2.2.4 ~~Day care~~Group I-4 means of egress. ~~Day care~~
Group I-4 facilities, rooms or spaces where care is provided for more than 10 children that are $2^{1}/_{2}$ years of age or less, shall have access to not less than two *exits* or *exit access doorways*.

TABLE 1017.2
EXIT ACCESS TRAVEL DISTANCE[a]

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
A, E, F-1, M, R, S-1	200	250[b]
I-1	Not Permitted	250[b]
B	200	300[c]
F-2, S-2, U	300	400[c]
H-1	Not Permitted	75[d]
H-2	Not Permitted	100[d]
H-3	Not Permitted	150[d]
H-4	Not Permitted	175[d]
H-5	Not Permitted	200[c]
I-2, I-3~~, I-4~~	Not Permitted	200[c]
I-4	150	200[c]

For SI: 1 foot = 304.8 mm.

a. See the following sections for modifications to *exit access* travel distance requirements:

Section 402.8: For the distance limitation in malls.

Section 404.9: For the distance limitation through an atrium space.

Section 407.4: For the distance limitation in Group I-2.

Sections 408.6.1 and 408.8.1: For the distance limitations in Group I-3.

Section 411.4: For the distance limitation in special amusement buildings.

Section 412.7: For the distance limitations in aircraft manufacturing facilities.

Section 1006.2.2.2: For the distance limitation in refrigeration machinery rooms.

Section 1006.2.2.3: For the distance limitation in refrigerated rooms and spaces.

Section 1006.3.2: For buildings with one exit.

Section 1017.2.2: For increased distance limitation in Groups F-1 and S-1.

Section 1029.7: For increased limitation in assembly seating.

Section 3103.4: For temporary structures.

Section 3104.9: For pedestrian walkways.

b. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where *automatic sprinkler systems* are permitted in accordance with Section 903.3.1.2.

c. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

d. Group H occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.2.5.1.

TABLE 1020.1
CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (hours)	
		Without sprinkler system	With sprinkler system[c]
H-1, H-2, H-3	All	Not Permitted	1
H-4, H-5	Greater than 30	Not Permitted	1
A, B, E, F, M, S, U	Greater than 30	1	0
R	Greater than 10	Not Permitted	0.5
I-2[a]~~, I-4~~	All	Not Permitted	0
I-4	All	1	0
I-1, I-3	All	Not Permitted	1[b]

a. For requirements for occupancies in Group I-2, see Sections 407.2 and 407.3.

b. For a reduction in the *fire-resistance rating* for occupancies in Group I-3, see Section 408.8.

c. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2 where allowed.

Reason:
Section 903.2.6 Exception 2 allows for day cares to not be sprinklered and 903.2.6 allows for the building to not be fully sprinklered. This is a historical provision that has no incidence that would indicate that it should not be permitted. Therefore, there needs to be an option other than NP in travel distance and corridor ratings in non-sprinklered buildings for Group I-4 day care facilities. The provisions permitted were in past editions of the code.

IBC 308.6.1 Classification as Group E. A child day care facility that provides care for more than five but not more than 100 children 21/2 years or less of age, where the rooms in which the children are cared for are located on a level of exit discharge serving such rooms and each of these child care rooms has an exit door directly to the exterior, shall be classified as Group E.

IFC 903.2.6 (IBC [F] 903.2.6) Group I. An automatic sprinkler system shall be provided throughout buildings with a Group I fire area.
Exceptions:
1. An automatic sprinkler system installed in accordance with Section 903.3.1.2 shall be permitted in Group I-1 Condition 1 facilities.
2. An automatic sprinkler system is not required where Group I-4 day care facilities are at the level of exit discharge and where every room where care is provided has not fewer than one exterior exit door.
3. In buildings where Group I-4 day care is provided on levels other than the level of exit discharge, an automatic sprinkler system in accordance with Section 903.3.1.1 shall be installed on the entire floor where care is provided, all floors between the level of care and the level of exit discharge, and all floors below the level of exit discharge other than areas classified as an open parking garage.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This is coordination and correlation of requirements in existing provisions.

E 24-15

1006.3; (IFC[BE] 1006.3)

Proponent: Stephen Thomas, representing Colorado Chapter (sthomas@coloradocode.net)

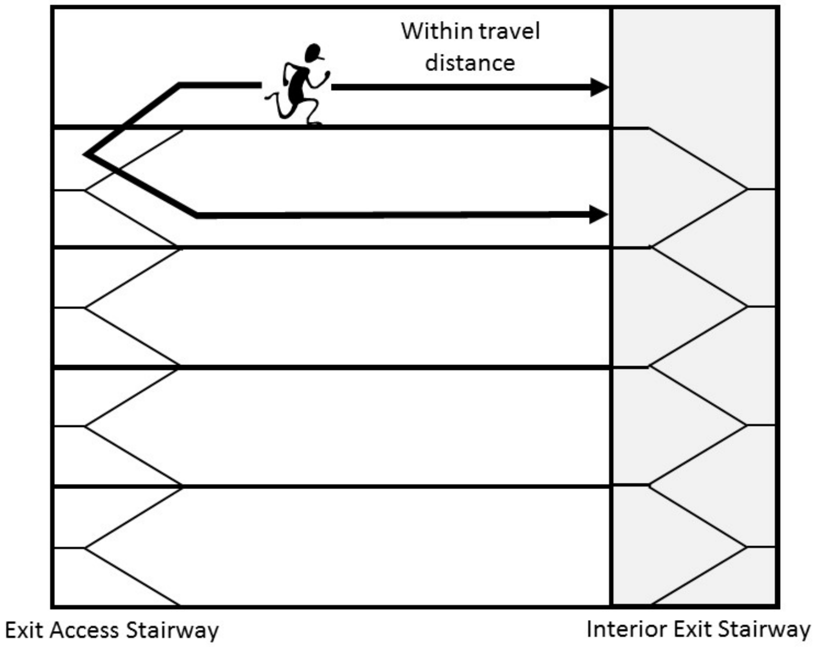
2015 International Building Code

Revise as follows:

1006.3 Egress from stories or occupied roofs. The *means of egress* system serving any *story* or occupied roof shall be provided with the number of independent *exits* or access to independent *exits* based on the aggregate *occupant load* served in accordance with this section. The *path of egress travel* to an *exit* shall not pass through more than one adjacent *story*.

Reason: This section has been interpreted to allow a single exit in a multi-story building. The intent is to clarify that there must be independent exits in a building. The interpretation has been that if a person is on an upper floor of a building, they have to have access to at least 2+ exits which can end up being the same interior exit stairway on an adjacent story.
This is how it works. A 5 story building has one interior exit stairway. An occupant has to have access to two exits. The first exit is accessed at the 5th floor within the required travel distance. The second exit is then accessed by going down an exit access stairway complying with Section 1019.3, item 4 to the 4th floor, across the floor to the single interior exit stairway, thus providing access to "two exits". Please see diagram below.

This was not the intent of the change in the 2015 code from my involvement in the committee. If that single stairway is lost for some reason, there is no other way for people in the building to egress through a protected means of egress.



Cost Impact: Will not increase the cost of construction
This is a clarification to the code and will not increase the cost of construction.

Staff note: There is a published errata to Section 1006.3. The errata in indicated in this proposal as existing text.

E 24-15 : 1006.3-THOMAS4557

E 25-15

1006.3, 1006.3.1; (IFC[BE] 1006.3, 1006.3.1)

Proponent: Gregory Keith, Professional heuristic Development, representing The Boeing Company (grkeith@mac.com); Stephen Thomas (sthomas@coloradocode.net)

2015 International Building Code

Revise as follows:

1006.3 Egress from stories or occupied roofs. The *means of egress* system serving any *story* or occupied roof shall be provided with the number of separate and distinct *exits* or access to *exits* based on the aggregate *occupant load* served in accordance with this section. Where an exit access stairway provides access to an exit at another story, a single interior or exterior exit stairway having entrances at each story shall not serve as both required exits for a single story. The *path of egress travel* to an *exit* shall not pass through more than one adjacent *story*.

1006.3.1 Egress based on occupant load. Each *story* and occupied roof shall have the minimum number of ~~independent~~ separate and distinct *exits*, or access to *exits*, as specified in Table 1006.3.1. A single *exit* or access to a single *exit* shall be permitted in accordance with Section 1006.3.2. The required number of *exits*, or *exit access stairways* or *ramps* providing access to *exits*, from any *story* or occupied roof shall be maintained until arrival at the *exit discharge* or a *public way*.

Reason: Section 1006.3.1 currently references "independent" exits. Independent can be a vague or judgemental term. The proposed "separate and distinct" language is more specific. Also, that terminology is currently used in the definition of common path of egress travel to identify a point where two exits or access to exits would be required.
Additionally, Section 1006.3 has been modified to include the qualifying requirement of "separate and distinct" as well. Conceivably, if both the entrance to an interior exit stairway at one story and the entrance to the same interior exit stairway at an adjacent story are both within the prescribed exit access travel distance limitations, it could be interpreted that the required number of exits requirement has been satisfied because the two entrances are "independent." To clarify the intent, a sentence has been added stating that a single interior exit stairway cannot serve as both exits from a given story. The separate and distinct terminology would require that there be a second formal exit available within established exit access travel limitations.

This proposal intends to amplify separate exit requirements. It is also intended to clarify that although required exits from a given story may be located at different building levels, the same interior exit stairway may not serve as satisfying multiple exit requirements. Obviously, if such interior exit stairway was compromised, the opportunity for a true alternate exit would be lost. Approval of this proposal increases occupant safety within the means of egress system.

Cost Impact: Will not increase the cost of construction
This proposal is intended to clarify current numbers of exits provisions.

Staff note: There is a published errata to Section 1006.3 and 1006.3.1. The errata is incorporated into this proposal as existing text.

E 25-15 : 1006.3-KEITH4704

E 26-15

1006.3; (IFC[BE] 1006.3)

Proponent: Rick Lupton, representing City of Seattle, Dept of Planning & Development (rick.lupton@seattle.gov)

2015 International Building Code

Revise as follows:

1006.3 Egress from stories or occupied roofs. The *means of egress* system serving any *story* or occupied roof shall be provided with the number of *exits* or access to *exits* based on the aggregate *occupant load* served in accordance with this section. The *path of egress travel* to an *exit* shall not pass through more than one adjacent *story*. <u>Where a story is required to have two or more exits or access to exits, the rooms, areas, or spaces within that story shall have access to no less that two exits, except as otherwise provided in this code.</u>

Reason: The code is not clear that where a story requires two or more exits (or access to exits) that all the rooms on that story require access to at least two exits, even if the room only requires one exit access -unless the room meets a specific exception such as direct egress to grade. The code change proposal clarifies the intent, while stiill enabling the single means of egress provisions for a space in Chapter 10 or elsewhere in the code, such as Section 402.8.3.

Cost Impact: Will not increase the cost of construction
No additional exits are required and so cost is not increased, though some designs may require further thought.

Staff note: There is a published errata to Section 1006.3. The errata is shown in the proposal as existing text.

E 26-15 : 1006.3-LUPTON5540

E 27-15

1006.3, 1006.3.1 (New); (IFC[BE] 1006.3, 1006.3.1 (New))

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

Revise as follows:

1006.3 Egress from stories or occupied roofs.
The *means of egress* system serving any *story* or occupied roof shall be provided with the number of *exits* or access to *exits* based on the aggregate *occupant load* served in accordance with this section. ~~The *path of egress travel* to an *exit* shall not pass through more than one adjacent *story*.~~

Add new text as follows:

<u>**1006.3.1 Adjacent story.** The path of egress travel to an exit shall not pass through more than one adjacent story.</u>

> <u>**Exception:** The path of egress travel to an exit shall be permitted to pass through more than one adjacent story in any of the following:</u>
>
> 1. <u>In Group R-1, R-2 or R-3 occupancies, exit access stairways and ramps connecting four stories or less serving and contained within an individual dwelling unit or sleeping unit or live/work unit.</u>
> 2. <u>Exit access stairways serving and contained within a Group R-3 congregate residence or a Group R-4 facility.</u>
> 3. <u>Exit access stairways and ramps in open parking garages that serve only the parking garage.</u>
> 4. <u>Exit access stairways and ramps serving open-air assembly seating complying with the exit access travel distance requirements of Section 1029.7.</u>
> 5. <u>Exit access stairways and ramps between the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, places of religious worship, auditoriums and sports facilities.</u>

Reason: The intent of this proposal is to coordinate Section 1006.3 and the allowance for exit access stairways in Section 1019.3. The 2nd sentence of Section 1006.3 currently says that the required number of exits must be available not more than one story above or below the exit you are on. The first part of this proposal is to put that requirement in its own section, Section 1006.3.1.
Section 1019.3 Exception 1, allows for open exit access stairways for two story buildings. However, there are several situations where the intent was for open exit access stairways to be utilized for more than one story, provided that the travel distance is met – within a 3 or 4 story dwelling, in atriums, in open air seating, and from balconies. It is also the intent to allow for open stairways for multiple stories within open parking garages, per Section 1019.3 and Section 1017.3. Exceptions to new Section 1006.3.1 would clarify where this is permitted.

The exceptions here are direct copies of the exceptions in Section 1019.3. If there are revisions to those exceptions in this cycle, there will be a public comment to revise the language here to be consistent.

Alternatives also discussed where one exception to Section 1006.3.1 with a reference to specific exceptions in the open exit access stairway provisions in Section 1019.3; or removal of the sentence now in Section 1006.3.1.

In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled Unenclosed Exit Stairs. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.http://www.iccsafe.org/cs/CTC/Pages/default.aspx

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at:http://www.iccsafe.org/cs/BCAC/Pages/default.aspx .

Cost Impact: Will not increase the cost of construction
This is for clarification, therefore, there will be no additional requirements.

Staff note: There is a published errata to Section 1006.3. The errata is shown in the proposal as existing text.

E 27-15 : 1006.3-KULIK3645

E 28-15

1006.3.2, Table 1006.3.2(1) and Table 1006.3.2(2); (IFC[BE] 1006.3.2, Table 1006.3.2(1) and Table 1006.3.2(2))

Proponent: Wayne Jewell, Green Oak Charter Township, representing Green Oak Charter Township (wayne.jewell@twp.green-oak.mi.us); Dave Collins, representing the American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Revise text as follows:

1006.3.2 Single exits. A single exit or access to a single exit shall be permitted from any story or occupied roof where one of the following conditions exists:

1. The occupant load, number of dwelling units and ~~common path of egress~~ exit access travel distance does not exceed the values in Table 1006.3.2(1) or 1006.3.2(2).
2. Rooms, areas and spaces complying with Section 1006.2.1 with exits that discharge directly to the exterior at the level of exit discharge, are permitted to have one exit or access to a single exit.
3. Parking garages where vehicles are mechanically parked shall be permitted to have one exit or access to a single exit.
4. Group R-3 and R-4 occupancies shall be permitted to have one exit or access to a single exit.
5. Individual single-story or multistory dwelling units shall be permitted to have a single exit or access to a single exit from the dwelling unit provided that both of the following criteria are met:
   5.1. The dwelling unit complies with Section 1006.2.1 as a space with one means of egress.
   5.2. Either the exit from the dwelling unit discharges directly to the exterior at the level of exit discharge, or the exit access outside the dwelling unit's entrance door provides access to not less than two approved independent exits.

TABLE 1006.3.2(1)
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM ~~COMMON PATH OF EGRESS~~EXIT ACCESS TRAVEL DISTANCE
Basement, first, second or third story above grade plane	R-2[a, b]	4 dwelling units	125 feet
Fourth story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 3048 mm.

NP = Not Permitted

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with *emergency escape and rescue openings* in accordance with Section 1030.

b. This table is used for R-2 occupancies consisting of *dwelling units.* For R-2 occupancies consisting of *sleeping units*, use Table 1006.3.2(2).

TABLE 1006.3.2(2)
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY	MAXIMUM ~~COMMON PATH OF EGRESS~~EXIT ACCESS TRAVEL DISTANCE (feet)
	A, B[b] , E F[b] , M, U	49	75

First story above or below grade plane	H-2, H-3	3	25
	H-4, H-5, I, R-1, R-2[a,c] , R-4	10	75
	S[b,d]	29	75
Second story above grade plane	B, F, M, S[d]	29	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with *emergency escape and rescue openings* in accordance with Section 1030.

b. Group B, F and S occupancies in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 shall have a maximum *exit access* travel distance of 100 feet.

c. This table is used for R-2 occupancies consisting of *sleeping units*. For R-2 occupancies consisting of *dwelling units*, use Table 1006.3.2(1).

d. The length of *exit access* travel distance in a Group S-2 *open parking garage* shall be not more than 100 feet

Reason: Code hange E127 from the last cycle had the last column heading of both tables as maximum exit access travel distance. Code Change E1 changed it to maximum common path of egress. Since using that terminology of common path of travel distances when dealing with a single exit building can create confusion, it is suggested to return the terminology back to exit access travel distance which removes confusion and is still technically correct for single exit buildings or those where common path of travel is applicable. This change would literally not change the intent of the requirement – which is to measure to the top of an exit stairway or down the stairway with an exit access stairway. In the definition of 'common path of egress travel' we state that the occupants have 'access to two exits or exit access doorways' - how does that occur in a single exit building? *Common Path of Travel* distances are discussed in Section 1006.2.1 and prescribed in Table 1006.2.1; which do differ from the distances in Tables 1006.3.2(2) for some occupancies.

Cost Impact: Will not increase the cost of construction
This change is an editorial change and eliminates confusion. If it works maybe that redcues the cost of construction as time will be saved (which has a cost) trying to figure out what the code is saying, therefore saves cost.

Staff note: There is an errata to Section 1006.3.2 Item 1. This errata in incorporated into the code change as existing text.

E 28-15 : 1006.3.2-JEWELL5394

E 29-15

Table 1006.3.2, 1030.1 (IFC[BE] Table 1006.3.2, 1030.1)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

1006.3.2 Single exits. A single *exit* or access to a single *exit* shall be permitted from any *story* or occupied roof where one of the following conditions exists:

1. The *occupant load*, number of *dwelling units* and common path of egress travel distance does not exceed the values in Table 1006.3.2(1) or 1006.3.2(2).
2. Rooms, areas and spaces complying with Section 1006.2.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*, are permitted to have one *exit* or access to a single *exit*.
3. Parking garages where vehicles are mechanically parked shall be permitted to have one *exit* or access to a single *exit*.
4. Group R-3 and R-4 occupancies shall be permitted to have one *exit* or access to a single *exit*.
5. Individual single-story or multistory *dwelling units* shall be permitted to have a single exit or access to a single *exit* from the *dwelling unit* provided that both of the following criteria are met:
    1. The *dwelling unit* complies with Section 1006.2.1 as a space with one *means of egress.*
    2. Either the *exit* from the *dwelling unit* discharges directly to the exterior at the *level of exit discharge*, or the *exit access* outside the dwelling unit's entrance door provides access to not less than two approved independent *exits*.

TABLE 1006.3.2
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)
First story above or below grade plane	A, B[b] , E F[b] , M, U	49	75
	H-2, H-3	3	25
	H-4, H-5, I, R-1, R-2[a,c]~~, R-4~~	10	75
	S[b,d]	29	75
Second story above grade plane	B, F, M, S[d]	29	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as Group R-2 equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with *emergency escape and rescue openings* in accordance with Section 1030.

b. Group B, F and S occupancies in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 shall have a maximum *exit access* travel distance of 100 feet.

c. This table is used for R-2 occupancies consisting of *sleeping units*. For R-2 occupancies consisting of *dwelling units*, use Table 1006.3.2(1).

d. The length of *exit access* travel distance in a Group S-2 *open parking garage* shall be not more than 100 feet

1030.1 General.
In addition to the *means of egress* required by this chapter, provisions shall be made for *emergency escape and rescue openings* in Group R-2 occupancies in accordance with Tables 1006.3.2(1) and 1006.3.2(2) and Group R-3 and R-4 occupancies. *Basements* and sleeping rooms below the fourth story above *grade plane* shall have at least one exterior *emergency escape and rescue opening* in

accordance with this section. Where *basements* contain one or more sleeping rooms, *emergency escape and rescue openings* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way*.

Exceptions:

1. B*asements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior exit balcony that opens to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.

Reason: There is a conflict between Section 1006.3.2 Item 4 and Table 1006.3.2(2) due to multiple changes on the same section during the last cycle. Group R-4 are permitted to have multiple stories with one exit in the text, but limited to one story and 10 occupants in the table. Open exit access stairways are permitted in Group R-3 and R-4 in Section 1019.3 Item 3.

This will not negate the requirement for all bedrooms/sleeping units to have emergency escape windows in Section 1030.1. While Group R-4 should follow Group R-3 provisions, it is proposed to be added here to make sure it is applied.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This provides clarification in the current requirements.

Staff note: There is an errata to Section 1006.3.2 Item 1. This errata in incorporated into the code change as existing text.

E 29-15 : T1006.3.2-BALDASSARRA4277

E 30-15

1008.2; (IFC[BE] 1008.2)

Proponent: David Kulina, representing Engel Architects (david@engelarch.com)

2015 International Building Code

Revise as follows:

1008.2 Illumination required. The *means of egress* serving a room or space shall be illuminated at all times that the room or space is occupied.

Exceptions:

1. Occupancies in Group U.
2. *Aisle accessways* in Group A.
3. *Dwelling units* and *sleeping units* in Groups R-1, R-2 and R-3.
4. *Sleeping units* of Group I occupancies.
5. <u>Occupancies in Group F and S not served by artificial illumination.</u>

Reason: There is a significant minority of industrial and storage spaces that are either lit by sunlight (windows, daylight tubes, skylight, translucent panels, etc). These facilities are operated during daylight hours only, and so do not require artificial illumination. Therefore, if they have enough footcandles to adequately see the work being performed, they will have adequate light for egress.

Cost Impact: Will not increase the cost of construction
The costs will actually be decreased as unnecessary lights and emergency lights are eliminated.
This will encourage the use of natural lighting.

E 30-15 : 1008.2-KULINA4552

E 31-15

202(New), 1008.2.1.1(New), 1008.3, 1008.3.1, 1008.3.4, 1013.6.3, 1025.5; (IFC[BE] 1008.2.1.1(New), 1008.3, 1008.3.1, 1008.3.4, 1013.6.3, 1025.5)

Proponent: Charles Barlow, representing EverGlow NA, Inc. (cvbarlow@everglow.us)

2015 International Building Code

Add new definitions as follows:

SECTION 202 DEFINITIONS

DAYLIGHT RESPONSIVE CONTROL. A device or system that provides automatic control of electric light levels based on the amount of daylight in a space.

GENERAL LIGHTING. Lighting that provides a substantially uniform level of illumination throughout an area. General lighting shall not include decorative lighting or lighting that provides a dissimilar level of illumination to serve a specialized application or feature within such area.

OCCUPANT SENSOR CONTROL. An automatic control device or system that detects the presence or absence of people within an area and causes lighting, equipment or appliances to be regulated accordingly.

TIME SWITCH CONTROL. An automatic control device or system that controls lighting or other loads, including switching off, based on time schedules.

Revise as follows:

SECTION 1008 MEANS OF EGRESS ILLUMINATION

1008.1 Means of egress illumination. Illumination shall be provided in the *means of egress* in accordance with Section 1008.2. Under emergency power, means of egress illumination shall comply with Section 1008.3.

1008.2 Illumination required. The *means of egress* serving a room or space shall be illuminated at all times that the room or space is occupied.

Exceptions:

1. Occupancies in Group U.
2. *Aisle accessways* in Group A.
3. *Dwelling units* and *sleeping units* in Groups R-1, R-2 and R-3.
4. *Sleeping units* of Group I occupancies.

~~**1008.3**~~**1008.2.1** ~~**Emergency**~~**Illumination power** ~~**for illumination**~~**supply.** The power supply for means of egress illumination shall normally be provided by the premises' electrical supply.

Add new text as follows:

1008.2.1.1 Lighting controls. General lighting in the means of egess shall be permitted to use daylight responsive controls, occupant sensor controls and time switch controls. In rooms and spaces where emergency lighting is required in Sections 1008.3, 1008.3.1 and 1008.3.2, the lighting controls for the general means of egress lighting shall comply with all of the following:

1. The daylight responsive controls, occupant sensor controls and time switch controls are listed and evaluated to automatically energize the controlled lights upon device failure or loss of normal power.
2. For occupant sensor controls, the control is activated by any occupant movement in the area served by the controlled lights and illumination timers are set for a durations of 15 minutes minimum.
3. A daylight responsive control or occupant sensor control does not control lights required as a charging source for photoluminescent egress path markings in accordance with Section 1025.
4. A daylight responsive controls, occupant sensor controls or time switch controls does not control electrical power to, or illumination for exit signs in accordance with Section 1013.
5. A daylight responsive controls, occupant sensor controls or time switch controls does not control emergency egress lighting required in Section 1008.3.

Revise as follows:

~~**1008.2.1**~~**1008.2.2 Illumination level under normal power.** The *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface.

Exception: For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances by one of the following methods provided that the required illumination is automatically restored upon activation of a premises' fire alarm system:

1. Externally illuminated walking surfaces shall be permitted to be illuminated to not less than 0.2 footcandle (2.15 lux).
2. Steps, landings and the sides of ramps shall be permitted to be marked with self-luminous materials in accordance with Sections 1025.2.1, 1025.2.2 and 1025.2.4 by systems listed in accordance with UL 1994.

~~1008.2.2~~<u>1008.2.3</u> Exit discharge. In Group I-2 occupancies where two or more exits are required, on the exterior landings required by Section 1010.6.1, means of egress illumination levels for the exit discharge shall be provided such that failure of any single lighting unit shall not reduce the illumination level on that landing to less than 1 footcandle (11 lux).

~~1008.3.1~~<u>1008.3</u> ~~General~~<u>Illumination of the means of egress under emergency power</u>. In the event of power supply failure in rooms and spaces that require two or more means of egress, an emergency electrical system shall automatically illuminate all of the following areas:

1. *Aisles*.
2. *Corridors*.
3. *Exit access stairways* and *ramps*.

~~1008.3.2~~<u>1008.3.1</u> Buildings. In the event of power supply failure in buildings that require two or more *means of egress*, an emergency electrical system shall automatically illuminate all of the following areas:

1. *Interior exit access stairways* and *ramps*.
2. *Interior* and *exterior exit stairways* and *ramps*.
3. *Exit passageways.*
4. Vestibules and areas on the level of discharge used for *exit discharge* in accordance with Section 1028.1.
5. Exterior landings as required by Section 1010.1.6 for *exit doorways* that lead directly to the e*xit discharge*.

~~1008.3.3~~<u>1008.3.2</u> Rooms and spaces. In the event of power supply failure, an emergency electrical system shall automatically illuminate all of the following areas:

1. Electrical equipment rooms.
2. Fire command centers.
3. Fire pump rooms.
4. Generator rooms.
5. Public restrooms with an area greater than 300 square feet (27.87 m^2).

~~1008.3.4~~<u>1008.3.3</u> Duration<u> and controls</u>. The emergency power system shall provide power for a duration of not less than 90 minutes and shall consist of storage batteries, unit equipment or an on-site generator. <u>Lights for the emergency illumination of the means of egress shall not be controlled by daylight responsive controls, occupant sensor controls or time switch controls. </u>The installation of the emergency power system shall be in accordance with Section 2702.

~~1008.3.5~~<u>1008.3.4</u> Illumination level under emergency power. Emergency lighting facilities shall be arranged to provide initial illumination that is not less than an average of 1 footcandle (11 lux) and a minimum at any point of 0.1 footcandle (1 lux) measured along the path of egress at floor level. Illumination levels shall be permitted to decline to 0.6 footcandle (6 lux) average and a minimum at any point of 0.06 footcandle (0.6 lux) at the end of the emergency lighting time duration. A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded. In Group I-2 occupancies, failure of any single lighting unit shall not reduce the illumination level to less than 0.2 foot-candle (2.2 lux).

SECTION 1013 EXIT SIGNS

1013.6.3 Power source. Exit signs shall be illuminated at all times<u>. Lights for the illumination of exit signs and the electrical power to the exit signs shall not be controlled by daylight responsive controls, occupant sensor controls or time switch controls</u>. To ensure continued illumination for a duration of not less than 90 minutes in case of primary power loss, the sign illumination means shall be connected to an emergency power system provided from storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Chapter 27.

Exceptions:

1. *Approved* exit sign illumination means that provide continuous illumination independent of external power sources for a duration of not less than 90 minutes, in case of primary power loss, are not required to be connected to an emergency electrical system.
2. Group I-2 Condition 2 exit sign illumination shall not be provided by unit equipment battery only.

SECTION 1025 LUMINOUS EGRESS PATH MARKINGS

1025.5 Illumination. Where *photoluminescent* exit path markings are installed, they shall be provided with not less than 1 footcandle (11 lux) of illumination for not less than 60 minutes prior to periods when the building is occupied and continuously during occupancy.<u> Lighting that is the charging source for photoluminescent egress path markings shall not be controlled by daylight responsive controls or occupant sensor controls.</u>

Reason: The entire Section 1008 is being shown so that the reorganization for means of egress lighting sections and references are clear. The four definitions match those currently in the IECC for these types of controls.
The proper operation of (electrical) general lighting used to provide minimum illumination in the means of egress must not be compromised when operated under normal electrical power. In areas where emergency lighting is installed – aisles, corridors, exit access stairways and

ramps – the need for reliable (electrical) general lighting and electrical emergency lighting cannot be overestimated. This proposal seeks to impose minimum listing, testing and performance requirements on lighting controls if they are used in the means of egress in areas where electrical emergency lighting are required.

The overwhelming majority of emergency evacuations take place when the (electrical) general lighting is operating properly – providing a minimum of 1 ft-c of illumination when measured at floor level. In areas of the means of egress where (electrical) emergency lighting is required to be installed and maintained, these luminaires provide safe illumination during emergency evacuations. Proper illumination in exit stairs and exit access corridors has been shown to be so valuable to safe egress during emergency evacuations that code authorities now require (non-electrical) luminous egress path markings in the exit stairs of high rise buildings. Some local jurisdictions also require luminous egress path markings installed at the perimeter of exit passageways in public buildings, schools, healthcare facilities and hotels.

Lighting controls – daylight responsive controls, occupant sensor controls and time switch controls - currently installed in the areas of the means of egress of some buildings where electrical emergency lighting is required to be installed and maintained - are being used to reduce illumination levels below 1 footcandle at the walking surface when normal electrical power is available. If the egress capacity of a specific means of egress is required during periods of reduced or completely powered off illumination, the building owner is creating an unsafe condition. Worse, if the lighting controls fail to operate properly during an emergency evacuation, the remaining egress capacity may not be sufficient to safely and quickly evacuate the building.

To meet code requirements, the building owner should maintain minimum illumination levels where electrical emergency lighting is required to be installed and maintained at all times the specific means of egress is required, or he should use lighting control devices that meet the conditions above. The proper operation of emergency lighting must not be compromised when operated under normal power. Lighting controls and occupancy sensors currently installed in the means of egress of some buildings are causing the improper activation of emergency lighting when normal electrical power is still available. Although these lighting controls are likely improperly installed, there should be specific language in the building and fire codes that this is not allowed. In other facilities, lighting controls on luminaires used for emergency illumination in the means of egress control illumination levels during operation with normal power. In these buildings, there should be emergency luminaires in the means of egress without lighting controls or occupancy sensors to provide the minimum illumination levels required under emergency power.

The Commercial Energy Chapter of the IEC 2015 specifies the use of various lighting controls and interior lighting power allowances for commercial buildings. Paragraph C405.2 Lighting Controls (Mandatory) states that lighting controls are not required in areas required to be continuously illuminated, interior exit stairways, interior exit ramps and exit passageways. Yet, lighting controls are increasingly installed in these areas. Additionally, it is commonly thought that the requirement for these lighting controls is to power off the general lighting in these areas. The IEC allows for the dimming of lights. Minimum illumination levels required by the IBC 2015 and IFC 2015 in the means of egress can be easily accomplished with dimming controls.

There is NO specific code requirement that prohibits the use of lighting controls on electrical emergency lighting or electrical exit signs. There is NO specific code requirement the prohibits the use of lighting controls on (electrical) general lighting - where electrical emergency lighting is required to be installed and maintained - that might affect the normal operation of electrical emergency lighting or electrical exit signs. There is NO specific code requirement in Section 1008 Means of Egress Illumination that qualifies the use of lighting controls used to control general lighting in the means of egress – areas such as rooms and spaces where emergency lighting is required. There is NO specific code requirement for the use of lighting controls used to control (electrical) general lighting where photoluminescent egress path markings are installed.

Cost Impact: Will not increase the cost of construction
There should be no additional cost to the building owner. This proposal suggests that lighting controls – daylight responsive controls, occupant sensor controls and time switch controls - should not be used to save energy and money at the expense of life safety.
Traditionally, building and fire codes have required continuous and minimum illumination in the means of egress, for reasons of life safety. During periods when normal electrical power operates properly, this minimum illumination level is 1 ft-candle when measured at the walking surface. For periods when normal electrical power fails and emergency electrical power sources ONLY are available, the average illumination is 1 ft-c with a minimum of 0.6 ft-c along the path of egress where electrical emergency lighting is required to be installed and maintained. Power for electrically powered emergency lighting and exit signs is required to maintain required illumination levels for at least 90 minutes after the failure of (electrical) general lighting.

E 31-15 : 1008.2.1.2 (New)-
BARLOW4492

E 32-15

1008.2.2, 1008.3.5; (IFC[BE] 1008.2.2, 1008.3.5)

Proponent: John Williams, CBO, CBO, Chair, Adhoc Healthcare Committee, representing Adhoc Health Care Committee (AHC@iccsafe.org); Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

1008.2.2 Exit discharge. In Group I-2 occupancies where two or more exits are required, on the exterior landings required by Section 1010.6.1, means of egress illumination levels for the exit discharge shall be provided such that failure of any single ~~lighting unit~~bulb or ballast shall not reduce the illumination level on that landing to less than 1 footcandle (11 lux).

1008.3.5 Illumination level under emergency power. Emergency lighting facilities shall be arranged to provide initial illumination that is not less than an average of 1 footcandle (11 lux) and a minimum at any point of 0.1 footcandle (1 lux) measured along the path of egress at floor level. Illumination levels shall be permitted to decline to 0.6 footcandle (6 lux) average and a minimum at any point of 0.06 footcandle (0.6 lux) at the end of the emergency lighting time duration. A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded. In Group I-2 occupancies, failure of any single ~~lighting unit~~bulb or ballast shall not reduce the illumination level to less than 0.2 foot-candle (2.2 lux).

Reason: The proposed language would better define what constitutes a failure of a lighting unit.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This is a clarification of requirements; therefore there is no change in construction cost.

E 32-15 : 1008.2.2-WILLIAMS4242

E 33-15

1008.2.2, 1008.2.3 (New); (IFC[BE] 1008.2.2, 1008.2.3 (New))

Proponent: Daniel Nichols, New York State Division of Building Standards and Codes, representing New York State Division of Building Standards and Codes (dnichols@dos.state.ny.us)

2015 International Building Code

Revise as follows:

1008.2.2 ~~**Exit discharge.**~~**Group I-2.** In Group I-2 occupancies where two or more exits are required, on the exterior landings required by Section 1010.6.1, means of egress illumination levels for the exit discharge shall be provided such that failure of any single lighting unit shall not reduce the illumination level on that landing to less than 1 footcandle (11 lux)..

Add new text as follows:

1008.2.3 Exit Discharge.
Illumination shall be provided along the path of travel for the exit discharge from each exit to the public way.

> **Exceptions:** Illumination for the exit discharge is not be required to the public way when the path of the exit discharge meets all of the following requirements:

1. The path of exit discharge is illuminated from the exit for a travel distance of 50 feet (15 240 mm) minimum or a distance of 1.5 times the total building height, whichever is greater.
2. A dispersal area shall be provided with all the following:
   - 2.1. The dispersal area is illuminate.
   - 2.2. The area is sized to accommodate not less that 5 square feet (0.46 m^2) for each person using the exit discharge and wheelchair spaces in accordance with Section 1009.6.3.
   - 2.3. The dispersal area shall be located on the same lot and located at the end of the illuminated path of exit discharge.
   - 2.4. The area is permenantly maintained and identified as an illuminated dipersal area.
   - 2.5. The area shall be provided with a safe and unobstructed path of travel from the building.

Reason: The purpose of this code change proposal is to limit the amount of light required for safe exiting from a building. On large parcels and when buildings are construted on existing private campuses (i.e. business parks, college/university), the need to provide required lighting to the public way can be significant. In such locations, it is appropriate to provide a termination of illumination requirements (both continuous and emergency) at a safe distance from the building requiring egress.
IBC Section 1028.5 already permits the use of a safe dispersal area when access to a public way is cannot be provided. This proposal builds off of the same requirements found in 1028.5 to create a termination point of illumination without the requirement of not having access to a public way. The only two changes to the safe dispersal area is the addition of the wheelchair spaces to the total termination area sizing (matching the size and ratio of spaces from the area of refuge requirements) and the addition of a 150% safety factor to address buildings over 35 feet tall.

With an increased concern about energy usage and light pollution in some communities, having appropriate safeguards within the code that address building occupant safety and ways to minimize required illuminiation is mutually beneficial.

Cost Impact: Will not increase the cost of construction
The allowed reduction in illumination will provide a reduction in cost of construction since illumination requirements will be limited. This applies to both illuminiation provided under normal power and emergency power.

E 33-15 : 1008.2.2-NICHOLS5480

E 34-15

1009.1; (IFC[BE] 1009.1)

Proponent: Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com)

2015 International Building Code

Revise as follows:

1009.1 Accessible means of egress required. Accessible *means of egress* shall comply with this section. *Accessible* spaces shall be provided with not less than one accessible *means of egress*. Where more than one *means of egress* are required by Section 1006.2 or 1006.3 from any *accessible* space, each *accessible* portion of the space shall be served by not less than two accessible *means of egress*.

Exceptions:

1. Accessible *means of egress* ~~are not required to~~ in existing buildings shall be provided in ~~existing buildings~~compliance with the *International Existing Building Code*.
2. One accessible *means of egress* is required from an *accessible mezzanine* level in accordance with Section 1009.3, 1009.4 or 1009.5.
3. In assembly areas with ramped *aisles* or stepped *aisles*, one accessible *means of egress* is permitted where the *common path of egress travel* is *accessible* and meets the requirements in Section 1029.8.

Reason: This blanket exception should be removed from the IBC for two reasons. First, with the change to Chapter 34 of the IBC during the last code change cycle, all existing buidling requirements are now located in the IEBC. Exception 2 to IEBC Section 410.6 and exception 2 to IEBC Section 705.1 already contain this language, so it is simply redundant to be placed in the IBC. Second, the excpetion has been misused as a reason for eliminating existing accessible means of egress. Buildings which have been constriucted since the adoption of the accessible means of egress provisions in the IBC (and some legacy codes) should be required to maintain these accessible means of egress elements and sectinos within the IEBC support that concept. By making a blanket statement in the IBC that they are simply not requried because the buidling is "existing" can be construed as meaning that the accessible means of egress are no longer needed. This confusion should be removed from the IBC and allow the IEBC to note how this is supposed to be addressed in existing buidlings.

Cost Impact: Will not increase the cost of construction
The proposal changes nothing except where the references are to be found.

E 34-15 : 1009.1-BOECKER5614

E 35-15

1009.1 (IFC[BE] 1009.1)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1009.1 Accessible means of egress required. Accessible *means of egress* shall comply with this section. *Accessible* spaces shall be provided with not less than one accessible *means of egress*. Where more than one *means of egress* are required by Section 1006.2 or 1006.3 from any *accessible* space, each *accessible* portion of the space shall be served by not less than two accessible *means of egress*.

Exceptions:

1. Accessible *means of egress* are not required to be provided in existing buildings.
~~2.~~ ~~One accessible *means of egress* is required from an *accessible mezzanine* level in accordance with Section 1009.3, 1009.4 or 1009.5.~~
2. In assembly areas with ramped *aisles* or stepped *aisles*, one accessible *means of egress* is permitted where the *common path of egress travel* is *accessible* and meets the requirements in Section 1029.8.

Reason: Section 1009.1 Exception 2 should be deleted.
When originally proposed there was a conflict between accessible means of egress and mezzanine requirements. Accessible means of egress would have required mezzanines in non-sprinklered buildings to have two enclosed stairways with areas of refuge, wider stairways and two-way communication. Mezzanine requirements allowed for two open stairways. Requiring one enclosed stairway and one open stairway for an accessible mezzanine was considered a compromise.

The concept of where open stairways can serve as part of a means of egress has evolved. Mezzanine stairways are now specifically addressed in Section 1009.3 Exception 1. The proposed deletion in Section 1009.1 would make mezzanine requirements consistent with the accessible means of egress requirements for a two story building. For non-sprinklered buildings, both stairways would need to meet the 48" width provisions so that both stairways could be utilized for assisted rescue; but at the same time allow for both stairways to be open. For sprinklered buildings, due to the exceptions in Section 1009.3, the required stairway widths can remain 36"or 44" as applicable. The end result will be a clarification of the codes and an increase in options for assisted rescue; at the same time a decrease in construction costs from what would have been required under previous codes.

With Section 1009.1 Exception 2 removed, this will increase the level of safety for persons with disabilities and fire fighters because two options for accessible means of egress will be provided.

In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled Unenclosed Exit Stairs. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.http://www.iccsafe.org/cs/CTC/Pages/default.aspx

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal offers design options that can reduce overall costs.

E 35-15 : 1009.1-KULIK3643

E 36-15

1009.2; (IFC[BE] 1009.2)

Proponent: Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com)

2015 International Building Code

Revise as follows:

1009.2 Continuity and components. Each required accessible *means of egress* shall be continuous to a *public way* and shall consist of one or more of the following components:

1. *Accessible routes* complying with Section 1104.
2. *Interior exit stairways* complying with Sections 1009.3 and 1023.
3. *Exit access stairways* complying with Sections 1009.3 and 1019.3 or 1019.4.
4. *Exterior exit stairways* complying with Sections 1009.3 and 1027 and serving levels other than the *level of exit discharge*.
5. Elevators complying with Section 1009.4.
6. Platform lifts complying with Section 1009.5.
7. *Horizontal exits* complying with Section 1026.
8. *Ramps* complying with Section 1012.
9. *Areas of refuge* complying with Section 1009.6.
10. Exterior areas for assisted rescue complying with Section 1009.7 serving exits at the *level of exit discharge*.

Exception: In existing buildings, the components shall comply with the applicable sections within the *International Existing Building Code.*

Reason: The added exception to Section 1009.2 makes it clear that if an acessible means of egress is provieded within an existing building, the components acceptable for the accessible means of egress are the components acceptable according to the IEBC. For example, the ramp slope is permitted to be steeper for short rises to meet the access requirements of the IEBC. Thos esame elements should be allowed to be used for the accessible egress. It makes no sense to allow a slope of 1:8 for a 3 inch vertical rise for access to a space but then requrie a 1:12 slope if that is to be a part of the accessible means of egress. If the ramp is good for access it should be good for egress.

IEBC 410.8.5 Ramps. Where slopes steeper than allowed by Section 1012.2 of the International Building Code are necessitated by space limitations, the slope of ramps in or providing access to existing facilities shall comply with Table 410.8.5.

TABLE 410.8.5
RAMPS

SLOPE	MAXIMUM RISE
Steeper than 1:10 but not steeper than 1:8	3 inches
Steeper than 1:12 but not steeper than 1:10	6 inches

Cost Impact: Will not increase the cost of construction
Using the IEBC provisions will not increase costs. It may decrease costs.

E 36-15 : 1009.2-BOECKER5669

E 37-15

1009.2

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

Revise as follows:

1009.2 Continuity and components.
Each required accessible *means of egress* shall be continuous to a *public way*. The accessible means of egress shall provide a path of travel along an accessible route in accordance with Section 1009.2.1 through 1009.2.3. ~~*and shall consist of one or more of the following components:*~~

1. ~~*Accessible routes* complying with Section 1104.~~
2. ~~*Interior exit stairways* complying with Sections 1009.3 and 1023.~~
3. ~~*Exit access stairways* complying with Sections 1009.3 and 1019.3 or 1019.4.~~
4. ~~*Exterior exit stairways* complying with Sections 1009.3 and 1027 and serving levels other than the *level of exit discharge.*~~
5. ~~Elevators complying with Section 1009.4.~~
6. ~~Platform lifts complying with Section 1009.5.~~
7. ~~*Horizontal exits* complying with Section 1026.~~
8. ~~*Ramps* complying with Section 1012.~~
9. ~~*Areas of refuge* complying with Section 1009.6.~~
10. ~~Exterior areas for assisted rescue complying with Section 1009.7 serving exits at the *level of exit discharge.*~~

Add new text as follows:

1009.2.1. Accessible exit access. The path of travel for exit access shall be along an accessible route and shall consist of one or more of the following components:

1. Accessible routes complying with Section 1104
2. Platform lifts complying with Sections 1009.5 and 1109.7.
3. Ext access ramps complying with Section 1012.

Exception: Exit access stairways between stories and mezzanines and complying with Section 1009.3 and complying with either Section 1019.3 or 1019.4.

1009.2.2 Accessible exits. The path of travel within the exit shall be along an accessible route.

Exceptions:

1. Interior exit stairways complying with Sections 1009.3 and 1023.
2. Exterior exit stairways complying with Section 1009.3 and 1027 and serving levels other than the level of exit discharge.
3. Elevators complying with Section 1009.4 and 1109.6.
4. Exterior areas of assisted rescue complying with Sectin 1009.7 serving exits at the level of exit discharge.

1009.2.3 Accessible exit discharge. At the level of exit discharge the path of travel for the exit discharge shall be along an accessible route connecting the exit to the public way.

Exceptions:

1. The accessible route connects to an exterior area for assisted rescue complying with Section 1009.7.
2. The accessible route connects to an area of refuge complying with Section 1009.6.
3. The accessible route connects to a safe dispersal area in accordance with the exception to Section 1028.5.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
It is not the intent of this proposal to change the requirements for accessible means of egress, but rather to clarify what is expected. This is also updated with new terminology for exit access stairways and ramps.

Ideally everyone should be able to self-evacuate to a public way. However, there are many situations where people who cannot use stairways are on upper floors of buildings; or situations where the slope and size of the site does not allow for an accessible route all the way to a road that is permanently deeded and dedicated to the public (i.e., public way). The primary safety focus is to allow for an accessible route to a location where persons needing assistance and emergency responders can connect. These locations are part of the fire and safety evacuation plans and on building signage so both occupants and emergency responders will be informed.

All the exceptions are in recognition that an accessible route is not possible in some situations. Where a person with mobility impairment gets to a stairway, an elevator that has gone to fire department recall, or an exit discharge that is not accessible, alternative means of rescue or protection must be available. Protection and/or assistance is provided at stairways, elevators with standby power, horizontal exits, areas of refuge and exterior areas for assisted rescue. This is not an exception for access to the public way. This is an exception for an accessible route along the stairway or from the exterior area of assisted rescue. Elevators will be used with fire-department assistance - and are not permitted for self-evacuation during a fire emergency. Horizontal exits also allow for a safe place to wait within a facility till the fire department or other emergency responders can assist.

The following is the purpose of each subsection.

1009.2 - All means of egress must be continuous to a public way. If this route is accessible, than this would constitute an accessible means of egress.

1009.2.1 - Exit access is defined as –

EXIT ACCESS. That portion of a *means of egress* system that leads from any occupied portion of a building or structure to an *exit*.

The exit access is always required to be accessible. The three items listed are in the current text as Items 1, 6 and 8. If a platform lift is utilized, it has to have battery backup (1009.5) as well as meet the ASME A18.1 safety provisions (1109.7). This route can include exit access ramps. The exception, exit access stairways are listed in the current text as Item 3. The clarification of the exit access stairways only being allowed as part of the accessible means of egress when the serve changes in level of a story or from a mezzanine is consistent with Section 1009.3. Exit access steps within the same level are not permitted to serve as part of the accessible means of egress. Ramps or platform lifts would be required to provide an accessible means of egress.

1009.2.2 - Exit is defined as –

EXIT. That portion of a *means of egress* system between the *exit access* and the *exit discharge* or *public way*. Exit components include exterior exit doors at the *level of exit discharge*, *interior exit stairways* and *ramps*, *exit passageways*, *exterior exit stairways* and *ramps* and *horizontal exits*.

Accessible routes along exits could be exit passageways, exit ramps, exterior exit doorways at the level of exit discharge and horizontal exits (current item 7). Since this list is in the definition, it does not need to be repeated in the text. The exceptions are where people who cannot use the stairways to evacuation can wait for assistance; exit stairways (interior and exterior) and elevators with standby power. Areas of refuge (Item 9) are not listed because they are a requirement directly associated with the exit stairway or elevators in Sections 1009.3 and 1009.4. Depending on their location, they could be part of the exit access or exit. Listing them in both places would be confusing.

1009.2.3 - Exit discharge is defined as –

EXIT DISCHARGE. That portion of a *means of egress* system between the termination of an *exit* and a *public way*.

The accessible route at the level of exit discharge is along the exit discharge can include ramped or level surfaces outside the building. If an accessible route is not possible to the public way, the options are an area of refuge(current item 9), an exterior area of assisted rescue (current Item 10) or a safe dispersal area (permitted in 1028.5).

This proposal was originally brought up as a point of discussion because the current language for exterior areas of assisted rescue has been incorrectly interpreted to say asking people to wait 10 feet away from the building is acceptable, and then a separation is not required. Since you are asking persons with mobility impairments to wait at that location for assistance rather than continually move to the public way, 10 feet is not an acceptable alternative. The 50 feet with safe dispersal area is a system that has worked for assembly facilities for a number of years.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification of current requirements; therefore, there is no impact on the cost.

E 37-15 : 1009.2-KULIK3333

E 38-15

1009.2.1; (IFC[BE] 1009.2.1)

Proponent: Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com)

2015 International Building Code

Revise as follows:

1009.2.1 Elevators required. In buildings where a required *accessible*~~floor~~story or occupied roof is four or more *stories* above or below a *level of exit discharge*, not less than one required accessible *means of egress* shall be an elevator complying with Section 1009.4.

Exceptions:

1. In buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required on floors provided with a *horizontal exit* and located at or above the *levels of exit discharge*.
2. In buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required on floors provided with a *ramp* conforming to the provisions of Section 1012.

Reason: The language is proposed to be changed to clarify that an occupiable roof must be included where determining the elevator requirement. The existing text is interpretive at best. The proposal makes if clear that if a four story buidling has a roof garden area which the occupants can use, then the elevator to that roof level must be a part of the accessible means of egress.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification. This is how it should be and should have been applied.

E 38-15 : 1009.2.1-BOECKER5545

E 39-15

1009.3, 1009.4 (IFC[BE] 1009.3, 1009.4)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1009.3 Stairways. In order to be considered part of an accessible means of egress, a stairway between stories shall comply with Section 1109.3.1 through 1009.3.3~~have a clear width of 48 inches (1219 mm) minimum between handrails and shall either incorporate an area of refuge within an enlarged floor-level landing or shall be accessed from an area of refuge complying with Section 1009.6~~.

1009.3.1 Exit access stairways. Exit access stairways that connect levels in the same story are not permitted as part of an accessible means of egress.
~~Exceptions~~Exception: ~~1.~~ Exit access stairways providing means of egress from mezzanines are permitted as part of an accessible means of egress.

1009.3.2 Stairway width. Stairways shall have a clear width of 48 inches (1219 mm) minimum between handrails.
Exceptions:

1. The clear width of 48 inches (1219 mm) between handrails is not required in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
2. The clear width of 48 inches (1219 mm) between handrails is not required for stairways accessed from a refuge area in conjunction with a horizontal exit.

1009.3.3 Area of refuge. Stairways shall either incorporate an area of refuge within an enlarged floor-level landing or shall be accessed from an area of refuge complying with Section 1009.6.

Exceptions:

1. Areas of refuge are not required at exit access stairways where two-way communication is provided at the elevator landing in accordance with Section 1009.8.
2. Areas of refuge are not required at stairways in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
3. Areas of refuge are not required at stairways serving open parking garages.
4. Areas of refuge are not required for smoke-protected assembly seating areas complying with Section Sections 1029.6.2 and 1029.6.3.
5. Areas of refuge are not required at stairways in Group R-2 occupancies.
6. Areas of refuge are not required for stairways accessed from a refuge area in conjunction with a horizontal exit.

1009.4 Elevators. In order to be considered part of an accessible means of egress, an elevator shall comply with Section 1009.4.1 and 1009.4.2.

1009.4.1 Standby power. The elevator shall have~~the~~ emergency operation and signaling device requirements of Section 2.27 of ASME A17.1. Standby power shall be provided in accordance with Chapter 27 and Section 3003.

1009.4.2 Area of refuge. The elevator shall be accessed from an area of refuge complying with Section 1009.6.

Exceptions:

1. Areas of refuge are not required at the elevator in open parking garages.
2. Areas of refuge are not required in buildings and facilities equipped throughout by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
3. Areas of refuge are not required at elevators not required to be located in a shaft in accordance with Section 712.
4. Areas of refuge are not required at elevators serving smoke protected seating areas complying with ~~Section~~Sections 1029.6.2 and 1029.6.3.
5. Areas of refuge are not required for elevators accessed from a refuge area in conjunction with a horizontal exit.

Reason: In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled Unenclosed Exit Stairs. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue

opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

The intent of this proposal is for editorial clarification. The current text in Section 1009.3 has exceptions to each of three basic requirements; therefore it is long and can be confusing. (During the 2012 IBC development cycle the CTC Unenclosed Exit committee proposed adding the last sentence to Section 1009.3 and exception 1.) Sections 1009.3 and 1009.4 have been subdivided in order to clarify the requirements and when the exceptions are applicable. The exception for Group R-2 is not relocated. Since all Group R-2 are required to be sprinklered, they can use the sprinkler exception, so it is redundant.

The reference to Section 1029.6.3 was added to clarify that areas of refuge are not needed in assembly seating where the seating is open to the outside air as well as smoke protection assembly seating that is protected mechanically.

Cost Impact: Will not increase the cost of construction
This proposal is a clarification of provisions. There will be no change in construction requirements.

Staff note: ASME A17.1 is also referred to as CSA B44.

E 39-15 : 1009.3.2 (NEW)-KULIK3646

E 40-15

1009.7.2; (IFC[BE] 1009.7.2)

Proponent: Lawrence Lincoln, representing Utah Chapter of ICC (larry.lincoln@slcgov.com)

2015 International Building Code

Revise as follows:

1009.7.2 Separation. Exterior walls separating the exterior area of assisted rescue from the interior of the building shall have a minimum *fire-resistance rating* of 1 hour, rated for exposure to fire from the inside. The fire-resistance-rated exterior wall construction shall extend horizontally 10 feet (3048 mm) beyond the landing on either side of the landing or equivalent fire-resistance-rated construction is permitted to extend out perpendicular to the exterior wall 4 feet (1220 mm) minimum on the side of the landing. The *fire-resistance-rated* construction shall extend vertically from the ground to a point 10 feet (3048 mm) above the floor level of the area for assisted rescue or to the roof line, whichever is lower. Openings within such *fire-resistance-rated* exterior walls shall be protected in accordance with Section 716.

Exception: Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

Reason: It seems unreasonable for the IBC to mandate more passive fire protection for a mobility impaired occupant 'that is already located outside of the building' (at the area of assisted rescue) than it does for a mobility impaired occupant that is 'within a building'. IBC section 1009.3 exception #5 allows for the elimination of area of refuges in stairways and IBC section 1009.4 exception #2 allows for the elimination of area of refuges to access elevators when the building is equipped throughout with an automatic fire sprinkler system. On the other hand, a mobility impaired person located at the exterior area of assisted rescue stair landing (already located outside of the building) is afforded the protection of 1-HR fire-resistance rated exterior wall construction and protection of openings as put forth by section 1009.7.2 whether the building is equipped with an automatic sprinkler system or not. This fire sprinkler exception is both logical and reasonable.

Cost Impact: Will not increase the cost of construction
Will not increase the cost of construction.

E 40-15 : 1009.7.2-LINCOLN4114

E 41-15

1009.7.2, 1009.7.4 (IFC[BE] 1009.7.2, 1009.7.4)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1009.7.2 Separation. Exterior walls separating the exterior area of assisted rescue from the interior of the building shall have a minimum *fire-resistance rating* of 1 hour, rated for exposure to fire from the inside. The fire-resistance-rated exterior wall construction shall extend horizontally a minimum of 10 feet (3048 mm) beyond the landing on either side of the landing or equivalent fire-resistance-rated construction is permitted to extend out perpendicular to the exterior wall a minimum of 4 feet (1220 mm) minimum on the side of the landing. The *fire-resistance-rated* construction shall extend vertically from the ground to a ~~point~~ minimum of 10 feet (3048 mm) above the floor level of the area for assisted rescue or to the roof line, whichever is lower. Openings within such *fire-resistance-rated* exterior walls shall be protected in accordance with Section 716.

1009.7.4 Stairways. *Stairways* that are part of the *means of egress* for the exterior area for assisted rescue shall provide a clear minimum width of 48 inches (1220 mm) between *handrails*.

> **Exception:** The minimum clear width of 48 inches (1220 mm) between *handrails* is not required at *stairways* serving buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.

Reason: The requirements for the wall separation and stairway width for an exterior area for assisted rescue should be minimum requirements, not absolute dimensions.
In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification of current requirements; therefore, there is no impact on the cost.

E 41-15 : 1009.7.2-KULIK3335

E 42-15

1009.8; (IFC[BE] 1009.8)

Proponent: Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

1009.8 Two-way communication. ~~A~~
<u>Where elevators are provided as part of an *accessible means of egress*, a </u>two-way communication system complying with Sections 1009.8.1 and 1009.8.2 shall be provided at the landing serving each elevator or bank of elevators on each accessible floor that is one or more stories above or below the *level of exit discharge*.

Exceptions:

1. Two-way communication systems are not required at the landing serving each elevator or bank of elevators where the two-way communication system is provided within *areas of refuge* in accordance with Section 1009.6.5.
2. Two-way communication systems are not required on floors provided with *ramps* conforming to the provisions of Section 1012.
3. Two-way communication systems are not required at the landings serving only service elevators that are not designated as part of the accessible *means of egress* or serve as part of the required *accessible route* into a facility.
4. Two-way communication systems are not required at the landings serving only freight elevators.
5. Two-way communication systems are not required at the landing serving a private residence elevator.

Reason: Current code requires two-way communication for elevator landings in all buildings two stories or greater, regardless of the design for accessible means of egress. This proposal attempts to tie the requirement for two-way communication to only serve when elevators are provided as a part of the accessible egress.

Section 1009.2.1 only requires elevators to be part of the accessible means of egress when the building has a required accessible floor that is four or more stories above or below the level of exit discharge. In buildings that are less than these limits, the accessible means of egress may be provided by other means, such as stairs, ramps, and other components permitted by Section 1009.2, such that any elevators in such a building are not required to be constructed in accordance with Section 1009.4. Due to the standby requirements in Section 1009.4, designers may choose to not provide accessible egress via the elevator, when permitted to by Section 1009.2.1, instead designing the accessible egress via other components. There is concern that placing the two-way communication in every elevator will lead occupants away from the actual means of egress.

This change is intended to associate the elevator two-way communication system from 1009.8 to elevators that are constructed in accordance with Section 1009.4 to be a part of the accessible route, where such accessible elevators are either required by Section 1009.2.1, and optioned by the designer in accordance with Section 1009.2.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction as the proposal may lead to less installations of two-way communication systems.

E 42-15 : 1009.8-DIGIOVANNI3845

E 43-15

1009.8; (IFC[BE] 1009.8)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1009.8 Two-way communication. A two-way communication system complying with Sections 1009.8.1 and 1009.8.2 shall be provided at ~~the~~each landing serving each elevator or bank of elevators~~ on each~~ required by Section 1009.2.1 to serve as part of the accessible ~~floor that is one or more stories above or below the~~ ~~*level*~~*means of* ~~*exit discharge*~~egress.

Exceptions:

1. Two-way communication systems are not required at the landing serving each elevator or bank of elevators where the two-way communication system is provided within *areas of refuge* in accordance with Section 1009.6.5.
2. Two-way communication systems are not required on floors provided with *ramps* conforming to the provisions of Section 1012.
3. Two-way communication systems are not required at the landings serving only service elevators that are not designated as part of the accessible *means of egress* or serve as part of the required *accessible route* into a facility.
4. Two-way communication systems are not required at the landings serving only freight elevators.
5. Two-way communication systems are not required at the landing serving a private residence elevator.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
Code proposal does not change the existing requirements in the Code. Some users of the Code have interpreted that the literal text of Section 1009.8 also applies to any floor that is accessible to the handicap because the elevator(s) has been provided for convenience of the occupants of the building, even though it was not required by Section 1009.2.1.

If the elevators are required to be an accessible means of egress under Section 1009.2.1, then the additional elevator requirements under Section 1009.4 are also required (i.e. special emergency operation and signaling per ASME A17.1, standby power, and accessed from an area of refuge). Because of these extra life safety design features for the handicap for such elevators being a required accessible means of egress under the Code, the requirement for two-way communication is also required for their elevator landings on the floor.

However, there are buildings with elevators that are accessible to the handicap because they have elevators, but such elevators are not required accessible means of egress under Section 1009.2.1. As such, the elevator landings are not required to comply with the additional requirements under Section 1009.4. Providing two-way communications at such elevator landing that are not required to meet the requirements for a required accessible means of egress makes no sense and would provide a false sense of security.

In summary, this code proposal is only intended as a clarification of the existing requirement for placement of two-way communication at elevators landings that are required by the Code to be a required accessible means of egress.

Cost Impact: Will not increase the cost of construction
Clarification of the existing code requirement. Therefore, could be a cost saving.

E 43-15 : 1009.8-KULIK3670

E 44-15

1009.8; (IFC[BE] 1009.8)

Proponent: Masoud Sabounchi, Representing Colorado Chapter of ICC , representing masoud sabounchi (masoud@acecode.com)

2015 International Building Code

1009.8 Two-way communication. A two-way communication system complying with Sections 1009.8.1 and 1009.8.2 shall be provided at the landing serving each elevator or bank of elevators on each accessible floor that is one or more stories above or below the *level of exit discharge*.

Exceptions:

1. Two-way communication systems are not required at the landing serving each elevator or bank of elevators where the two-way communication system is provided within *areas of refuge* in accordance with Section 1009.6.5.
2. Two-way communication systems are not required on floors provided with *ramps* conforming to the provisions of Section 1012.
3. Two-way communication systems are not required at the landings serving only service elevators that are not designated as part of the accessible *means of egress* or serve as part of the required *accessible route* into a facility.
4. Two-way communication systems are not required at the landings serving only freight elevators.
5. Two-way communication systems are not required at the landing serving a private residence elevator.
6. <u>Two-way communication systems are not required in Group I-2 Condition 2 occupancies.</u>

Reason: Group I-2 Condition 2 includes facilities that provide nursing and medical care on a 24 hour basis. These facilities have life-safety and fire protection system as well as staffing that allow defend in place emergency procedures. Providing 2-way communication at elevator landings in a hospital building and having physically challenged individuals go to an elevator lobby/landing and wait for evacuation by emergency responders creates conflict with the emergency evacuation plan of the facility where occupants are relocated from one smoke compartment to another.

Cost Impact: Will not increase the cost of construction
This proposal will not increase cost of construction

E 44-15 : 1009.8-SABOUNCHI4366

E 45-15

1009.8; (IFC[BE] 1009.8)

Proponent: John Williams, CBO, CBO, Chair Adhoc Healthcare Committee, representing Adhoc Health Care Committee (AHC@iccsafe.org); Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

1009.8 Two-way communication. A two-way communication system complying with Sections 1009.8.1 and 1009.8.2 shall be provided at the landing serving each elevator or bank of elevators on each accessible floor that is one or more stories above or below the *level of exit discharge*.

Exceptions:

1. Two-way communication systems are not required at the landing serving each elevator or bank of elevators where the two-way communication system is provided within *areas of refuge* in accordance with Section 1009.6.5.
2. Two-way communication systems are not required on floors provided with *ramps* conforming to the provisions of Section 1012.
3. Two-way communication systems are not required at the landings serving only service elevators that are not designated as part of the accessible *means of egress* or serve as part of the required *accessible route* into a facility.
4. Two-way communication systems are not required at the landings serving only freight elevators.
5. Two-way communication systems are not required at the landing serving a private residence elevator.
6. <u>Two-way communication systems are not required in Group I-2 facilities.</u>

Reason: It is important to note that this is not the two way communication system typically utilized by the fire department. That system is defined in the IFC and will remain as required.
A two way communication system is part of accessible means of egress and required to allow for persons with disabilities to contact emergency responders. In Group I-2 facilities the strategy for emergencies is defend in place, with trained staff. Most of the patients will be considered persons with disabilities, and their safety will be addressed through the fire and safety evacuation plans with staff assistance. Therefore, the need for the two way communication system is addressed by an alternative means and would not be used in these types of facilities. Since this was not added to the code in 2009, deleting this issue would not be conflict with what is referenced in the 2010 ADA Standard for Accessible Design.
This system could also be confused as being used for medical emergencies or as a general information phone.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx
The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
The deletion of two way communication system will be a saving in initial construction and maintenance/monitoring of the system.

E 45-15 : 1009.8-WILLIAMS4233

E 46-15

1009.8; (IFC[BE] 1009.8)

Proponent: Robert Davidson, Davidson Code Concepts, LLC, representing Davidson Code Concepts, LLC (rjd@davidsoncodeconcepts.com)

2015 International Building Code

Revise as follows:

1009.8 Two-way communication. A two-way communication system complying with Sections 1009.8.1 and 1009.8.2 shall be provided at the landing serving each elevator or bank of elevators on each accessible floor that is one or more stories above or below the *level of exit discharge*.

Exceptions:

1. Two-way communication systems are not required at the landing serving each elevator or bank of elevators where the two-way communication system is provided within *areas of refuge* in accordance with Section 1009.6.5.
2. Two-way communication systems are not required on floors provided with *ramps* conforming to the provisions of Section 1012.
3. Two-way communication systems are not required at the landings serving only service elevators that are not designated as part of the accessible *means of egress* or serve as part of the required *accessible route* into a facility.
4. Two-way communication systems are not required at the landings serving only freight elevators.
5. Two-way communication systems are not required at the landing serving a private residence elevator.
6. <u>Two-way communication systems are not required in Group I-3 facilities.</u>

Reason: It is important to note that this is not the two way communication system typically utilized by the fire department. That system is defined in the IFC and will remain as required.
A two way communication system is part of accessible means of egress and required to allow for persons with disabilities to contact emergency responders. In Group I-3 facilities the strategy for emergencies is defend in place, with trained staff. Therefore, the need for the two way communication system is addressed by an alternative means and would not be used in these types of facilities. There is also a high chance of vandalism in these facilities. Since this was not added to the code in 2009, deleting this issue would not be conflict with what is referenced in the 2010 ADA Standard for Accessible Design.

Cost Impact: Will not increase the cost of construction
The deletion of two way communication system will be a saving in initial construction and maintenance/monitoring of the system.

E 46-15 : 1009.8-DAVIDSON4227

E 47-15

1010.1.1, 1010.1.1.1; (IFC[BE] 1010.1.1, 1010.1.1.1)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

Revise as follows:

1010.1.1 Size of doors. The required capacity of each door opening shall be sufficient for the *occupant load* thereof and shall provide a minimum clear opening width of 32 inches (813 mm). ~~Clear openings~~ The clear opening width of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear opening width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a minimum clear opening width of 32 inches (813 mm). In Group I-2, doors serving as *means of egress* doors where used for the movement of beds shall provide a minimum clear opening width of 41$^1/_2$ inches (1054 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. ~~*Means of egress* doors in a Group I-2 occupancy used for the movement of beds shall provide a clear width not less than 41$^1/_2$ inches (1054 mm).~~ The minimum clear height of door openings shall be ~~not less than~~ 80 inches (2032 mm).

Exceptions:

1. In Group R-2 and R-3 dwelling and sleeping units that are not required to be an Accessible unit, Type A unit or Type B unit, the minimum and maximum width shall not apply to door openings that are not part of the required *means of egress* ~~inGroup R-2 and R-3 occupancies.~~
2. In Group I-3, door openings to resident *sleeping units* *that are not required to be and Accessible units* ~~in Group I-3 occupancies~~ shall have a minimum clear opening width of ~~not less than~~ 28 inches (711 mm).
3. Door openings to storage closets less than 10 square feet (0.93 m^2) in area shall not be limited by the minimum clear opening width.
4. Width of door leaves in revolving doors that comply with Section 1010.1.4.1 shall not be limited.
5. Door openings within a *dwelling unit* or *sleeping unit* shall ~~be not less than~~ have a minimum clear opening height of 78 inches (1981 mm) ~~in height~~.
6. In dwelling and sleeping units that are not required to be Accessible, Type A or Type B units, exterior door openings ~~in *dwelling units* and *sleeping units*~~, other than the required *exit* door, shall ~~be not less than~~ have a minimum clear opening height of 76 inches (1930 mm) in height.
7. ~~In other than Group R-1 occupancies~~ In Groups I-1, R-2, R-3 and R-4 occupancies, in dwelling and sleeping units that are not required to be Accessible, Type A or Type B units, the minimum clear opening widths shall not apply to interior egress doors ~~within a *dwelling unit* or *sleeping unit* that is not required to be an *Accessible unit*, *Type A unit* or *Type B unit*~~.
8. Door openings ~~required to be *accessible*~~ within *Type B units* intended for user passage shall have a minimum clear opening width of 31.75 inches (806 mm).
9. Doors to walk-in freezers and coolers less than 1,000 square feet (93 m^2) in area shall have a maximum width of 60 inches (1524 mm) nominal.
10. ~~In Group R-1 *dwelling units* or *sleeping units* not required to be *Accessible units*,~~ The minimum width shall not apply to doors for non-accessible showers or saunas compartments.
11. The minimum width shall not apply to the doors for non-accessible toilet seats.

1010.1.1.1 Projections into clear width. There shall not be projections into the required clear opening width lower than 34 inches (864 mm) above the floor or ground. Projections into the clear opening width between 34 inches (864 mm) and 80 inches (2032 mm) above the floor or ground shall not exceed 4 inches (102 mm).

Exception: Door closers and door stops shall be permitted to be 78 inches (1980 mm) minimum above the floor.

Reason: In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

The intent of a large portion of this change is consistent use of the terminology (e.g., minimum clear opening width/height) throughout this section. There is also the intent of putting the modifier first within the specific requirements (Group I-2, ambulatory care) and the exceptions. The maximum door width sentence is relocated to be after all the minimum door width requirements and to coordinate with the order of requirements in IFC 1104.7.

Exceptions 1, 2, 6 and 7 cannot be used in Accessible, Type A or Type B units; that would conflict with ICC A117.1, ADA and FHA. Also in Exception 7: dwelling units and sleeping units in Group I-2 and I-3 have specific criteria elsewhere in this section, and the ADA does not allow Group R-1 units to use this exception, therefore, the more specific limitation to allow this in Group I-1, R-2, R-3 and R-4.

Exception 8 is revised to be consistent with the language used for Type B dwelling units in ICC A117.1.

Code change E52-12 added exception 10 as part of the coordination with ADA 224.1.2. Questions that has risen are: Is the intent to require 32" clear width shower stall doors in all showers Group I-1, R-2, R-3 and R-4 or multi-stall shower rooms? Is the intent to require 32" clear width shower doors in the 2nd bathrooms in Accessible units that are not required to have clearances? Elimination first part of the sentence would not change the allowances for Accessible hotel rooms, and would eliminate the question.

Exception 11 is proposed to be added to address a similar question for doors on toilet stalls. The width of 32" is especially a problem with IPC since the stall is only required to be 30" wide.

The ICC Fire Code Action Committee supports this proposal and will be submitting a Group B a correlative language change proposed to IFC Section 1104.7.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification and coordination of current requirements; therefore, there is no impact on the cost.

E 47-15 : 1010.1.1-KULIK3338

E 48-15

1010.1.1; (IFC[BE] 1010.1.1)

Proponent: John Woestman, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Building Code

Revise as follows:

1010.1.1 Size of doors. The required capacity of each door opening shall be sufficient for the *occupant load* thereof and shall provide a minimum clear width of 32 inches (813 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 32 inches (813 mm). ~~The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal.~~ *Means of egress* doors in a Group I-2 occupancy used for the movement of beds shall provide a clear width not less than $41^1/_2$ inches (1054 mm). The height of door openings shall be not less than 80 inches (2032 mm).

Exceptions:

1. The minimum ~~and maximum~~ width shall not apply to door openings that are not part of the required *means of egress* in Group R-2 and R-3 occupancies.
2. Door openings to resident *sleeping units* in Group I-3 occupancies shall have a clear width of not less than 28 inches (711 mm).
3. Door openings to storage closets less than 10 square feet (0.93 m^2) in area shall not be limited by the minimum width.
4. ~~Width of door leaves in revolving doors that comply with Section 1010.1.4.1 shall not be limited.~~
4. Door openings within a *dwelling unit* or *sleeping unit* shall be not less than 78 inches (1981 mm) in height.
5. Exterior door openings in *dwelling units* and *sleeping units*, other than the required *exit* door, shall be not less than 76 inches (1930 mm) in height.
6. In other than Group R-1 occupancies, the minimum widths shall not apply to interior egress doors within a *dwelling unit* or *sleeping unit* that is not required to be an *Accessible unit*, *Type A unit* or *Type B unit*.
7. Door openings required to be *accessible* within *Type B units* shall have a minimum clear width of 31.75 inches (806 mm).
8. Doors to walk-in freezers and coolers less than 1,000 square feet (93 m^2) in area shall have a maximum width of 60 inches (1524 mm).
9. In Group R-1 *dwelling units* or *sleeping units* not required to be *Accessible units*, the minimum width shall not apply to doors for showers or saunas.

Reason: This proposal deletes the maximum width requirement for swinging doors.
From the 2012 IBC Commentary: The maximum width for a means of egress (swinging) door leaf in a swinging door is 48 inches (1219 mm) because larger doors are difficult to handle and are of sizes that typically are not fire tested.

We somewhat agree with this statement in the 2012 IBC Commentary. However, it is the width plus the height and the construction of the door (i.e. weight) which results in a door which may be difficult to open and / or close. Our perspective is the performance requirements in IBC Section 1010.1.3 and the Chapter 11 Accessibility requirements effectively result in the design and installation of appropriately- sized doors.

Regarding fire tested (i.e. fire-rated) doors – the solution is simple – install fire-rated doors which meet the previously mentioned performance requirements.

From a different perspective, NFPA 101 has not had a requirement for maximum swinging door leaf width since the 1997 edition, stating there is insufficient reason to limit the maximum width of a door leaf provided the door is maintained in good working order.

Also proposing to delete the 4th exception to this section, as this exception would no longer be need or appropriate.

Cost Impact: Will not increase the cost of construction
No cost implications could be identified.

E 48-15 : 1010.1.1-WOESTMAN5528

E 49-15

1010.1.1 (IFC [BE] 1010.1.1)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

1010.1.1 Size of doors. The required capacity of each door opening shall be sufficient for the *occupant load* thereof and shall provide a minimum clear width of 32 inches (813 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 32 inches (813 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. *Means of egress* doors in a Group I-2 occupancy used for the movement of beds shall provide a clear width not less than $41^{1}/_{2}$ inches (1054 mm). The height of door openings shall be not less than 80 inches (2032 mm).

Exceptions:

1. The minimum and maximum width shall not apply to door openings that are not part of the required *means of egress* in Group R-2 and R-3 occupancies.
2. Door openings to resident *sleeping units* in Group I-3 occupancies shall have a clear width of not less than 28 inches (711 mm).
3. Door openings to storage closets less than 10 square feet (0.93 m^2) in area shall not be limited by the minimum width.
4. ~~Width~~The width of door leaves in revolving doors that comply with Section 1010.1.4.1 shall not be limited.
5. The width of door leaves in bi-parting power-operated doors that comply with Section 1010.1.4.2 shall not be limited
6. Door openings within a *dwelling unit* or *sleeping unit* shall be not less than 78 inches (1981 mm) in height.
7. Exterior door openings in *dwelling units* and *sleeping units*, other than the required *exit* door, shall be not less than 76 inches (1930 mm) in height.
8. In other than Group R-1 occupancies, the minimum widths shall not apply to interior egress doors within a *dwelling unit* or *sleeping unit* that is not required to be an *Accessible unit*, *Type A unit* or *Type B unit*.
9. Door openings required to be *accessible* within *Type B units* shall have a minimum clear width of 31.75 inches (806 mm).
10. Doors to walk-in freezers and coolers less than 1,000 square feet (93 m^2) in area shall have a maximum width of 60 inches (1524 mm).
11. In Group R-1 *dwelling units* or *sleeping units* not required to be *Accessible units*, the minimum width shall not apply to doors for showers or saunas.

Reason: The proposed revisions are intended to improve clarity and consistency of the language of these sections of the code, and appear to be essentially editorial. The maximum width of power-operated doors which comply with IBC Section 1010.1.4.2 should not be limited as these doors are either fully automatic or power-assisted, and must comply with all the requirements of Section 1010.1.4.2 including the safety requirements incorporated in the BHMA standards referenced in 1010.1.4.2. This revision addresses a potential conflict between the IBC and the relatively few power-operated swinging doors currently being installed which exceed 48" inches in width.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
Editorial changes only. No technical changes intended.

E 49-15 : 1010.1.1-KULIK3671

E 50-15

1010.1.1; (IFC[BE] 1010.1.1)

Proponent: Barry Greive, representing Target Corporation (barry.greive@target.com)

2015 International Building Code

1010.1.1 Size of doors. The required capacity of each door opening shall be sufficient for the *occupant load* thereof and shall provide a minimum clear width of 32 inches (813 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 32 inches (813 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. *Means of egress* doors in a Group I-2 occupancy used for the movement of beds shall provide a clear width not less than $41^{1}/_{2}$ inches (1054 mm). The height of door openings shall be not less than 80 inches (2032 mm).

Exceptions:

1. The minimum and maximum width shall not apply to door openings that are not part of the required *means of egress* in Group R-2 and R-3 occupancies.
2. Door openings to resident *sleeping units* in Group I-3 occupancies shall have a clear width of not less than 28 inches (711 mm).
3. Door openings to storage closets less than 10 square feet (0.93 m^2) in area shall not be limited by the minimum width.
4. Width of door leaves in revolving doors that comply with Section 1010.1.4.1 shall not be limited.
5. Door openings within a *dwelling unit* or *sleeping unit* shall be not less than 78 inches (1981 mm) in height.
6. Exterior door openings in *dwelling units* and *sleeping units*, other than the required *exit* door, shall be not less than 76 inches (1930 mm) in height.
7. In other than Group R-1 occupancies, the minimum widths shall not apply to interior egress doors within a *dwelling unit* or *sleeping unit* that is not required to be an *Accessible unit*, *Type A unit* or *Type B unit*.
8. Door openings required to be *accessible* within *Type B units* shall have a minimum clear width of 31.75 inches (806 mm).
9. Doors to walk-in freezers and coolers less than 1,000 square feet (93 m^2) in area shall have a maximum width of 60 inches (1524 mm).
10. In Group R-1 *dwelling units* or *sleeping units* not required to be *Accessible units*, the minimum width shall not apply to doors for showers or saunas.
11. <u>Where a pair of double acting doors without a latch, mullion or stop is installed, both leaves shall be considered to determine the minimum clear opening width of 32 inches (813 mm).</u>

Reason: This code change is necessary to address the issue of double acting / impact / saloon and traffic doors being regulated as double doors with a manually operated edge or surface-mounted bolts for locking. Double acting doors are used in many applications from Retail, Warehouses, Factories and Restaurants. These doors do not have a latch, closer or mullion that could impede the function of the doors. Any person who needs to utilize the full 32 inches of clear width required in the code can easily push through both doors simultaneously which will provide the proper clearance needed. These types of doors in no way impact egress or accessibility, therefore they do not need to meet the provision of "at least one leaf being 32 inches". In many situations these doors are installed in 4 or 5 foot openings. This also allows for more architectural flexibility in the design of buildings.

Cost Impact: Will not increase the cost of construction
This will not increase the cost of construction, it could actually save money since specialty doors are not needed nor would the size of the opening need to be altered.

E 50-15 : 1010.1.1-GREIVE4937

E 51-15

1010.1.2.1; (IFC[BE] 1010.1.2.1)

Proponent: Chadley Root, Park City Utah, representing Utah Chapter ICC (chad.root@parkcity.org)

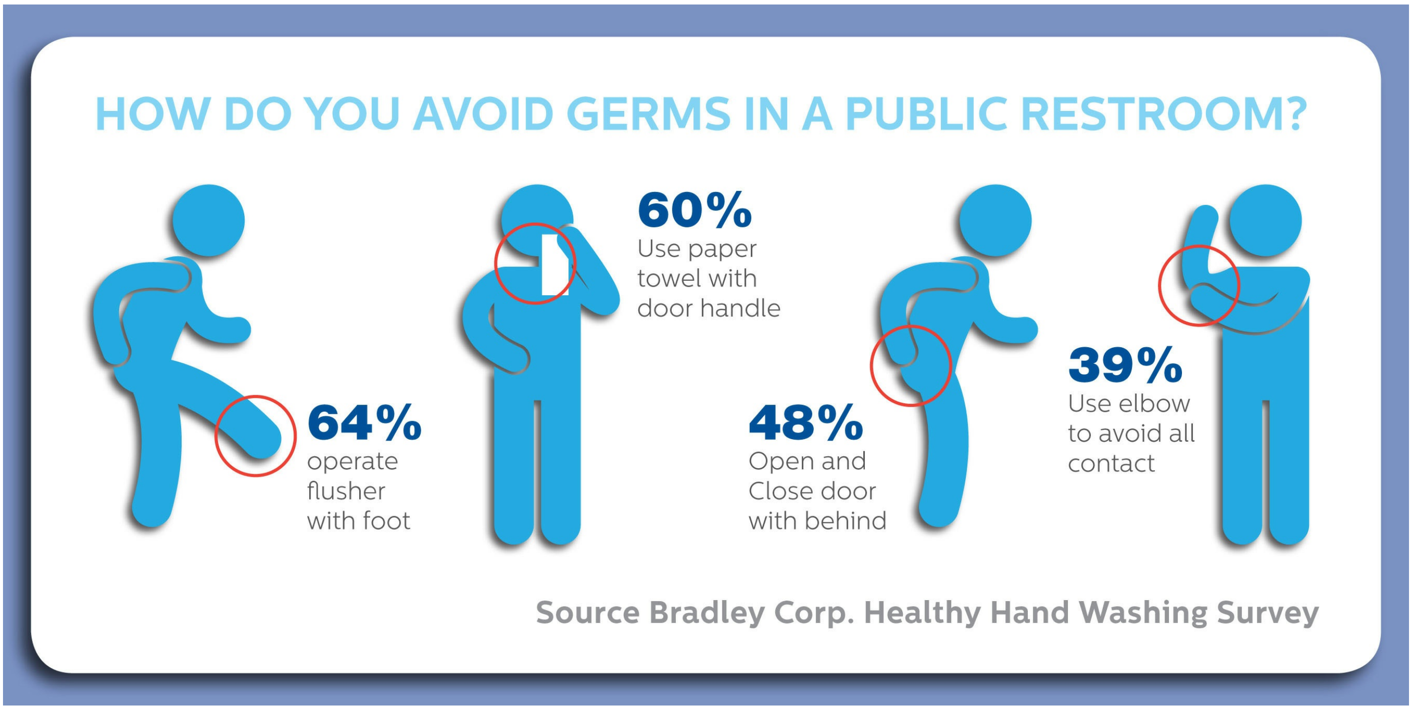
2015 International Building Code

Revise as follows:

1010.1.2.1 Direction of swing. Pivot or side-hinged swinging doors shall swing in the direction of egress travel where serving a room or area containing an occupant load of 50 or more persons or a Group H occupancy and doors serving public restrooms.

Reason: This proposal is for Health and Safety of the general public. This code change is for health and safety with the increase of population comes more communicable diseases, throughout history there have been plagues that have killed off numbers of people. In bathrooms/restrooms bodily fluids are present all over. It makes no sense to health and safety to wash your hands and clean yourself up to be required to pull open a door that someone else just opened with there hands that they just sneezed, spit, wiped there nose or wiped themselves without washing their hands and also just grasped the bathroom door to pull open.

Doors that swing outward from the bathroom can be opened with feet, arms, or the back this would eliminate the requirement of grabbing onto a door knob that was just opened by a person that failed to wash their hands after wiping or exposing bodily fluids to their hands.



Bibliography: Flores GE, Bates ST, Knights D, Lauber CL, Stombaugh J, et al. (2011)Microbial Biogeography of Public Restroom Surfaces.PLoS ONE6(11): e28132. doi:10.1371/journal.pone.0028132

http://www.webmd.com/news/20111021/bacteria-hard-to-avoid-in-public-bathrooms

http://www.npr.org/blogs/health/2011/11/23/142720314/scientists-bag-small-game-in-bathroom-germ-safari

Flores GE, Bates ST, Knights D, Lauber CL, Stombaugh J, et al. (2011)Microbial Biogeography of Public Restroom Surfaces.PLoS ONE6(11): e28132. doi:10.1371/journal.pone.0028132

Cost Impact: Will increase the cost of construction
New construction that was designed by a professional $0-$200

E 51-15 : 1010.1.2.1-ROOT4363

E 52-15

1010.1.4.1.1, 1010.1.4.1.2; (IFC[BE] 1010.1.4.1.1, 1010.1.4.1.2)

Proponent: Dale Gigandet, Boon Edam Inc., representing Boon Edam Inc. (dgt@boonedam.us)

2015 International Building Code

Revise as follows:

1010.1.4.1.1 Egress component. A revolving door used as a component of a *means of egress* shall comply with Section 1010.1.4.1 and the following three conditions:

1. Revolving doors shall not be given credit for more than 50 percent of the minimum width or required egress capacity.
2. Each revolving door shall be credited with ~~a~~ an egress capacity based on not more than a 50-person *occupant load* or, where 9 feet (2745 mm) in diameter or greater, a revolving door assembly shall be credited with an egress capacity based on the clear opening width provided when collapsed or situated into an egress position.
3. Each revolving door shall provide for egress in accordance with BHMA A156.27 ~~with~~when a *breakout* force of not more than 130 pounds (578 N) is applied to the wings within 3 inches (75 mm) of the outer edge.

1010.1.4.1.2 Other than egress component. A revolving door used as other than a component of a *means of egress* shall comply with Section 1010.1.4.1. The *breakout* force of a revolving door not used as a component of a *means of egress* shall not be more than 180 pounds (801 N) applied to the wings within 3 inches (75 mm) of the outer edge.

Exception: A *breakout* force in excess of 180 pounds (801 N) is permitted if the collapsing force is reduced to not more than 130 pounds (578 N) when not less than one of the following conditions is satisfied:

1. There is a power failure or power is removed to the device holding the door wings in position.
2. There is an actuation of the *automatic sprinkler system* where such system is provided.
3. There is an actuation of a smoke detection system that is installed in accordance with Section 907 to provide coverage in areas within the building that are within 75 feet (22 860 mm) of the revolving doors.
4. There is an actuation of a manual control switch, in an approved location and clearly identified, that reduces the *breakout* force to not more than 130 pounds (578 N).

Reason: The proposed change reflects NFPA 101, Life Safety Code (2015 Ed.) and current accepted practice for calculating egress capacity, and gives credit for larger door opening that provide clear unobstructed width for emergency egress.

Bibliography: Reference NFPA 101 Life Safety Code (2015 ed.), Sections 7.2.1.10.2 and 7.2.1.10.3.

Cost Impact: Will not increase the cost of construction
No material or labor costs increases will occur as the result of the proposed changes. The changes reflect the text included in the NFPA 101 Life Safety Code (2015 edition).

E 52-15 : 1010.1.4.1.1-GIGANDET3468

E 53-15

1010.1.4.1.2; (IFC[BE] 1010.1.4.1.2)

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Building Code

Revise as follows:

1010.1.4.1.2 Other than egress component. A revolving door used as other than a component of a *means of egress* shall comply with Section 1010.1.4.1. The *breakout* force of a revolving door not used as a component of a *means of egress* shall not be more than 180 pounds (801 N).

> **Exception:** A *breakout* force in excess of 180 pounds (801 N) is permitted if the ~~collapsing~~breakout force is reduced to not more than 130 pounds (578 N) when not less than one of the following conditions is satisfied:
> 1. There is a power failure or power is removed to the device holding the door wings in position.
> 2. There is an actuation of the *automatic sprinkler system* where such system is provided.
> 3. There is an actuation of a smoke detection system that is installed in accordance with Section 907 to provide coverage in areas within the building that are within 75 feet (22 860 mm) of the revolving doors.
> 4. There is an actuation of a manual control switch, in an approved location and clearly identified, that reduces the *breakout* force to not more than 130 pounds (578 N).

Reason: This proposal fixes an oversight on my part. The requirements for revolving doors were revised / updated for the 2015 IBC, including a definition of "breakout" and the use of that term which took the place of the term "collapsing". I missed this revision during the code development cycle for the 2015 IBC, and ICC staff suggested this was more than an editorial fix. Hence this proposal.

Cost Impact: Will not increase the cost of construction
Editorial fix.

E 53-15 : 1010.1.4.1.2-WOESTMAN5530

E 54-15

202, 1010.1.4.2; (IFC[BE] 1010.1.4.2), Chapter 35

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

LOW-ENERGY POWER-OPERATED DOOR. Swinging, sliding, or folding door which opens automatically upon an action by a pedestrian such as pressing a push plate or waving a hand in front of a sensor. The door closes automatically, and operates with decreased forces and decreased speeds (see "Power-assisted door" and "Power-operated door").

1010.1.4.2 Power-operated doors. Where *means of egress* doors are operated or assisted by power, the design shall be such that in the event of power failure, the door is capable of being opened manually to permit *means of egress* travel or closed where necessary to safeguard *means of egress*. The forces required to open these doors manually shall not exceed those specified in Section 1010.1.3, except that the force to set the door in motion shall not exceed 50 pounds (220 N). The door shall be capable of ~~swinging open~~opening from any position to the full width of the opening in which such door is installed when a force is applied to the door on the side from which egress is made. Power-operated swinging doors, power-operated sliding doors and power-operated folding doors shall comply with BHMA A156.10. Power-assisted swinging doors and low-energy power-operated swinging doors shall comply with BHMA A156.19. Low energy power-operated sliding doors and low energy power-operated folding doors shall comply with BHMA A156.38.

Exceptions:

1. Occupancies in Group I-3.
2. Horizontal sliding doors complying with Section 1010.1.4.3.
3. For a biparting door in the emergency breakout mode, a door leaf located within a multiple-leaf opening shall be exempt from the minimum 32-inch (813 mm) single-leaf requirement of Section 1010.1.1, provided a minimum 32-inch (813 mm) clear opening is provided when the two biparting leaves meeting in the center are broken out.

Add new standard(s) as follows:
BHMA A156.38-2014 Low Energy Power Operated Sliding and Folding Doors

Reason: The Builders Hardware Manufacturers Association (BHMA), an ANSI accredited standard development organization, received ANSI approval last year of A156.38-2014 Low Energy Power Operated Sliding and Folding Doors. This new standard has mandatory performance and safety requirements for low energy power operated sliding and folding doors, and "rounds out" this section of the IBC to now include most types of power operated doors. The standards currently referenced in this section are BHMA A156.10 Power Operated Pedestrian Doors (for swinging, sliding, and folding doors) and BHMA A156.19 Standard for Power Assist and Low Energy Operated Doors (for swinging doors).
The proposed deletion of "swinging" in IBC Section 1010.1.4.2 considers the configurations of power-operated doors, as they may be swinging, sliding, or folding.

Cost Impact: Will not increase the cost of construction
No cost implications. Manufacturers of low energy power-operated sliding or folding doors are voluntarily complying with this standard.

Analysis: A review of the standard proposed for inclusion in the code, BHMA A156.38, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

E 54-15 : 1010.1.4.2-WOESTMAN5532

E 55-15

709.5, 1010.1.4.2; (IFC[BE] 1010.1.4.2)

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Building Code

Revise as follows:

709.5 Openings. Openings in a *smoke barrier* shall be protected in accordance with Section 716.

Exceptions:

1. In Group I-1 Condition 2, Group I-2 and ambulatory care facilities, where a pair of opposite-swinging doors are installed across a corridor in accordance with Section 709.5.1, the doors shall not be required to be protected in accordance with Section 716. The doors shall be close fitting within operational tolerances, and shall not have a center mullion or undercuts in excess of $^3/_4$ inch (19.1 mm), louvers or grilles. The doors shall have head and jamb stops, and astragals or rabbets at meeting edges. Where permitted by the door manufacturer's listing, positive-latching devices are not required.
2. In Group I-1 Condition 2, Group I-2 and *ambulatory care facilities*, special purpose horizontal sliding, accordion or folding doors installed in accordance with Section 1010.1.4.3 and protected in accordance with Section 716.

1010.1.4.2 Power-operated doors. Where *means of egress* doors are operated or assisted by power, the design shall be such that in the event of power failure, the door is capable of being opened manually to permit *means of egress* travel or closed where necessary to safeguard *means of egress*. The forces required to open these doors manually shall not exceed those specified in Section 1010.1.3, except that the force to set the door in motion shall not exceed 50 pounds (220 N). The door shall be capable of swinging open from any position to the full width of the opening in which such door is installed when a force is applied to the door on the side from which egress is made. Power-operated swinging doors, power-operated sliding doors and power-operated folding doors shall comply with BHMA A156.10. Power-assisted swinging doors and low-energy power-operated swinging doors shall comply with BHMA A156.19.

Exceptions:

1. Occupancies in Group I-3.
2. ~~Horizontal~~Special purpose horizontal sliding, accordion or folding doors complying with Section 1010.1.4.3.
3. For a biparting door in the emergency breakout mode, a door leaf located within a multiple-leaf opening shall be exempt from the minimum 32-inch (813 mm) single-leaf requirement of Section 1010.1.1, provided a minimum 32-inch (813 mm) clear opening is provided when the two biparting leaves meeting in the center are broken out.

Reason: This proposal updates references to IBC 1010.1.4.3. Special purpose horizontal sliding, accordion or folding doors as the name of this section and related text were revised for the 2015 IBC and IFC. Most of the references to 1010.1.4.3 were updated for the 2015 IBC and IFC. These were not.

Cost Impact: Will not increase the cost of construction
No technical changes.

E 55-15 : 1010.1.4.2-WOESTMAN5512

E 56-15

202 (New), 1010.1.4.4 (New); (IFC[BE] 1010.1.4.4 (New))

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

CONTROL VESTIBULE A space with a door locking arrangement of two doors interconnected such that the first door must close or lock before the second door is openable and unlocked.

Add new text as follows:

1010.1.4.4 Control vestibule. Doors in the means of egress configured as a control vestibule shall provide for emergency egress and shall be subject to approval by the code official.

Reason: Control vestibules (interlocked doors) are being installed. The code currently is silent regarding requirements for doors in the means of egress configured as a control vestibule. The configuration of control vestibules which provide for ingress control (access control) is outside the scope of the IBC. However, egress MUST be provided for, and how egress is provided with control vestibules should be subject to approval by the AHJ.

Cost Impact: Will not increase the cost of construction
No cost increase. Control vestibules are not required by the code.

E 56-15 : 1010.1.4.4 (New)-WOESTMAN5535

E 57-15

Part I:

202 (New), 1010.1.4.4 (New), 1010.1.4.4.1 (New); (IFC[BE] 1010.1.4.4 (New), 1010.1.4.4.1 (New))

Part II:

202 (New), 406 (New), 406.1 (New), 406.2 (New), 406.2.1 (New), 704.2 (New), 704.2.1 (New)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC-MEANS OF EGRESS COMMITTEE. PART II WILL BE HEARD BY THE IEBC COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

Part I

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

CREDENTIAL. A tangible object, knowledge, or human physical characteristic required for locking and unlocking. A key to operate a lock cylinder; a magnetic card to swipe in a magnetic card reader; knowledge of a specific code for keypad operations; and a fingerprint for a fingerprint scanner; are examples of credentials, and their potential uses.

Add new text as follows:

1010.1.4.4 Group E classrooms. In Group E occupancies, classroom doors shall be lockable from within the classroom without opening the classroom door. All the following conditions shall apply:

1. The classroom door shall be unlockable and openable from within the classroom and shall comply with Section 1010.1.9.
2. The classroom door shall be unlockable and openable from outside the classroom by the use of a key or other credential.

1010.1.4.4.1 Remote operation of locks. Remote operation of locks complying with Section 1010.1.4.4 shall be permitted.

Part II

2015 International Existing Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

CREDENTIAL. A tangible object, knowledge, or human physical characteristic required for locking or unlocking. A key to operate a lock cylinder; a magnetic card to swipe in a magnetic card reader; knowledge of a specific code for keypad operations; and a fingerprint for a fingerprint scanner; are examples of credentials, and their potential uses.

Add new text as follows:

SECTION406 MEANS OF EGRESS

406.1 General. Alterations shall be such that the existing building or structure is no less conforming to the provisions of the International Building Code than the existing building or structure was prior to the alteration.

406.2 Existing occupany Group E classrooms. In Group E occupancies, existing classroom doors shall be lockable from within the classroom without opening the classroom door. All the following conditions shall apply:

1. The classroom door shall be unlockable and openable from within the classroom and shall comply with Section 1010.1.9. of the International Building Code.
2. The classroom door shall be unlockable and openable from outside the classroom by the use of a key or other credential.

406.2.1 Remote operation of locks. Remote operation of locks complying with 406.2 shall be permitted.

704.2 Group E occupancy classroom. In Group E occupancies, classroom doors shall be lockable from within the classroom without opening the classroom door. All the following conditions shall apply:

1. The classroom door shall be unlockable and openable from within the classroom and shall comply with Section 1010.1.9. of the International Building Code.
2. The classroom door shall be unlockable and openable from outside the classroom by the use of a key or other credential.

704.2.1 Remote operation of locks. Remote operation of locks complying with 704.2 shall be permitted.

Reason:

Part I: Many jurisdictions have taken measures to address the high priority concern of safety of occupants in K-12 classrooms in the event of a threatening situation. While well-intended and likely to have a degree of positive impact, these actions create disparate requirements from jurisdiction to jurisdiction, and some actions may inadvertently compromise certain aspects of life safety while attempting to address others.
This proposal for the IBC provides requirements which balance the challenges of providing protection for students and teachers in the classroom with that of free and immediate egress at all times without use of keys, tools, or special knowledge.

In addition to the security concerns, classroom doors are required to meet accessibility requirements which include door operating hardware configuration and location, door hardware operational forces, and a smooth surface of the bottom 10" of the push side of the door.

Door locksets with "classroom security function" are readily available today at the same cost as traditionally-used "classroom function" door locksets. The most common configuration of a classroom security function lockset is the ability to lock the door from inside the classroom with a key preventing entry to the classroom; and for egress, the door may be unlatched and opened from inside the classroom without a key by rotating the lever handle. On the outside of the classroom, consistent with tradition, the door may be locked with a key, and unlocked and opened with a key.

This code change proposal will require all Group E classroom doors to be lockable from the inside of the classroom preventing entry to the classroom, without the need to open the door. This proposal does not prescribe specifically how the door is to be lockable from inside the classroom.

Additional requirements are the door is to be unlockable and readily openable inside the classroom without the use of a key or special knowledge or effort, as required in IBC Section 1010.1.9. Subsections of 1010.1.9 include requirements for hardware height (between 34 and 48 inches above the floor), and for hardware configuration (for doors required to be accessible, which would be almost all classroom doors, the door operating hardware shall not require tight grasping, tight pinching or twisting of the wrist to operate). An additional requirement of this proposal is the classroom door is to be unlockable and openable from outside the classroom by a key or other lock credential.

Part II: Many jurisdictions have taken measures to address the high priority concern of safety of occupants in K-12 classrooms in the event of a threatening situation. While well-intended and likely to have a degree of positive impact, these actions create disparate requirements from jurisdiction to jurisdiction, and some actions may inadvertently compromise certain aspects of life safety while attempting to address others.
This proposal for the IEBC provides guidance which balances the challenges of providing protection for students and teachers in the classroom with that of free and immediate egress at all times without use of keys, tools, or special knowledge.

In addition to the relatively recent demand to protect students and teachers from outside-the-classroom threats, many classroom doors are required to function as fire-rated doors (opening protectives); and fire-rated doors are required to be always self-latching when closed to ensure the doors perform its fire protection function in the event of a fire. Additionally, classroom doors are required to meet accessibility requirements which include door operating hardware configuration and location, door hardware operational forces, and a smooth surface of the bottom 10" of the push side of the door.

This code change proposal will not require existing Group E classroom doors to be lockable from the inside of the classroom without the need to open the door. This proposal does provide guidance if modifications are made to the door in an effort to control access to the classroom.

This proposal does not prescribe specifically how the door is to be lockable from inside the classroom.
Additional requirements are the door is to be unlockable and readily openable inside the classroom without the use of a key or special knowledge or effort, as required in IBC Section 1010.1.9. Subsections of IBC 1010.1.9 include requirements for hardware height (between 34 and 48 inches above the floor), and for hardware configuration (for doors required to be accessible, which would be almost all classroom doors, the door operating hardware shall not require tight grasping, tight pinching or twisting of the wrist to operate). An additional requirement of this proposal is the classroom door is to be unlockable and openable from outside the classroom by a key or other lock credential.

If the door locking hardware is under consideration for replacement, door locksets with "classroom security function" are readily available today at essentially the same cost as traditionally-used "classroom function" door locksets. The most common configuration of a classroom security function lockset is the ability to lock the door from inside the classroom with a key preventing entry to the classroom; and for egress, the door may be unlatched and opened from inside the classroom without a key by rotating the lever handle. On the outside of the classroom, consistent with tradition, the door may be locked with a key, and unlocked and opened with a key.

Cost Impact:

Part I: Will not increase the cost of construction
No cost impact. Door locksets with the classroom security function are the same cost as traditionally specified door hardware locksets (with the classroom function).

Part II: Will not increase the cost of construction
This proposal does not require retrofitting of existing doors with new hardware. IF door locking hardware replacement is being considered, the requirements of this proposal provide guidance.

E 57-15 : 1010.1.4.4 (New)-WOESTMAN5537

E 58-15

202(New), 1010.1.2, 1010.1.4.5 (New); (IFC[BE] 1010.1.2, 1010.1.4.5 (New))

Proponent: Joseph Hetzel, representing Door & Access Systems Manufacturers Association (Jhetzel@thomasamc.com)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

HIGH SPEED DOOR. A non-swinging door with a minimum opening rate of 32 inches per second, a minimum closing rate of 24 inches per second, and an automatic closing device.

Add new text as follows:

1010.1.4.5 High speed doors In other than Groups A, E and H occupancies, high speed door assemblies permitted to serve as a component of a means of egress in accordance with Exception 10 to Section 1010.1.2 shall comply with at least one of the following criteria:

1. The door shall be openable by a simple method from either side of the opening without special knowledge or effort. The force required to operate the door shall not exceed 30 pounds (133 N) to set the door in motion.
2. The door assembly shall have an integrated standby power supply, shall be electrically supervised, and shall open to a minimum height of 80 inches (2.03 m) within 10 seconds after activation of the operating device.
3. The door panels shall be capable of being broken out manually in the event of power failure by a simple method from both sides without special knowledge or effort. A minimum 32-inch (813 mm) wide by 80-inch (2.03 m) high opening shall be capable of being provided when the door panels are broken out. The force required to break out the door panels shall not exceed 30 pounds (133 N).

Revise as follows:

1010.1.2 Door swing. Egress doors shall be of the pivoted or side-hinged swinging type.

Exceptions:

1. Private garages, office areas, factory and storage areas with an *occupant load* of 10 or less.
2. Group I-3 occupancies used as a place of detention.
3. Critical or intensive care patient rooms within suites of health care facilities.
4. Doors within or serving a single *dwelling unit* in Groups R-2 and R-3.
5. In other than Group H occupancies, revolving doors complying with Section 1010.1.4.1.
6. In other than Group H occupancies, special purpose horizontal sliding, accordion or folding door assemblies complying with Section 1010.1.4.3.
7. Power-operated doors in accordance with Section 1010.1.4.2.
8. Doors serving a bathroom within an individual *sleeping unit* in Group R-1.
9. In other than Group H occupancies, manually operated horizontal sliding doors are permitted in a *means of egress* from spaces with an *occupant load* of 10 or less.
10. In other than Group A, E and H occupancies, high speed doors complying with Section 1010.1.4.5.

Reason: High speed doors, typically designed as nonswinging doors, have been successfully installed as egress doors. They are often used in locations where pivoted or side-hinged swinging doors are not present.
In order to be found compliant with the IBC other than using the Alternative Methods provisions, high speed doors should be included as an Exception to side-hinged or swinging doors. The exclusion from Groups A, E and H is consistent with the limitation currently applied to using delayed egress locking systems.

The definition proposed for the term "high speed door" is similar in description of action to the definition of the term as contained in the International Energy Conservation Code.

The three options are commonly and successfully used by the high speed door industry where such doors are a component of a means of egress. The requirements in each option are similar to those listed in Section 1010.1.4.3 for special purpose horizontal sliding, accordion and folding door assemblies. Each option is viable in itself, but only one is needed from a cost/benefit standpoint.

Cost Impact: Will not increase the cost of construction
None.

E 58-15 : 1010.1.2-HETZEL4785

E 59-15

1010.1.4.5 (New), 1030.4; (IFC[BE] 1010.1.4.5 (New), 1030.4)

Proponent: Jeffrey Stone, Retired, representing self (JStone7@tampabay.rr.com)

2015 International Building Code

Add new text as follows:

1010.1.4.5 Protection devices for emergency escape and rescue openings In Group R-2 and R-3 occupancies, the temporary installation or closure of storm shutters, panels and other approved hurricane protection devices shall be permitted over emergency escape and rescue openings during the threat of a storm. Such devices shall not be required to comply with the operational constraints of Section 1030.4. When such protection is installed or closed, at least one means of egress from the dwelling unit shall be required.

Revise as follows:

1030.4 Operational constraints. *Emergency escape and rescue openings* shall be operational from the inside of the room without the use of keys or tools. Bars, grilles, grates or similar devices are permitted to be placed over *emergency escape and rescue openings* provided the minimum net clear opening size complies with Section 1030.2 and such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the *emergency escape and rescue opening*. Where such bars, grilles, grates or similar devices are installed in existing buildings, *smoke alarms* shall be installed in accordance with Section 907.2.11 regardless of the valuation of the *alteration*.

> **Exception:** Security and hurricane devices shall be permitted to be installed over emergency escape and rescue openings in accordance with Section 1010.1.4.5.

Reason: Opening protection is of major importance during a hurricane event. The proposed modification will assist in safeguarding the public during high wind events. The intent for requiring such openings is to provide an opening of adequate size for the ingress of firefighters wearing full bunker gear and self-contained breathing apparatus. The opening size stipulated is still based on the ability of a fully bunkered firefighter to reach into the window and perform a rescue or to climb into the room. The provisions as currently contained in the code create a conflict between two life safety issues: escape during a fire emergency and structural integrity during a high wind event.

While it is acknowledged there is a risk of fire during a hurricane, structural integrity must be considered the greatest concern. Clearly the damage wrought by hurricanes is wind damage, not fire damage. The provisions related to escape and rescue from bedrooms are based on a scenario where occupants are sleeping and a fire starts in another part of the house. The occupant awakens and finds the fire has blocked access to the primary means of egress. During a hurricane, it is doubtful that the occupants will be sleeping. We also acknowledge the potential for the opening protection to be installed a day or two in advance of a storm and to remain in place a day or two after the storm. However, storm protection devices are not closed or installed unless there is a serious threat of a storm approaching. Should entry by firefighters become necessary, tools to allow rapid entry from outside the structure are available on responding vehicles.

Bibliography: 2013 Florida Building Code (Draft).

Cost Impact: Will not increase the cost of construction
This proposal will not impose an increase to construction or enforcement costs.

E 59-15 : 1008.1.4.5 (New)-STONE5222

E 60-15

1010.1.9.3 (New); (IFC[BE] 1010.1.9.3 (New))

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Add new text as follows:

1010.1.9.3 Monitored or recorded egress. Where electrical systems which monitor or record egress activity are incorporated, the locking system shall comply with Sections 1010.1.9.6, 1010.1.9.7, 1010.1.9.8, 1010.1.9.9 or 1010.1.9.10.

Reason: Monitored egress is where an active device requiring credentials is used to monitor who is egressing. The active device could be a card reader, keypad, iris scan, finger scan, etc. A monitored egress device could be utilized on any of the five "special locking arrangements" of Sections 1010.1.9.6, 1010.1.9.7, 1010.1.9.8, 1010.1.9.9 or 1010.1.9.10 provided the functions of that specific locking arrangement are retained and maintained. Examples: a keypad could be installed next to an electromagnetically locked egress door; a card reader could be installed next to a delayed egress door; or a keypad installed in the approach area of a sensor release door. The special locking arrangement would need to fully comply with its requirements.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
No cost impact unless the building owner chooses to install a system to monitor or record egress.

E 60-15 : 1010.1.9.3 (New)-KULIK3673

E 61-15

1010.1.9.3 (New); (IFC[BE] 1010.1.9.3 (New))

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Building Code

Add new text as follows:

1010.1.9.3 Monitored or recorded egress. Where electrical systems which monitor or record egress activity are incorporated, the locking system shall comply with Sections 1010.1.9.6, 1010.1.9.7, 1010.1.9.8, 1010.1.9.9 or 1010.1.9.10 or shall be readily openable from the egress side without the use of a key or special knowledge or effort.

Reason: Monitored egress is where an active device requiring credentials is used to monitor who is egressing. The active device could be a card reader, keypad, iris scan, finger scan, etc. A monitored egress device could be utilized on any of the four "special locking arrangements" of Sections 1010.1.9.6, 1010.1.9.7, 1010.1.9.8, or 1010.1.9.9 provided the functions of that specific locking arrangement are retained and maintained. Examples: a keypad could be installed next to an electromagnetically locked egress door; a card reader could be installed next to a delayed egress door; or a keypad installed in the approach area of a sensor release door. The special locking arrangement would need to fully comply with its requirements.
The BHMA members, while conducting a final review of the Building Code Action Committee (BCAC) proposal on the same topic realized the proposed language without the "or shall be readily openable . . . ." phrase could be interpreted as requiring one of the special locking arrangements of 1010.1.9.7, 1010.1.9.8, or 1010.1.9 if a monitored egress system is installed. This added phrase helps to clarify a monitored egress system may also be installed where doors are readily openable, as required in 1010.1.9. We apologize for not catching this nuance in adequate time to offer this suggestion to the BCAC during one of the BCAC meetings.

Cost Impact: Will not increase the cost of construction
No cost impact unless the building owner chooses to install a system to monitor or record egress.

E 61-15 : 1010.1.9.3 (New)-WOESTMAN5543

E 62-15

1010.1.9.3; (IFC[BE] 1010.1.9.3)

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Building Code

Revise as follows:

1010.1.9.3 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places of detention or restraint.
2. In buildings in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in *places of religious worship*, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:
    2.1. The locking device is readily distinguishable as locked.
    2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background.
    2.3. The use of the key-operated locking device is revokable by the *building official* for due cause.
3. Where egress doors are used in pairs, *approved* automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts does not have a doorknob or surface-mounted hardware.
4. Doors from individual *dwelling* or *sleeping units* of Group R occupancies having an *occupant load* of 10 or less are permitted to be equipped with a night latch, dead bolt or security chain, provided such devices are openable from the inside without the use of a key or tool.
5. *Fire doors* after the minimum elevated temperature has disabled the unlatching mechanism in accordance with *listed fire door* test procedures.
6. <u>Doors serving roofs not intended to be occupied shall be permitted to be locked preventing entry to the building from the roof provided that when accessing the roof from the building the locks do not automatically lock preventing re-entry into the building from the roof.</u>

Reason: Questions are being asked of BHMA members as to what is allowed and / or required for locking of doors to roofs not intended to be occupied. This proposal attempts to address these questions.
The intent of this proposal is to allow doors to roofs not intended to be occupied to be locked preventing access into the building from the roof, especially for security reasons. However, in an effort to prevent locking out an authorized person who goes to the roof from inside the building, this proposal includes a requirement for the door to not automatically lock behind this person.

This proposal does not address locking of doors preventing access to the roof. Also, egress from occupied roofs is addressed in Section 1006.3.

Cost Impact: Will not increase the cost of construction
No costs unless doors providing access to the roof are desired to be locked. If these doors are to be locked, this proposal provides guidance for selecting locking hardware.

E 62-15 : 1010.1.9.3-WOESTMAN5544

E 63-15

1010.1.9.3; (IFC[BE] 1010.1.9.3)

Proponent: Lee Kranz, City of Bellevue, WA, representing The City of Bellevue Washington

2015 International Building Code

Revise as follows:

1010.1.9.3 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places of detention or restraint.
2. In buildings in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in *places of religious worship*, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:
    2.1. The locking device is readily distinguishable as locked.
    2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background.
    2.3. The use of the key-operated locking device is revokable by the *building official* for due cause.
3. Where egress doors are used in pairs, *approved* automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts does not have a doorknob or surface-mounted hardware.
4. Doors from individual *dwelling* or *sleeping units* of Group R occupancies having an *occupant load* of 10 or less are permitted to be equipped with a night latch, dead bolt or security chain, provided such devices are openable from the inside without the use of a key or tool.
5. *Fire doors* after the minimum elevated temperature has disabled the unlatching mechanism in accordance with *listed fire door* test procedures.
6. <u>Required egress doors serving outdoor areas, other than egress courts, having an occupant load of 300 or less where occupants must use one or more exits or exit access doors to egress through the building are permitted to be equipped with key-operated or thumb-turn lever locking devices. The locking device shall be installed and operated in accordance with all of the following:</u>
    6.1. <u>For other than Group R occupancies, the locking device shall be readily distinguishable as locked.</u>
    6.2. <u>A clear window or glazed door opening, not less than 5 square feet (0.46 m^2) in area, shall be provided in the wall separating the inside of the building from the outdoor area to allow visual confirmation to determine if there are occupants using the outdoor area. The minimum net clear opening height dimension shall be 24 inches (610 mm). The minimum net clear opening width dimension shall be 20 inches (508 mm). The center of the glazed opening shall be located 48 inches (1220 mm) to 60 inches (1525 mm) above the finished floor level.</u>
    6.3. <u>For other than Group R occupancies, a readily visible durable sign is posted on the interior side on or adjacent to the required egress door or doors serving the outdoor area stating: THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTDOOR AREA IS OCCUPIED. The letters on the sign shall be not less than 1 inch (25 mm) high on a contrasting background.</u>
    6.4. <u>The door hardware shall not be capable of locking or unlocking except by the use of a key or thumb-turn lever.</u>
    6.5. <u>The use of key-operated or thumb-turn lever locking devices is revocable by the building official for due cause.</u>

Reason: All outdoor areas that are accessible to and usable by the building occupants, where people must use one or more required exits or exit access doors to re-enter the building, are considered for means of egress purposes to be the same as any occupied room in the building and therefor be provided with free egress at all times. Doors serving outdoor areas must remain unlocked at all times to permit safe egress. To insure security for their building or tenant space, owners and tenants typically want to have locks to be installed on required egress doors serving outdoor areas, even on levels above and below the level of exit discharge. This proposal adresses the issue by allowing these required egress doors to be locked for security purposes as long as all of the listed conditions are met. The proposed code change will apply to all outdoor areas where occupants must egress through the building, including those located at the level of exit dischare and those above or below the level of exit discharge. Group R occupancies are not required to provide distinguishable locks or interior signage as required for all other occupancies.
Important required elements include:

1. a vision panel that would allow someone on the inside of the building to see if there are people using the outside area to reduce the potential for doors serving outdoor areas to be locked,
2. signage on the interior side indicating that the door(s) must remain unlocked when people are using the outdoor area, and
3. the requirement to use door hardware that will prevent the door from accedently locking when someone goes outside.

Cost Impact: Will not increase the cost of construction
Locks are being placed on doors serving outdoor areas illegally. This proposal provides an avenue to install the locks legally as long as certain conditions are met. It should not impact the cost of construction.

E 63-15 : 1010.1.9.3-KRANZ4469

E 64-15

1010.1.9.5.1 (IFC[BE] 1010.1.9.5.1)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Delete without substitution:

~~**1010.1.9.5.1 (IFC[BE] 1010.1.9.5.1) Closet and bathroom doors in Group R-4 occupancies.** In Group R-4 occupancies, closet doors that latch in the closed position shall be openable from inside the closet, and bathroom doors that latch in the closed position shall be capable of being unlocked from the ingress side.~~

Reason: This is proposed to be deleted because it is an inconsistent requirement. If there is a concern that a person receiving custodial care might lock themselves in a bathroom or closet, this should be required in Group I-1, not just Group R-4. Also, this should not be a overall minimum code requirement, but more an option for a facility to provide where needed. Literally this would applied to storage closets that are not used by residents and closets that you would not walk into at all.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This is eliminating a requirement for locks.

E 64-15 : 1010.1.9.5.1-BALDASSARRA4278

E 65-15

1010.1.9.6; (IFC[BE] 1010.1.9.6)

Proponent: Johnna Grizzard, Chesterfield County (Virginia) Department of Building Inspection, representing Virginia Building and Code Officials Association (grizzardj@chesterfield.gov)

2015 International Building Code

Revise as follows:

1010.1.9.6 Controlled egress doors in Groups I-1 and I-2. Electric locking systems, including electro-mechanical locking systems and electromagnetic locking systems, shall be permitted to be locked in the means of egress in Group I-1 or I-2 occupancies where the clinical needs of persons receiving care require their containment or where there is a risk of child abduction from nursery and obstetric areas. Controlled egress doors shall be permitted in such occupancies where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approved automatic smoke* or *heat detection system* installed in accordance with Section 907, provided that the doors are installed and operate in accordance with all of the following:

1. ~~The door locks shall unlock on actuationresult of the automatic sprinkler system or automatic fire detection system.~~A key-operated switch or other manual device is provided adjacent to each door equipped with the locking device. Such switch or other device, when operated, shall result in direct interruption of power to the lock--independent of the *control system* electronics. All clinical staff shall have the keys or other means necessary to operate the locking systems.
2. ~~The door locks shall unlock on loss of power controlling the lock or lock mechanism~~. Loss of power to the lock or locking system shall automatically unlock the dors.
3. The door locking system shall be installed to have the capability of being unlocked by a switch, keypad, or other approved device located at the *fire command center*, a nursing station or other approved location. ~~The switch shall directly break power to the lock.~~All clinical staff shall have the keys, codes or other means necessary to release the locking systems.
4. A building occupant shall not be required to pass through more than one door equipped with a controlled egress locking system before entering an exit.
5. The procedures for unlocking the doors shall be described and approved as part of the emergency planning and preparedness required by Chapter 4 of the *International Fire Code*.
6. ~~All clinical staff shall have the keys, codes or other means necessary to operate the locking systems.~~
7. Emergency lighting shall be provided at the door.
8. The door locking system units shall be listed in accordance with UL 294.

> ~~**Exceptions:**~~
> ~~1. Items 1 through 4 shall not apply to doors to areas occupied by persons who, because of clinical needs, require restraint or containment as part of the function of a psychiatric treatment area.~~
> ~~2. Items 1 through 4 shall not apply to doors to areas where a *listed* egress control system is utilized to reduce the risk of child abduction from nursery and obstetric areas of a Group I-2 hospital.~~

Reason: As currently written, these systems could be designed and installed such that they are totally dependent upon digitally programmed "request to exit" control functions. Loss of power to the control system, programming error, or loss of input-output digital signals could prevent the system from releasing. Where systems are designed to prevent egress from occupied areas, they must be designed with an absolutely positive releasing function only possible by "direct interruption of power to the lock—independent of the control system electronics" (2015 IBC 1010.1.9.8). Similar code language has been used under previous "Special Locking Device" code provisions and is currently used under "Sensor Release of Electrically Locked Egress Doors," Section 1010.1.9.9, "Electromagnetically Locked Egress Doors," Section 1010.1.9.9.

While the code provisions must be adaptable to meet safety and security concerns while enabling the utilization of rapidly changing technology, the basic premise of code development has been providing safe egress for building occupants.

In I-1 and I-2 occupancies, trained staff is always present. So, modifying from the public-accessible special locking locking system bypass required by other egress-controlled conditions (e.g. delayed egress, sensory-release of electromagnetically locked egress doors), to staff-operated, key-secured bypass mechanisms that meet the performance provisions of proposed Items 1 – 7 provides occupant safety while providing greater flexibility to address security concerns.

Strike Item 1: Automatically releasing exit/egress upon fire protection system activation may not provide improved life safety. Releasing the entire locking system upon activation of sprinkler system or fire alarm activation in areas not immediately affecting secured areas could create a greater occupant safety hazard than providing staff-assisted egress or controlled relocation of occupants to protected areas.

Often in I-1/I-2 occupancies, there are secured and unsecured wings/sections. By requiring the doors to unlock upon activation of the fire sprinkler and fire detection system, doors in secured areas could be unlocked even if they are not affected by the event. For example, the sprinkler system piping would have to be subdivided so that there is a different waterflow alarm for each wing. This would provide a defend-in-place design where secured areas would not be unlocked if there was an event on the other side of the floor or building. In other words, based on the current Item 1, the "security zones" would need to coincide with the smoke zones and sprinkler waterflow zones in order to prevent the entire building from unlocking. This would require complicated fire alarm system programming and possibly expensive changes to the sprinkler, smoke-management, and fire alarm designs.

This provision would not prohibit the locking device(s) to unlock upon activation of the fire sprinkler or fire detection system activation, but would remove the requirement to do so while adding the requirement for a device at each door that would manually interrupt power to the lock.

New Item 1: All locking mechanisms preventing passive egress require power to the locking mechanism when locked in order to meet the definition of "fail safe." Locking mechanisms that require power to release the lock function are defined as "fail secure," and are therefore not permitted to be installed in a means of egress. This new provision assures that the power to the lock must be removed without requiring any dependency on "request to exit" digital programming or input signal processing. The provision permitting the use of a keyed switch maintains occupant security and safety directly under the control of trained staff. Where installed correctly to "direct interruption of power to the lock—independent of the control system electronics," the reliability of this circuitry exceeds all other integrated circuit configurations such as digitally-controlled fire alarm system interface.

Revised Item 2: This provision requires egress-controlled locks to be "fail safe." The locking system could be provided with standby power such as a UPS or generator circuit. Hospitals and larger I-1 facilities utilize a generator(s) to power life safety systems, and the locking systems could be integrated into the emergency standby power circuits.

"System" is included in "loss of power to the locking system," because by definition loss of power to a "fail safe" locking mechanism shall release the lock. The important issue is actually loss of power to the locking system. If the lock was tied without power the system may not perform digitally programmed input-output release functions. This language is consistent with Item 2 of "Sensor Release of Electrically Locked Egress Doors," Section 1010.1.9.8 and Item 4 of "Electromagnetically Locked Egress Doors," Section 1010.1.9.9.

Revised Item 3: This provision is significantly different than Item 1, because this item permits the use of a "request to exit" device that is dependent upon digital programming or input signal processing. While a digital device requires system power and programmed input-output logic to perform unlocking functions, which does not meet the definition of "fail safe," this provision provides greater flexibility without requiring a continuous power circuit. Specific areas immediately affected by the hazard could be released while other non-affected areas requiring security or occupant containment could be maintained. This circuit configuration is consistent with typical installations found in special locking systems installed in I-1/I-2 occupancies under current and previous code editions.

Delete Exception 1: This is sufficiently addressed under application provisions "clinical needs of persons receiving care require their containment."

The qualifying conditions to utilize the referenced locking provisions should be sufficient to strictly limit application of restricted egress-only hardware to areas requiring high priority for occupant safety and security.

This exception greatly reduces life safety by omitting the requirement for controlled egress arrangements in areas such as memory care wings from meeting the performance criteria in Items 1-7. With the proposed Items 1-7, means of egress and security can be achieved.

Delete Exception 2: This is relocated to the code section above to be included in the application provisions: "where there exists a risk of child abduction from nursery and obstetric areas."

This exception greatly reduces life safety by omitting the requirement for controlled egress arrangements in areas such as nursery and obstetric areas from meeting the performance criteria in Items 1-7. With the proposed Items 1-7, means of egress and security can be achieved.

Cost Impact: Will not increase the cost of construction
This proposed code modification should actually reduce costs. Providing a key or secure-switch mechanism located adjacent to the door to interrupt a low-voltage circuit would be a minor expense. Permitting digitally controlled release devices to be located remotely provides system design flexibility, which reduces cost. Deleting presently mandated digitally controlled release devices should be a significant a cost reduction.

E 65-15 : 1010.1.9.6-GRIZZARD5404

E 66-15

1010.1.9.7; (IFC[BE] 1010.1.9.7)

Proponent: James Peterkin, representing Self (jpeterki@heery.com)

2015 International Building Code

Revise as follows:

1010.1.9.7 Delayed egress. Delayed egress locking systems shall be permitted to be installed on doors serving any occupancy except Group A, E and H in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approvedautomatic smoke* or *heat detection system* installed in accordance with Section 907.

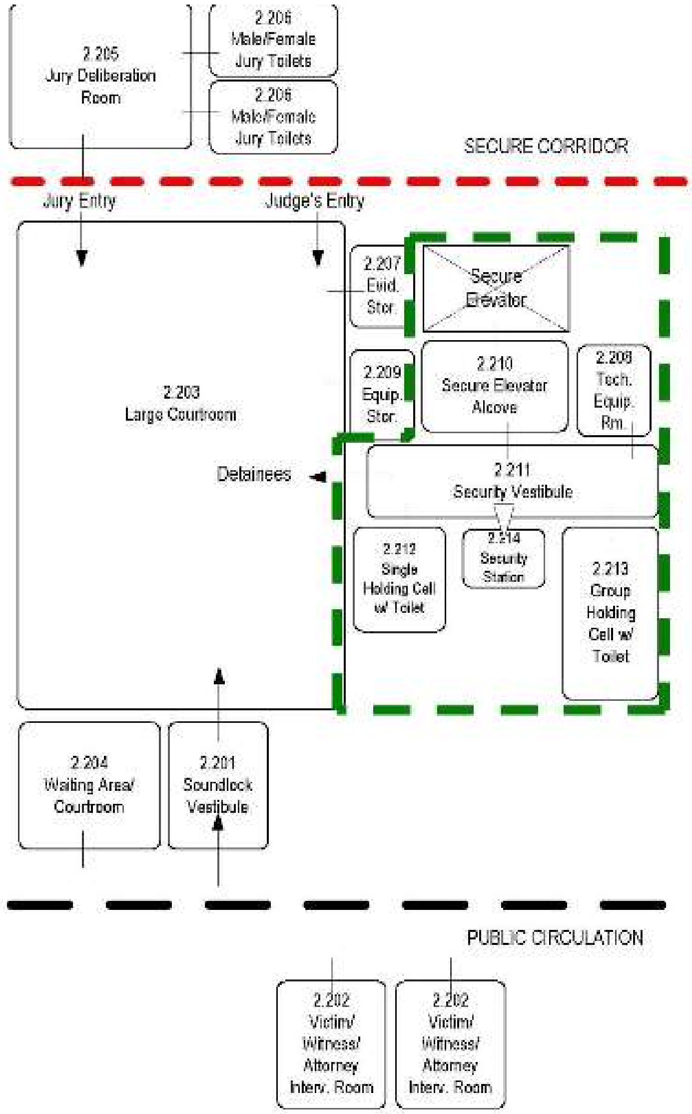
> **Exception:** Delayed egress locking systems shall be permitted to be installed on doors serving courtrooms within a Group A occupancies that are in buildings that are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

1010.1.9.7.1 Delayed egress locking system. The delayed egress locking system shall be installed and operated in accordance with all of the following:

1. The delay electronics of the delayed egress locking system shall deactivate upon actuation of the *automatic sprinkler system* or *automatic fire detection system*, allowing immediate, free egress.
2. The delay electronics of the delayed egress locking system shall deactivate upon loss of power controlling the lock or lock mechanism, allowing immediate free egress.
3. The delayed egress locking system shall have the capability of being deactivated at the f*ire command center* and other *approved* locations.
4. An attempt to egress shall initiate an irreversible process that shall allow such egress in not more than 15 seconds when a physical effort to exit is applied to the egress side door hardware for not more than 3 seconds. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the delay electronics have been deactivated, rearming the delay electronics shall be by manual means only.
   Exception: Where approved, a delay of not more than 30 seconds is permitted on a delayed egress door.
5. The egress path from any point shall not pass through more than one delayed egress locking system.
   Exception: In Group I-2 or I-3 occupancies, the egress path from any point in the building shall pass through not more than two delayed egress locking systems provided the combined delay does not exceed 30 seconds.
6. A sign shall be provided on the door and shall be located above and within 12 inches (305 mm) of the door exit hardware:
   6.1. For doors that swing in the direction of egress, the sign shall read: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS.
   6.2. For doors that swing in the opposite direction of egress, the sign shall read: PULL UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS.
   6.3. The sign shall comply with the visual character requirements in ICC A117.1.
   Exception: Where approved, in Group I occupancies, the installation of a sign is not required where care recipients who because of clinical needs require restraint or containment as part of the function of the treatment area.
7. Emergency lighting shall be provided on the egress side of the door.
8. The delayed egress locking system units shall be listed in accordance with UL 294.

Reason: A courthouse is a unique building type that is designed with three separate and distinct circulation systems – one for the public, one for the judiciary/secure staff, and one for in-custody inmates. The three circulation systems are segregated and they only meet in a single location, the courtrooms. The public enter the courtroom from the public corridor, the judges and court staff enter from the rear secure staff corridor and the prisoners enter from the holding area at the side. Because these groups must be kept separate for security reasons, it is necessary to lock the doors where these groups interface to prevent intermixing.
Standard courtroom design provides free egress for the public out the back of the courtroom with enough egress capacity to handle the entire occupant load of the courtroom. Doors leading to the prisoner interface are locked and fail secure, which is allowed by code. Since the courtrooms have an occupant load greater than 50 (up to approximately 120), these rooms are considered an "assembly occupancy" and require a second means of egress.

Industry practice has been to utilize the exit in the front of the courtroom as the second means of egress. This egress ogenerally also serves as the entrance/egress for the judge and court staff. (Please refer to the attached functional diagram).



Large Courtroom Functional Diagram

To maintain the security separation of occupants, it is industry practice to equip this second means of egress with a delayed egress device which prevents any unauthorized person from gaining access to the secure staff areas.

A courtroom, unlike many other assembly occupancies, is a controlled environment. A bailiff is located within the courtroom when occupied by the public and/or prisoners. The bailiff, along with other court personnel, is equipped with a security access card that can override the delay.

As a precedant, all United States Federal courthouses are designed in this manner because the General Services Administration (the federal organization responsible for federal buildings/courthouses) has ruled that the Life Safety Code takes precedence over the building code with regards to egress requirements.

Another Assembly where it is common to see the use of delayed egress, even though prohibited by code, is airport terminals. Airport terminals are considered an Assembly Occupancy like the courtrooms, but the use of delayed egress devices are common in these buildings also because of security concerns.

Cost Impact: Will not increase the cost of construction
It is common to see these devices used within courthouses. Allowing this will not increase the cost of construction.

E 66-15 : 1010.1.9.7-PETERKIN5243

E 67-15

1010.1.9.7; (IFC[BE] 1010.1.9.7)

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Building Code

Revise as follows:

1010.1.9.7 Delayed egress. Delayed egress locking systems shall be permitted to be installed on doors serving any occupancy except Group A, E and H in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approved automatic smoke* or *heat detection system* installed in accordance with Section 907.

> <u>**Exception:** Delayed egress locking systems shall be permitted to be installed on doors serving Group E occupancies that have a maximum occupant load of 10 and that are in buildings that are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.</u>

<u>**1010.1.9.7.1 Delayed egress locking systems.**</u> The <u>delayed egress</u> locking system shall be installed and operated in accordance with all of the following:

1. The delay electronics of the delayed egress locking system shall deactivate upon actuation of the *automatic sprinkler system* or *automatic fire detection system*, allowing immediate, free egress.
2. The delay electronics of the delayed egress locking system shall deactivate upon loss of power controlling the lock or lock mechanism, allowing immediate free egress.
3. The delayed egress locking system shall have the capability of being deactivated at the f*ire command center* and other *approved* locations.
4. An attempt to egress shall initiate an irreversible process that shall allow such egress in not more than 15 seconds when a physical effort to exit is applied to the egress side door hardware for not more than 3 seconds. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the delay electronics have been deactivated, rearming the delay electronics shall be by manual means only.
   Exception: Where approved, a delay of not more than 30 seconds is permitted on a delayed egress door.
5. The egress path from any point shall not pass through more than one delayed egress locking system.
   Exception: In Group I-2 or I-3 occupancies, the egress path from any point in the building shall pass through not more than two delayed egress locking systems provided the combined delay does not exceed 30 seconds.
6. A sign shall be provided on the door and shall be located above and within 12 inches (305 mm) of the door exit hardware:
   6.1. For doors that swing in the direction of egress, the sign shall read: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS.
   6.2. For doors that swing in the opposite direction of egress, the sign shall read: PULL UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS.
   6.3. The sign shall comply with the visual character requirements in ICC A117.1.
   Exception: Where approved, in Group I occupancies, the installation of a sign is not required where care recipients who because of clinical needs require restraint or containment as part of the function of the treatment area.
7. Emergency lighting shall be provided on the egress side of the door.
8. The delayed egress locking system units shall be listed in accordance with UL 294.

Reason: Several requests to address the needs of small educational occupancies to help prevent wandering / elopement, especially for the very young, and for special needs students. This BHMA proposal is an alternate to the BCAC approach to addressing this need for small educational occupancies via a new exception versus a modification to existing language.
The BHMA members, while conducting a final review of the Building Code Action Committee (BCAC) proposal on the same topic realized an alternative approach to allowing Group E occupancies to use delayed egress locking systems may be worth considering. We apologize for not offering this suggestion to the BCAC during one of the BCAC meetings.

Cost Impact: Will not increase the cost of construction
No cost impact unless the building owner chooses to install a delayed egress locking system.

E 67-15 : 1010.1.9.7-WOESTMAN5549

E 68-15

1010.1.9.7; (IFC[BE] 1010.1.9.7)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

Revise as follows:

1010.1.9.7 Delayed egress. Delayed egress locking systems shall be permitted to be installed on doors serving ~~any occupancy except Group A, E and H~~ Groups B, F, I, M, R, S and U occupancies in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approvedautomatic smoke* or *heat detection system* installed in accordance with Section 907.

> **Exception:**Delayed egress locking systems shall be permitted to be installed on doors serving Group E occupancies that have an occupant load of 10 or fewer and that are in buildings that are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907..

1010.1.9.7.1 Delayed egress locking system. The delayed egress locking system shall be installed and operated in accordance with all of the following:

1. The delay electronics of the delayed egress locking system shall deactivate upon actuation of the automatic sprinkler system or automatic fire detection system, allowing immediate, free egress.
2. The delay electronics of the delayed egress locking system shall deactivate upon loss of power controlling the lock or lock mechanism, allowing immediate free egress.
3. The delayed egress locking system shall have the capability of being deactivated at the fire command center and other approved locations.
4. An attempt to egress shall initiate an irreversible process that shall allow such egress in not more than 15 seconds when a physical effort to exit is applied to the egress side door hardware for not more than 3 seconds. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the delay electronics have been deactivated, rearming the delay electronics shall be by manual means only.

    Exception: Where approved, a delay of not more than 30 seconds is permitted on a delayed egress door.

5. The egress path from any point shall not pass through more than one delayed egress locking system.

    Exception: In Group I-2 or I-3 occupancies, the egress path from any point in the building shall pass through not more than two delayed egress locking systems provided the combined delay does not exceed 30 seconds.

6. A sign shall be provided on the door and shall be located above and within 12 inches (305 mm) of the door exit hardware:
    6.1 For doors that swing in the direction of egress, the sign shall read: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 1530] SECONDS.
    6.2 For doors that swing in the opposite direction of egress, the sign shall read: PULL UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS.
    6.3 The sign shall comply with the visual character requirements in ICC A117.1.

    Exception: Where approved, in Group I occupancies, the installation of a sign is not required where care recipients who because of clinical needs require restraint or containment as part of the function of the treatment area.

7. Emergency lighting shall be provided on the egress side of the door.
8. The delayed egress locking system units shall be listed in accordance with UL 294.

Reason: This proposal is in response to several requests to address the needs of small educational occupancies to help prevent wandering / elopement, especially for the very young, and for special needs students.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
No cost impact unless the building owner chooses to install a delayed egress locking system.

E 68-15 : 1010.1.9.7-KULIK3677

E 69-15

1010.1.9.7 (IFC[BE] 1010.1.9.7)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

1010.1.9.7 Delayed egress. Delayed egress locking systems shall be permitted to be installed on doors serving any occupancy except Group A, E and H in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approvedautomatic smoke* or *heat detection system* installed in accordance with Section 907. The locking system shall be installed and operated in accordance with all of the following:

1. The delay electronics of the delayed egress locking system shall deactivate upon actuation of the *automatic sprinkler system* or *automatic fire detection system*, allowing immediate, free egress.
2. The delay electronics of the delayed egress locking system shall deactivate upon loss of power controlling the lock or lock mechanism, allowing immediate free egress.
3. The delayed egress locking system shall have the capability of being deactivated at the f*ire command center* and other *approved* locations.
4. An attempt to egress shall initiate an irreversible process that shall allow such egress in not more than 15 seconds when a physical effort to exit is applied to the egress side door hardware for not more than 3 seconds. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the delay electronics have been deactivated, rearming the delay electronics shall be by manual means only.

   Exception: Where approved, a delay of not more than 30 seconds is permitted on a delayed egress door.
5. The egress path from any point shall not pass through more than one delayed egress locking system.

   ~~Exception~~ Exceptions:

   1. In Group I-2 or I-3 occupancies, the egress path from any point in the building shall pass through not more than two delayed egress locking systems provided the combined delay does not exceed 30 seconds.
   2. In Group I-1 or I-4 occupancies, the egress path from any point in the building shall pass through not more than two delayed egress locking systems provided the combined delay does not exceed 30 seconds and the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
6. A sign shall be provided on the door and shall be located above and within 12 inches (305 mm) of the door exit hardware:

   6.1. For doors that swing in the direction of egress, the sign shall read: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS.

   6.2. For doors that swing in the opposite direction of egress, the sign shall read: PULL UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS.

   6.3. The sign shall comply with the visual character requirements in ICC A117.1.

   Exception: Where approved, in Group I occupancies, the installation of a sign is not required where care recipients who because of clinical needs require restraint or containment as part of the function of the treatment area.
7. Emergency lighting shall be provided on the egress side of the door.
8. The delayed egress locking system units shall be listed in accordance with UL 294.

Reason: In Item 5, the new exception is proposed to be revised to include Group I-1 occupancies to allow up to two delayed egress systems. As in Group I-2, Group I-1 occupancies may need more than one delayed egress system. For example, if the Group I-1 occupancy is on the 2nd floor, or higher, in a building, a delayed egress system may be needed on the door to the exit stairway on that floor. And a second delayed egress locking system may be needed at the door to the exterior on the ground floor. In Group I-1 and I-4 an additional delayed egress locking system may be highly desirable to help reduce wandering or elopement by occupants.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will increase the cost of construction

This is a design option that would allow two delayed egress locking systems in the means of egress, which would increase costs, but it is not a requirement.

E 69-15 : 1010.1.9.7-BALDASSARRA4291

E 70-15

1010.1.9.8; (IFC[BE] 1010.1.9.8)

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Building Code

Revise as follows:

1010.1.9.8 Sensor release of electrically locked egress doors. The electric locks on sensor released doors located in a *means of egress* in ~~buildings with an occupancy inGroup A, B, E, I-1, I-2, I-4, M, R-1 or R-2~~ any occupancy except Group H and entrance doors to tenant spaces in ~~occupancies in Group A, B, E, I-1, I-2, I-4, M, R-1 or R-2~~ any occupancy except Group H are permitted where installed and operated in accordance with all of the following criteria:

1. The sensor shall be installed on the egress side, arranged to detect an occupant approaching the doors. The doors shall be arranged to unlock by a signal from or loss of power to the sensor.
2. Loss of power to the lock or locking system shall automatically unlock the doors.
3. The doors shall be arranged to unlock from a manual unlocking device located 40 inches to 48 inches (1016 mm to 1219 mm) vertically above the floor and within 5 feet (1524 mm) of the secured doors. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads "PUSH TO EXIT." When operated, the manual unlocking device shall result in direct interruption of power to the lock—independent of other electronics—and the doors shall remain unlocked for not less than 30 seconds.
4. Activation of the building *fire alarm system*, where provided, shall automatically unlock the doors, and the doors shall remain unlocked until the fire alarm system has been reset.
5. Activation of the building *automatic sprinkler system* or *fire detection system*, where provided, shall automatically unlock the doors. The doors shall remain unlocked until the *fire alarm system* has been reset.
6. The door locking system units shall be listed in accordance with UL 294.

Reason: This proposal revises the occupancy groups to allow this locking arrangement to be used in all occupancies except occupancy Group H. Code officials and specifiers have asked why this door locking option is allowed in only the currently listed occupancy groups. No reason is known other than the current allowed occupancies in Section 1010.1.9.8 are consistent with those in Section 1010.1.9.9, which a separate proposal revises.
Just a reminder, this locking arrangement facilitates immediate egress by sensing the approaching occupant and unlocking the electric lock on the door. In many applications, the occupant is unaware the door is electrically locked as the electrical locks unlock prior to the occupant reaching the door.

Cost Impact: Will not increase the cost of construction
No cost impact unless the building owner chooses to install a delayed egress locking system.

E 70-15 : 1010.1.9.8-WOESTMAN5554

E 71-15

1010.1.9.8 (IFC[BE] 1010.1.9.8)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1010.1.9.8 Sensor release of electrically locked egress doors. ~~The~~
Sensor release of electric ~~locks~~locking systems shall be permitted on ~~sensor released~~ doors located in ~~a~~ the *means of egress* ~~in buildings~~ with an occupancy in Group A, B, E, I-1, I-2, I-4, M, R-1 or R-2 ~~and entrance doors to tenant spaces in occupancies in Group A, B, E, I-1, I-2, I-4, M, R-1 or R-2 are permitted~~ where installed and operated in accordance with all of the following criteria:

1. The sensor shall be installed on the egress side, arranged to detect an occupant approaching the doors, and shall cause the electric locking system to unlock.
2. The ~~doors~~electric locks shall be arranged to unlock by a signal from or loss of power to the sensor.
3. Loss of power to the lock or locking system shall automatically unlock the ~~doors~~electiric lock.
4. The doors shall be arranged to unlock from a manual unlocking device located 40 inches to 48 inches (1016 mm to 1219 mm) vertically above the floor and within 5 feet (1524 mm) of the secured doors. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads "PUSH TO EXIT." When operated, the manual unlocking device shall result in direct interruption of power to the electric lock—independent of other electronics—and the ~~doors~~electric lock shall remain unlocked for not less than 30 seconds.
5. Activation of the building *fire alarm system*, where provided, shall automatically unlock the ~~doors~~electric lock, and the ~~doors~~electric lock shall remain unlocked until the fire alarm system has been reset.
6. Activation of the building *automatic sprinkler system* or *fire detection system*, where provided, shall automatically unlock the ~~doors~~electric lock. The ~~doors~~electric lock shall remain unlocked until the *fire alarm system* has been reset.
7. The door locking system units shall be listed in accordance with UL 294.

Reason: Update 1010.1.9.8 to improve clarity and consistency in the language. The charging language is proposed to eliminate redundancy in this section. With revisions to the first sentence, text late in that sentence is redundant as entrance doors to tenant spaces are commonly in the means of egress. It is uncommon that tenant doors are not in the means of egress.
The revisions to the numbered items is to clarify the required functions of the electric locking system. In Item 1, the added text describes what the sensor is required to do upon detecting an approaching occupant. The revisions in the other items clarify requirements for this electrical locking system.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
No cost impact. No technical revisions to these shall be permitted locking systems.

E 71-15 : 1010.1.9.8-KULIK4070

E 72-15

1010.1.9.9, 1010.1.10; (IFC [BE] 1010.1.9.9, 1010.1.10)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1010.1.9.9 ~~Electromagnetically~~Door hardware release of electrically locked egress doors. ~~Doors~~ Door hardware release of electric locking systems shall be permiteed on doors in the *means of egress* with any occupancy except in Group H ~~in buildings with an occupancy in GroupA, B, E, I-1, I-2, I-4, M, R-1 or R-2 and doors to tenant spaces in Group A, B, E, I-1, I-2, I-4, M, R-1 or R-2 shall be permitted to be locked with an electromagnetic locking system where equipped with hardware that incorporates a built-in switch and~~ where installed and operated in accordance with all of the following:

1. The door hardware that is affixed to the door leaf has an obvious method of operation that is readily operated under all lighting conditions.
2. The door hardware is capable of being operated with one hand and shall comply with Section 1010.1.9.5.
3. Operation of the door hardware directly interrupts the power to the electromagnetic lock and unlocks the door immediately.
4. Loss of power to the electric locking system automatically unlocks the door.
5. Where *panic* or *fire exit hardware* is required by Section 1010.1.10, operation of the *panic* or *fire exit hardware* also releases the ~~electromagnetic~~electric lock.
6. The locking system units shall be listed in accordance with UL 294.

1010.1.10 Panic and fire exit hardware. Doors serving a Group H occupancy and doors serving rooms or spaces with an *occupant load* of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than *panic hardware* or *fire exit hardware*.

Exceptions:

1. A main *exit* of a Group A occupancy shall be permitted to be locking in accordance with Section 1010.1.9.3, Item 2.
2. Doors serving a Group A or E occupancy shall be permitted to be ~~electromagnetically~~ electronically locked in accordance with Section 1010.1.9.9.

Electrical rooms with equipment rated 1,200 amperes or more and over 6 feet (1829 mm) wide, and that contain overcurrent devices, switching devices or control devices with *exit* or *exit access doors*, shall be equipped with *panic hardware* or *fire exit hardware.* The doors shall swing in the direction of egress travel.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
This "special locking arrangement" allows for immediate egress with one-handed operation of the door hardware. Code officials and specifiers have asked why this option is allowed in only these occupancies. No reason is known other than the current allowed occupancies in Section 1010.1.9.9 match those in Section 1010.1.9.8.

Further, revisions clarify this section of the code to address required functions of all types of electrical locking systems which are operated (i.e. unlocked) by operation of the door hardware such as panic hardware, fire exit hardware, or door knobs or levers (where panic or fire exit hardware is not required or not utilized). Electromagnetic locks are the most common type of electrical locks, but not the only type of electric locking hardware which may be selected by the designer, specifier, and / or building owner or occupant.

Regardless of the type of electrical locking system, this section permits and requires the door hardware to be device which causes the electrical lock to unlock immediately, allowing egress.

Cost Impact: Will not increase the cost of construction
No cost impact unless the building owner chooses to install these shall be permitted locking systems.

E 72-15 : 1010.1.9.9-KULIK3681

E 73-15

1010.1.9.10 (IFC[BE] 1010.1.9.10)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org); Edward Kulik, Chair, Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1010.1.9.10 Locking arrangements in buildings within correctional facilities. In ~~occupancies in Groups A-2, A-3, A-4, B, E, F, I-2, I-3, M and S~~buildings within correctional and detention facilities, doors in *means of egress* serving rooms or spaces occupied by persons whose movements are controlled for security reasons shall be permitted to be locked where equipped with egress control devices that shall unlock manually and by not less than one of the following means:

1. Activation of an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.
2. Activation of an *approved manual fire alarm box*.
3. A signal from a *constantly attended location*.

Reason: This section was brought to the attention of the CTC Care committee because Group I-1 services are provided in jails, however, they were not in this list of locking arrangements for correctional facilities. Rather than add Group I-1 to this growing list, it seems more appropriate to state that this type of locking should be allowed in all portions of a correctional facility. In addition, this list of Groups is inconsistent with how correctional facilities is defined in Section 308.5. If this system should not be allowed in certain types of jails, it should be regulated by the Condition, not a list of possible uses.
The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal is a clarification of requirements.

E 73-15 : 1010.1.9.10-BALDASSARRA4289

E 74-15

1010.1.9.11; (IFC[BE] 1010.1.9.11)

Proponent: John Terry, State of New Jersey- DCA, representing State of New Jersey - Department of Community Affairs- Division of Codes and Standards (jterry@dca.nj.gov)

2015 International Building Code

Revise as follows:

1010.1.9.11 Stairway doors. Interior ~~*stairway*~~*means of egress* doors shall be openable from both sides without the use of a key or special knowledge or effort.

Exceptions:

1. *Stairway* discharge doors shall be openable from the egress side and shall only be locked from the opposite side.
2. This section shall not apply to doors arranged in accordance with Section 403.5.3.
3. ~~In *stairways* serving not more than four stories,~~*Stairway* exit doors are permitted to be locked from the side opposite the egress side, provided they are openable from the egress side and capable of being unlocked simultaneously without unlatching upon a signal from the *fire command center* , if present, or a signal by emergency personnel from a single location inside the main entrance to the building.
4. *Stairway exit* doors shall be openable from the egress side and shall only be locked from the opposite side in Group B, F, M and S occupancies where the only interior access to the tenant space is from a single *exit stairway* where permitted in Section 1006.3.2.
5. *Stairway exit* doors shall be openable from the egress side and shall only be locked from the opposite side in Group R-2 occupancies where the only interior access to the *dwelling unit* is from a single *exit stairway* where permitted in Section 1006.3.2.

Reason: As currently written, the 2015 IBC allows stairway doors to be locked from the side opposite egress on stories one through four in Exception 3 of Section 1010.1.9.11 and in high rise buildings (typically seven stories and higher) in Section 403.5.3. By deleting the limitation on the the number of stories in this section, stair doors on the fifth and sixth stories would be allowed to be locked from the non-egress side consistent with doors on all other floors.

Cost Impact: Will not increase the cost of construction
This proposal will have no impact on the cost of construction.

E 74-15 : 1010.1.9.11-TERRY3401

E 75-15

1010.1.9.11; (IFC[BE] 1010.1.9.11)

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Building Code

Revise as follows:

1010.1.9.11 Stairway doors. Interior *stairwaymeans of egress* doors shall be openable from both sides without the use of a key or special knowledge or effort.

Exceptions:

1. *Stairway* discharge doors shall be openable from the egress side and shall only be locked from the opposite side.
2. This section shall not apply to doors arranged in accordance with Section 403.5.3.
3. In *stairways* serving ~~not more than~~ four stories or less, doors are permitted to be locked from the side opposite the egress side, provided they are openable from the egress side and capable of being unlocked simultaneously without unlatching upon a signal from the *fire command center*, if present, or a signal by emergency personnel from a single location inside the main entrance to the building.
4. In other than high-rise buildings, in stairways serving more than four stories, doors are permitted to be locked from the side opposite the egress side, provided they are openable from the egress side and capable of being unlocked simultaneously without unlatching upon a signal from the fire command center, if present, or a signal by emergency personnel from a single location inside the main entrance to the building.
5. *Stairway exit* doors shall be openable from the egress side and shall only be locked from the opposite side in Group B, F, M and S occupancies where the only interior access to the tenant space is from a single *exit stairway* where permitted in Section 1006.3.2.
6. *Stairway exit* doors shall be openable from the egress side and shall only be locked from the opposite side in Group R-2 occupancies where the only interior access to the *dwelling unit* is from a single *exit stairway* where permitted in Section 1006.3.2.

Reason: For means of egress doors in stairways and corresponding stairway re-entry requirements, the IBC has a gap in this section of the code in conjunction with IBC Section 403.5.3: Not addressed in the exceptions to 1010.1.9.11 are stairways serving more than four stories and not a high-rise building. In this proposal, as a starting point for discussion and resolution, we are suggesting the same requirements as in Exception 3. However, consideration of a stairway communication system, as required for high-rise buildings in 403.5.3.1, may be considered for Exception 4. The change in exception 3 is strictly editorial to make the distinction between Exceptions 3 and 4 clear.

BHMA invites participation by stakeholders in refining this proposal.

It should be noted proposed Exception 4 would also apply to buildings of more than four stories with any number of stories below grade which is not a high-rise building. Perhaps buildings with multiple stories below grade should be included in the discussion regarding this proposed code change.

For reference, the definition for a high-rise building from IBC Chapter 2:
HIGH-RISE BUILDING. A building with an occupied floor located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access.

Cost Impact: Will increase the cost of construction
This proposal has the potential to increase costs of construction. Because the IBC currently has a gap in explicit requirements for doors in stairways serving more than four stories and not a high-rise building, the requirements which may be approved for the 2018 IBC as a result of this proposal may be different than interpretations applied based on the 2015 IBC.

E 75-15 : 1010.1.9.11-WOESTMAN5555

E 76-15

1008.3.3, 1010.1.9.12 (New); (IFC[BE] 1008.3.3, 1010.1.9.12 (New))

Proponent: Lee Kranz, representing Washington Association of Building Officials Technical Code Development Committee

2015 International Building Code

Add new text as follows:

1010.1.9.12 Electronic locking devices on elevator lobby doors. In Group B occupancies, exit access doors within secured elevator lobbies are permitted to be locked with electronic locking devices that operate with items such as a card key, a security code or other security clearance locking devices in buildings that are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. The locking system shall be installed and operated in accordance with all the following:

1. Loss of power to the locking system automatically unlocks the door.
2. The doors shall be arranged to unlock from a manual unlocking device located 40 inches to 48 inches (1016 mm to 1219 mm) vertically above the floor and within 5 feet (1524 mm) of the secured doors. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads "PUSH TO EXIT." When operated, the manual unlocking device shall result in direct interruption of power to the lock—independent of other electronics— and the doors shall remain unlocked for not less than 30 seconds.
   Exception: A manual unlocking device is not required in elevator lobbies provided with direct access to an exit doorway and a two-way communication system is installed in the elevator lobby in accordance with Section 1009.8.
3. Activation of the building alarm system, shall automatically unlock the doors and the doors shall remain unlocked until the fire alarm system has been reset.
4. Activation of the building automatic sprinkler system or fire detection system shall automatically unlock the doors. The doors shall remain unlocked until the fire alarm system has been reset.
5. Emergency egress lighting shall be provided in the secured elevator lobby at the door.
6. The door locking system units shall be listed in accordance with UL 294.
7. The use of electronic locking devices is revocable by the building official for due cause.

Revise as follows:

1008.3.3 Rooms and spaces. In the event of power supply failure, an emergency electrical system shall automatically illuminate all of the following areas:

1. Electrical equipment rooms.
2. Fire command centers.
3. Fire pump rooms.
4. Generator rooms.
5. Public restrooms with an area greater than 300 square feet (27.87 m^2).
6. Secured elevator lobbies where exit access doors are locked with an electronic device in accordance with Section 1010.1.9.12.

Reason: In order to maintain adequate security in office buildings, access to required exits may be limited by securing doors to some areas of the building. With the increasing need for office building security we are seeing the growing use of electronic locking devices on doors along the exit pathway. Many of these installations are being done without a permit and are later discovered by Fire Prevention Officers on their annual inspections. The use of electronic locking devices on elevator lobby exit access doors is a reality that must be addressed in the code for office and technology buildings. To maintain an unobstructed and undiminished path of exit travel, criteria for acceptance of these locking devices must be established to preserve the level of building safety intended by the International Building Code.

Cost Impact: Will not increase the cost of construction
Lobby doors locks are being installed without the benefit of a permit. This proposal will legitimize the use of security door locking systems thereby saving money by eliminating the need for retrofit after the original unpermitted installation.

Staff note: The number of means of egress from an elevator lobby is addressed in Section 3006.4.

E 76-15 : 1010.1.9.12 (New)-KRANZ3765

E 77-15

1010.1.10; (IFC[BE] 1010.1.10)

Proponent: William Koffel, representing WonDoor (wkoffel@koffel.com)

2015 International Building Code

1010.1.10 Panic and fire exit hardware. ~~Doors~~
Swinging doors serving a Group H occupancy and swinging doors serving rooms or spaces with an *occupant load* of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than *panic hardware* or *fire exit hardware*.

Exceptions:

1. A main *exit* of a Group A occupancy shall be permitted to be locking in accordance with Section 1010.1.9.3, Item 2.
2. Doors serving a Group A or E occupancy shall be permitted to be electromagnetically locked in accordance with Section 1010.1.9.9.

Electrical rooms with equipment rated 1,200 amperes or more and over 6 feet (1829 mm) wide, and that contain overcurrent devices, switching devices or control devices with *exit* or *exit access doors*, shall be equipped with *panic hardware* or *fire exit hardware*. The doors shall swing in the direction of egress travel.

Reason: UL 305 is the standard by which panic and fire exit hardware is typically listed. UL 305 applies to outward-opening doors and as such does not apply to the special doors addressed in Section 1010.1.4. However, some have interpreted the current text in 1010.1.10 to require panic hardware or fire exit hardware on special doors, such as special purpose horizontal sliding, accordian or folding doors. The proposed text clarifies that panic and fire exit hardware is required for pivoted or side-hinged swinging doors.

Cost Impact: Will not increase the cost of construction
The proposal clarifies existing code text.

E 77-15 : 1010.1.10-KOFFEL4840

E 78-15

1010.1.10; (IFC[BE] 1010.1.10)

Proponent: John Woestman, Kellen Company, representing Builders Hardware Manufacturers Association (BHMA) (jwoestman@kellencompany.com)

2015 International Building Code

Revise as follows:

1010.1.10 Panic and fire exit hardware. Doors serving a Group H occupancy and doors serving rooms or spaces with an *occupant load* of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than *panic hardware* or *fire exit hardware*.

Exceptions:

1. A main *exit* of a Group A occupancy shall be permitted to be locking in accordance with Section 1010.1.9.3, Item 2.
2. Doors provided with panic hardware or fire exit hardware and serving a Group A or E occupancy shall be permitted to be ~~electromagnetically~~electrically locked in accordance with Section 1010.1.9.8 or 1010.1.9.9.

Electrical rooms with equipment rated 1,200 amperes or more and over 6 feet (1829 mm) wide, and that contain overcurrent devices, switching devices or control devices with *exit* or *exit access doors*, shall be equipped with *panic hardware* or *fire exit hardware*. The doors shall swing in the direction of egress travel.

Reason: Revised 2nd exception allows doors in the means of egress of Group A or E occupancy with an occupant load of 50 or more to be equipped with doors complying with IBC Section 1010.1.9.8 Sensor release of electrically locked doors. These door locking systems permitted by 1010.1.9.8 are required to detect an occupant approaching the door and cause the electrical locking system to unlock the door, allowing egress.
These locking arrangements facilitate immediate egress by sensing the approaching occupant and unlocking the electric lock on the door. In many applications, the occupant is unaware the door is electrically locked as the electrical locks unlock prior to the occupant reaching the door.

Cost Impact: Will not increase the cost of construction
No cost impact unless the building owner chooses to install a sensor release of electrically locked doors locking system.

E 78-15 : 1010.1.10-WOESTMAN5556

E 79-15

1010.1.10; (IFC[BE] 1010.1.10)

Proponent: Lee Kranz, City of Bellevue, WA, representing Washington Association of Building Officials Technical Code Development Committee

2015 International Building Code

Revise as follows:

1010.1.10 Panic and fire exit hardware. Doors serving a Group H occupancy and doors serving rooms or spaces with an *occupant load* of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than *panic hardware* or *fire exit hardware*.

Exceptions:

1. A main *exit* of a Group A occupancy shall be permitted to be locking in accordance with Section 1010.1.9.3, Item 2.
2. Doors serving a Group A or E occupancy shall be permitted to be electromagnetically locked in accordance with Section 1010.1.9.9.
3. <u>Doors serving Group A occupancies with an occupant load of 100 or fewer and accessory to Group B occupancies are not required to be provided with panic hardware or fire exit hardware.</u>

Electrical rooms with equipment rated 1,200 amperes or more and over 6 feet (1829 mm) wide, and that contain overcurrent devices, switching devices or control devices with *exit* or *exit access doors*, shall be equipped with *panic hardware* or *fire exit hardware*. The doors shall swing in the direction of egress travel.

Reason: The new exception #1 allows smaller Group A occupancies, such as conference rooms, which are accessory to Group B occupancies, such as office spaces, not to have panic hardware. In these mixed occupancies panic hardware on all doors serving the Group A occupancy, including all doors on the egress path, is not practical or needed. Typicaly the people using the conference room are the same people who occupy the office spaces.

Cost Impact: Will not increase the cost of construction
The new exception will reduce the cost of construction by exempting panic hardware in some cases. Panic hardware is typically more expensive than regular door hardware.

E 79-15 : 1010.1.10-KRANZ4315

E 80-15

1010.1.10, 1010.1.10.1(New); (IFC[BE] 1010.1.10, 1010.1.10.1(New))

Proponent: Ross Barrick, representing self (inspections@pldi.net)

2015 International Building Code

Revise as follows:

1010.1.10 Panic and fire exit hardware. Doors serving a Group H occupancy and doors serving rooms or spaces with an *occupant load* of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than *panic hardware* or *fire exit hardware*.

Exceptions:

1. A main *exit* of a Group A occupancy shall be permitted to be locking in accordance with Section 1010.1.9.3, Item 2.
2. Doors serving a Group A or E occupancy shall be permitted to be electromagnetically locked in accordance with Section 1010.1.9.9.

~~Electrical rooms with equipment rated 1,200 amperes or more and over 6 feet (1829 mm) wide, and that contain overcurrent devices, switching devices or control devices with *exit* or *exit access doors*, shall be equipped with *panic hardware* or *fire exit hardware*. The doors shall swing in the direction of egress travel.~~

Add new text as follows:

1010.1.10.1 Electric rooms and working spaces. Exit and exit access doors serving electrical rooms and working spaces shall swing in the direction of egress travel and shall be equipped with panic hardware or fire exit hardware where such rooms or working spaces contain one or more of the following:

1. Equipment operating at more than 600 volts, nominal.
2. Equipment operating at 600 volts or less, nominal and rated at 800 amperes or more, and where the equipment contains overcurrent devices, switching devices or control devices.

Exception: Panic and fire exit hardware is not required on exit and exit access doors serving electrical equipment rooms and working spaces where such doors are not less than twenty-five feet (7.6 m) from the nearest edge of the electrical equipment.

Reason: This submittal to 2015 (2018) International Building Code® (IBC®) 1010.1.10, with proposed additional wording and deletion of existing wording, is offered to align the 2015 (2018) IBC® and the 2014 NFPA 70® National Electrical Code® (2014 NEC®), and therefore create uniformity.
The additional words "and working spaces" will incorporate other areas of a structure where electrical equipment is installed. Not all electrical equipment is installed in dedicated rooms, as it may be installed in an area of a room in which other equipment, other than electrical equipment, is installed, and that room has access to and egress from doors. The 2014 NEC® considers twenty-five (25) feet (7.6m) a safe distance from electrical equipment in the event of an arc-flash, as the concern is to allow an injured worker to safely and quickly exit the room or working space without having to turn knobs or pull doors. This wording will create uniformity and better clarity between the 2015 (2018) IBC® and 2014 NEC®.

The additional words "operating at more than 600 volts, nominal, and equipment operating at 600 volts or less, nominal, and" will incorporate the two (2) nominal voltages listed in 2014 NEC® Article 110, Requirements for Electrical Installations. "Over 600 volts, nominal" does not have a minimum ampere rating in the 2014 NEC®, unlike "under 600 volts, nominal" with the ampere rating, so the distinction should be made between between the nominal voltages.

The ampere rating has been reduced from 1200 amperes to 800 amperes, for equipment operating under 600 volts, nominal, in 2014 NEC®. This change from 1200 amperes to 800 ampres would again create uniformity and clarity between the 2015 (2018) IBC® and 2014 NEC®.

The words "over 6 feet (1829mm) wide", are not in the 2008 NEC®, 2011 NEC®, and 2014 NEC®. The elimination of these words would create uniformity and clarity between the 2015 (2018) IBC® and 2014 NEC®.

The 2014 NEC® uses the term "listed panic hardware". The 2015 IBC® addresses the "listed" requirement in 1010.1.10.1, so it appears that the "listed requirement" has been adequately addressed, and therefore no proposed change to 1010.1.10.1 is submitted.

The submitted wording for the code change(s) is consistent with NFPA 70® 2014 NEC® Handbook sections and commentary as code text. In consideration of their copyright, all credit for code text pertaining to electrical is given to NFPA®. This statement is made in association with my Standard Copyright Form acceptance/acknowledgement.

Bibliography: NFPA 70® 2014 Handbook National Electrical Code® Handbook Thirteenth Edition International Electrical Code® Series
NFPA® No.: 70HB14 ISBN (book): 978-1-455-90544-7 Library of congress Card Control No.: 2013941415

Authors: Mark W. Earley, Christopher D. Coache, Mark Cloutier, Gil Moniz

Published: 2013

Page 42 Article 110 Requirements for Electrical Installations II. 600 Volts, Nominal, or Less 110.26 Spaces About Electrical Equipment (C) Entrance to and Egress from Working Space (3) Personnel Doors *ie:* ***110.26 (C) (3)***

www.nfpa.org

Cost Impact: Will increase the cost of construction
The cost to construction may be increased if there is a entrance to or egress from door(s), that is less than twenty-five feet from the nearest edge of the equipment. That door(s) would require panic hardware or fire exit hardware, based on 2015 (2018) IBC 1010.1.10.1. This only pertains to the "working space" area, as the doors in dedicated room(s) for electrical equipment already require the panic/fire exit hardware.
The panic hardware for a single-door could cost +/- $250.00 plus labor and the panic hardware for a 2-door (double-door)(vertical rod type) installation could cost +/- $430.00 plus labor. These cost estimates are based on: Commercial Standard Duty, Aluminum, Fire Rated, ADA Compliant, ANSI/BHMA A156.3 Grade 1, "Rim Exit Device", as found on the Grainger website:

http://www.grainger.com/category/exit-devices/door-hardware/hardware/ecatalog/N-mew?cm_sp=CS_Products-_-Hardware-_-ExitDevices

Actual cost would be related to individual preferences used in "Structure Design Specifications", as provided for each construction project.

E 80-15 : 1010.1.10-BARRICK4996

E 81-15

1010.3, 1010.3.2 (New), 1010.3.1, 1010.3.2; (IFC[BE] 1010.3, 1010.3.2 (New), 1010.3.1, 1010.3.2)

Proponent: Dave Frable, representing US General Services Administration

2015 International Building Code

Revise as follows:

1010.3 Turnstiles~~.~~ and Similar Devices Turnstiles or similar devices that restrict travel to one direction shall not be placed so as to obstruct any required *means of egress*, except where permitted in accordance withSections 1010.3.1, 1010.3.2 and 1010.3.3.

~~**Exception:**~~**1010.3.1** **Capacity.** Each turnstile or similar device shall be credited with a capacity based on not more than a 50-person occupant load where all of the following provisions are met:

1. Each device shall turn free in the direction of egress travel when primary power is lost and on the manual release by an employee in the area.
2. Such devices are not given credit for more than 50 percent of the required egress capacity or width.
3. Each device is not more than 39 inches (991 mm) high.
4. Each device has not less than 161/ 2 inches (419 mm) clear width at and below a height of 39 inches (991 mm) and not less than 22 inches (559 mm) clear width at heights above 39 inches (991 mm).

1010.3.1.1 **Clear width.** Where located as part of an accessible route, turnstiles shall have not less than 36 inches (914 mm) clear at and below a height of 34 inches (864 mm), not less than 32 inches (813 mm) clear width between 34 inches (864 mm) and 80 inches (2032 mm) and shall consist of a mechanism other than a revolving device.

Add new text as follows:

1010.3.2 **Security access turnstiles** Security access turnstiles that inhibit travel in the direction of egress utilizing a physical barrier shall be permitted to be considered as a component of the means of egress, provided that all the following criteria are met:

1. The building is protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 903.3.1.1.
2. Each security access turnstile lane configuration has a minimum clear passage width of 22 inches (560 mm).
3. Any security access turnstile lane configuration providing a clear passage width of less than 32 inches (810 mm) shall be credited with a maximum egress capacity of 50 persons.
4. Any security access turnstile lane configuration providing a clear passage width of 32 in. (810 mm) or more shall be credited with a maximum egress capacity as calculated in accordance with Section 1005.
5. Each secured physical barrier shall automatically retract or swing to an unobstructed open position in the direction of egress, under each of the following conditions:
   - 5.1. Upon loss of power to the turnstile or any part of the access control system that secures the physical barrier.
   - 5.2. Upon actuation of a readily accessible and clearly identified manual release device that results in direct interruption of power to each secured physical barrier, remains in the open position for not less than 30 seconds.
     The manual release decice shall be positioned at one of the following locations:
     - 5.2.1. The manual release device is located on the egress side of each security access turnstile lane.
     - 5.2.2. The manual release device is located at an approved location where it can be actuated by an employee assigned to the area at all times that the building is occupied.
   - 5.3. Upon actuation of the building fire alarm system, if provided, the physical barrier remains in the open position until the fire alarm system is manually reset.
     Exception: Actuation of a manual fire alarm boxes.
   - 5.4. Upon actuation of the building automatic sprinkler or fire detection system, and for which the physical barrier remains in the open position until the fire alarm system is manually reset.

Revise as follows:

~~1010.3.1~~**1010.3.3** **High turnstile.** Turnstiles more than 39 inches (991 mm) high shall meet the requirements for revolving doors or the requirements of Section 1010.3.2 for security access turnstiles.

~~1010.3.2~~**1010.3.4** **Additional door.** Where serving an *occupant load* greater than 300, each turnstile that is not portable shall have a side-hinged swinging door that conforms to Section 1010.1 within 50 feet (15 240 mm).

Exception: A side-hinged swinging door is not required at security access turnstiles that comply with Section 1010.3.2.

Reason: Manufacturers of turnstile devices have expanded into the security access control market and currently have products that have physical barrier leaves that restrict access into and out of buildings. These devices can vary in height and sophistication to address building security concerns that may not meet safety requirements related to the means of egress. Typically, these turnstile devices are located at building entrances and elevator lobbies. The current requirements for turnstiles apply historically to the "three arm" waist-high turnstiles for entertainment or transportation venues and do not apply to the new installations. Currently, the building official is left to evaluate these new modern turnstiles to determine compliance with the egress requirements in the IBC. The intent of the revision is to provide guidance on evaluating these new modern turnstiles. Turnstiles on the market can be as narrow as 22 inches. For turnstiles that are less than 32 inches, there are additional capacity issues that need to be considered. The fail safe provisions for overriding the turnstile access restrictions are derived from existing code provisions (e.g., delayed egress locks and forces to open doors).

Cost Impact: Will increase the cost of construction
The intent of this code change is to provide additional requirements for new modern turnstiles used for security access in buildings. This code change will probbaly increase construction costs due to these new requirements; however, the new requirments will enhance overall building safety when these security access turnstiles are installed in a building.

E 81-15 : 1010.3-FRABLE5105

E 82-15

1011.6; (IFC[BE] 1011.6)

Proponent: Gregory Keeler, representing Self (design_tech@windstream.net)

2015 International Building Code

Revise as follows:

1011.6 Stairway landings. There shall be a floor or landing at the top and bottom of each *stairway*. The width of landings shall be not less than the width of *stairways* served. Every landing shall have a minimum width measured perpendicular to the direction of travel equal to the width of the *stairway*. Where the *stairway* has a straight run the depth ~~need not exceed~~shall be a minimum of 48 inches (1219 mm). Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing. Where *wheelchair spaces* are required on the *stairway* landing in accordance with Section 1009.6.3, the *wheelchair space* shall not be located in the required width of the landing and doors shall not swing over the *wheelchair spaces*.

> **Exception:** Where *stairways* connect stepped *aisles* to cross *aisles* or concourses, *stairway* landings are not required at the transition between *stairways* and stepped *aisles* constructed in accordance with Section 1029.

Reason: The current code language does not establish a minimum depth/run for a landing due to the permissive language. This proposal will stipulate the minimum depth/run.

Cost Impact: Will not increase the cost of construction
There could be a very slight increase in contruction costs if the current language isn't interpreted as establishing a minimum landing depth/run.

E 82-15 : 1011.6-KEELER4710

E 83-15

1011.4; (IFC[BE] 1011.4)

Proponent: David Cooper, representing Stairbuilders and Manufacturers Association (coderep@stairways.org)

2015 International Building Code

Revise as follows:

1011.4 Walkline. The walkline across *winder* treads shall be concentric to the direction of travel through the turn and located 12 inches (305 mm) from the side where the *winders* are narrower. Where the winders continue beyond the turn within the straight segments of a flight the walkline shall continue parallel to the side of the stair where the winders are narrower. The 12-inch (305 mm) dimension shall be measured from the widest point of the clear *stair* width at the walking surface of the *winder*. Where *winders* are adjacent within the *flight*, the point of the widest clear *stair* width of the adjacent *winders* shall be used.

Reason: The current code does not adequately address how the walkline is located where winders continue beyond the corner of a turn. (see figure A) A portion of the winder treads often extend into the straight segments of the flight where the walkline is not concentric to the turn but parallel to the side of the stairway. This change provides the needed clarification to accurately determine the walkline location.

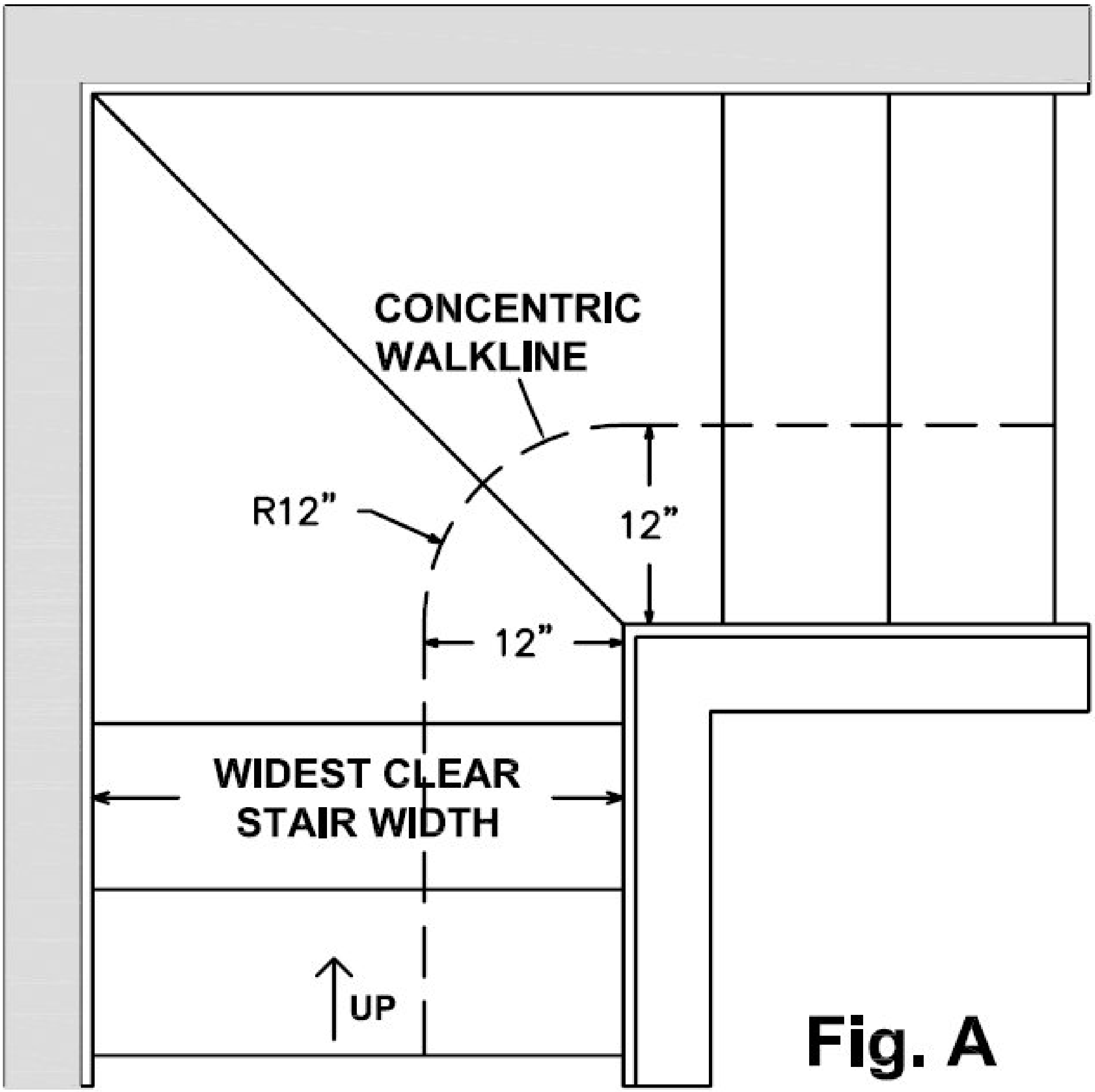


Fig. A

Cost Impact: Will not increase the cost of construction
This proposal only clarifies the code and will require no additional resources affecting the cost of construction.

E 83-15 : 1011.4-COOPER5237

E 84-15

1011.10; (IFC[BE] 1011.10)

Proponent: David Cooper, representing Stairbuilders and Manufacturers Association (coderep@stairways.org)

2015 International Building Code

Revise as follows:

1011.10 Spiral stairways. *Spiral stairways* are permitted to be used as a component in the *means of egress* only within *dwelling units* or from a space not more than 250 square feet (23 m^2) in area and serving not more than five occupants, or from *technical production areas* in accordance with Section 410.6.

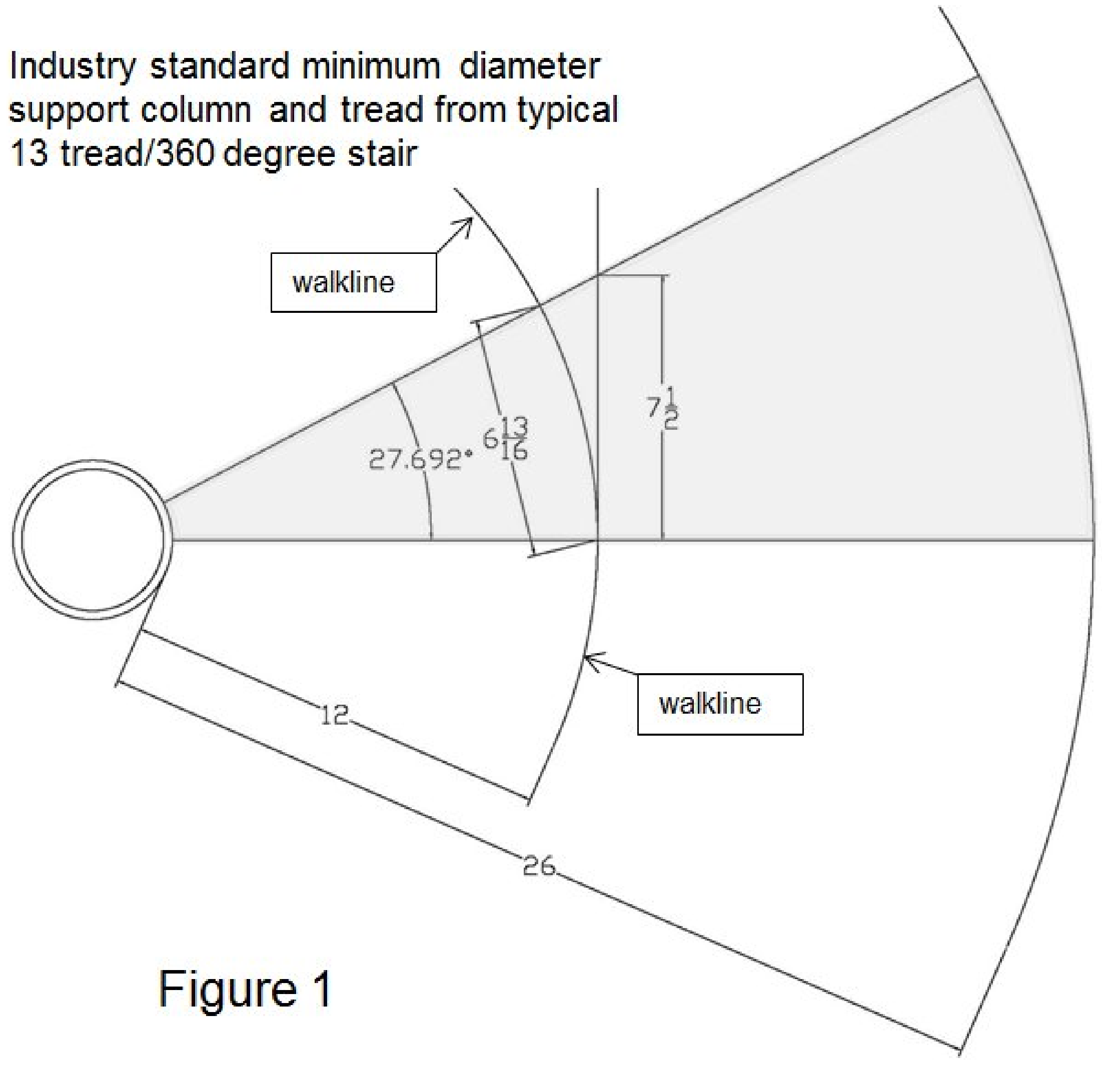
A *spiral stairway* shall have a ~~7 1/2~~ 6 3/4 inch (~~191~~ 171 mm) minimum clear tread depth at a point 12 inches (305 mm) from the ~~narrow edge~~walkline. The risers shall be sufficient to provide a headroom of 78 inches (1981 mm) minimum, but riser height shall not be more than 9 1/2 inches (241 mm). The minimum stairwayclearwidth at and below the handrail shall be 26 inches (660 mm).

Reason: We will try again in this cycle to prevent the elimination of spiral stairways!
A similar proposal was submitted in the last cycle that was misunderstood and inappropriately disapproved.

Prior to the addition of **1011.4 Walkline** and related changes in **1011.5.2 Riser height and tread depth,** the tread depth of both rectangular treads and winder treads was measured "square to the leading edge". This measurement method and the 7½ inch tread depth for spiral stairs predates the ICC codes. Since that time the method fo measuring spiral stair tread depth, inthe code, has changed with the definition of winder. Spiral treads are winder treads as defined in the code.

Winder. A tread with nonparallel edges

Winder tread depth is measured "...between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline...". The change in the method of measurement results in a smaller dimension, for the same tread, that is ¾ inch smaller intread depth as illustrated in figure 1. The figure also illustates the elemants of spiral stair tread geometry. What is critical to understand is that if the code is not changed, each tread in the typical spiral stairway would need to be increased by ¾ inch from the longstanding accepted practice.



Caption: This standard layout assures accomodation of the required headroom as the stair passes under the typical platform at the top of the stairway.

Why does the spiral tread depth need to be increased?

The proposed dimension change from 7½ to 6¾ inches results in no change and preserves what has been the industry standard for the manufacture of spiral stairways since the legacy codes. Not to stir the pot but the spiral stairway code survived the long debate and compromise on tread depth without change for good reason. Spiral stairways were discussed in the debate and remain unchanged, in the code because of their recognized benefit of saving space in certain limited situations. One of the limited areas is within residential dwelling units. A similar proposal changing the tread depth from 7½ inches to 6¾ inches was approved in the 2015 cycle of the IRC. Why not continue to coordinate? There is no substantiation for the action taken in the last cycle to change this long standing standard, and gravely restrict manufactures.

On what grounds should spiral stairs be eliminated?

Not approving this proposal will result in undue costs for the limited number of stairs that will comply with code when the riser height can be maximized. Please keep in mind that no substantiation was presented of the need for increased tread depth in spiral stairways. In fact spiral stairs actually have deeper treads than most stairs, adjacent to the handrail on the outside where the user walks. The currently required, additional ¾ inches of tread depth increase, inadvertently approved in the last cycle, and changed in the long accepted standard for a typical 360 degreee stairway will add more than one and one third treads to to each 13 tread stairway rotation. This will increasing the rotation by more than 36 degrees or 10% making it impossible in most situations to achieve the required headroom of 78 inches. **Unchanged the IBC will all but eliminate spiral stairways. Please approve this proposal.**

Cost Impact: Will not increase the cost of construction
In fact as proven in the supporting statement above, this proposal will drastically reduce the cost of construction by not eliminating space saving spiral stairs from most applications where the intent of the code is to allow their use. Space saved = $ saved.

E 84-15 : 1011.10-COOPER5239

E 85-15

1011.11, 1014.1; (IFC[BE] 1011.11, 1014.1)

Proponent: David Cooper, representing Stairbuilders and Manufacturers Association (coderep@stairways.org)

2015 International Building Code

Revise as follows:

1011.11 Handrails. ~~*Stairways*~~<u>*Flights of stairways*</u> shall have *handrails* on each side and shall comply with Section 1014. Where glass is used to provide the *handrail*, the *handrail* shall comply with Section 2407.

Exceptions:

1. ~~*Stairways*~~<u>*Flights of stairways*</u> within dwelling units and <u>flights of</u> s*piral stairways* are permitted to have a *handrail* on one side only.
2. Decks, patios and walkways that have a single change in elevation where the landing depth on each side of the change of elevation is greater than what is required for a landing do not require *handrails*.
3. In Group R-3 occupancies, a change in elevation consisting of a single riser at an entrance or egress door does not require *handrails*.
4. Changes in room elevations of three or fewer risers within dwelling units and sleeping units in Group R-2 and R-3 do not require *handrails*.

1014.1 Where required. *Handrails* serving <u>flights of</u>*stairways*, *ramps*, stepped *aisles* and ramped *aisles* shall be adequate in strength and attachment in accordance with Section 1607.8. *Handrails* required for <u>*flights of*</u> *stairways* by Section 1011.11 shall comply with Sections 1014.2 through 1014.9. *Handrails* required for *ramps* by Section 1012.8 shall comply with Sections 1014.2 through 1014.8. *Handrails* for stepped *aisles* and ramped *aisles* required by Section 1029.15 shall comply with Sections 1014.2 through 1014.8.

Reason: Other than required handrail extensions, handrails are not required at the outside periphery of landings. However long before we get to **1014.6 Handrail extensions,** the use of the defined term "stairways" in sections **1011.11** and **1014.1,** supports the interpretation that handrails are required at landings because by definition a stairway includes landings.

> **Stairway.** One or more flights of stairs, either exterior or interior, with the necessary landings and platforms connecting therm, to form a continuous and uninterrupted passage from one level to another.

The problem becomes more apparent when we look at **1014.4 Continuity**. Unlike continuity in the IRC there is no limit related to the flight. Confusion is created when 1014.4 is considered with the other handrail section references to stairways as revised in the proposal above. This is a particular problem when considering residential applications.

This propsal provides a simple solution by substituting the correct term "flights of stairways" for "stairways" and clarifies the intent of the code. The term flights of stairways is used throughout the code and in particular within **1014.6 Handrail extensions**.

Cost Impact: Will not increase the cost of construction
This proposal requires no additional resources and therefore does not affect the cost of construction.

E 85-15 : 1011.11-COOPER5254

E 86-15

1011.16 (IFC[BE] 1011.16)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1011.16 Ladders. Permanent ladders shall not serve as a part of the *means of egress* from occupied spaces within a building. Permanent ladders shall be constructed in accordance with Section 306.5 of the *International Mechanical Code*. Permanent ladders shall be permitted to provide access to the following areas:

1. Spaces frequented only by personnel for maintenance, repair or monitoring of equipment.
2. Nonoccupiable spaces accessed only by catwalks, crawl spaces, freight elevators or very narrow passageways.
3. Raised areas used primarily for purposes of security, life safety or fire safety including, but not limited to, observation galleries, prison guard towers, fire towers or lifeguard stands.
4. Elevated levels in Group U not open to the general public.
5. Nonoccupied roofs that are not required to have *stairway* access in accordance with Section 1011.12.1.
6. ~~Ladders shall be constructed~~ Where permitted to access equipment and appliances in accordance with Section 306.5 of the *International Mechanical Code*.

Reason: Section 306.5 of the IMC provides guidance on where ladders can be used to access equipment and for the technical criteria to construct the ladder (see the reason of the original change for text). The concern is the exact wording of Section 1009.18, Item 6. The list in Section 1011.6 is locations where ladders can be used. Item 6 is revised to limit the reference to where the ladders are permitted in IMC Section 306.5. How ladders are to be constructed is moved to the base paragraph so it is clear what technical requirements are to be followed where a ladder is provided in any of the 6 locations.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal is a clarification of current requirements.

E 86-15 : 1011.16-KULIK3666

E 87-15

1013.2; (IFC[BE] 1013.2)

Proponent: Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

1013.2 Floor-level exit signs in Group R-1. Where exit signs are required in Group R-1 occupancies by Section 1013.1, additional low-level exit signs shall be provided in all areas serving guest rooms in Group R-1 occupancies and shall comply with Section 1013.5.

The bottom of the sign shall be not less than 10 inches (254 mm) nor more than ~~12~~ 18 inches (~~305~~455 mm) above the floor level. The sign shall be flush mounted to the door or wall. Where mounted on the wall, the edge of the sign shall be within 4 inches (102 mm) of the door frame on the latch side.

Reason: The base code provides just a 2-inch tolerance for where the bottom of required low-energy exit signs must be located. This 2-inch window is often challenging for designers and property owners due to field conditions or desired interior finish and trim. For example, several high-end resort properties have installed 12-inch tall base boards in the exit access corridors of the hotels. The base code requirement that the bottom of the sign be located within 10- to 12-inches above the floor level would create issues for these facilities.
The proposed amendment is to allow the bottom of the required low-level exit signs to be located between 10- and 18- inches of the floor level. The additional 6 inches provides sufficient 'wiggle room' for designers and owners. Further, there is no impact on the level of life safety of the occupants of the Group R-1 occupancies since the low-level exit signs will still be visible below a smoke layer from a fire (in the zone in which the occupants would presumably be crawling.)
NFPA 101 (Life Safety Code), Section 7.10.1.6 permits the bottom of low-level exit signs to be installed between 6- and 18-inches above the floor level. Therefore, there is another code standard that allows the bottom of the low-level exit signs to be installed up to 18 inches above the floor level. Although NFPA 101, Section 7.10.1.6 permits the bottom of the low-level exit signs to be as low as 6-inches above the floor level, this proposal does not change the base IBC's requirement that the bottom of the low-level exit signs be within 10-inches above the floor level because ICC A117.1, Section 404.2.9 requires door surfaces within 10 inches of the floor to be a smooth surface for the full width of the door. There is no reason to have the low-level exit sign installed on the door must be at least 10 inches above the floor level in order to comply with ICC A117.1.

This proposal address unique designs or systems not anticipated in the code. Further, this proposal is consistent with the upper bounds permitted by another national code (NFPA 101 Life Safety Code).

Cost Impact: Will not increase the cost of construction
The proposal provides for more flexibilityin how to meet the requirements for floor level exit signs.

E 87-15 : 1013.2-DIGIOVANNI5857

E 88-15

1013.4, 1111.3; (IFC[BE] 1013.4)

Proponent: Timothy Pate, City and County of Broomfield, representing the Colorado Chapter ICC Code Change Committee, representing City and County of Broomfield (tpate@broomfield.org)

2015 International Building Code

Revise as follows:

1013.4 Raised character and braille exit signs. ~~A~~
Where exit signs are required by Section 1013.1, a sign stating EXIT in visual characters, raised characters and braille and complying with *ICC A117.1* shall be provided adjacent to each door to an *area of refuge*, an exterior area for assisted rescue, an interior*exit stairway* or *ramp*, an exterior exit stairway or ramp, an *exit passageway* and the *exit discharge*.

1111.3 Other signs. Signage indicating special accessibility provisions shall be provided as shown.

1. Each assembly area required to comply with Section 1108.2.7 shall provide a sign notifying patrons of the availability of assistive listening systems. The sign shall comply with ICC A117.1 requirements for visual characters and include the International Symbol of Access for Hearing Loss.
   Exception: Where ticket offices or windows are provided, signs are not required at each assembly area provided that signs are displayed at each ticket office or window informing patrons of the availability of assistive listening systems.
2. At each door to an *area of refuge*, an exterior area for assisted rescue, an ~~egress~~interior exit *stairway* or *ramp*, an exterior exit*stairway* or *ramp*, *exit passageway and exit discharge doors where exit signs are required by Section 1013.1, signage shall be provided in accordance with Section 1013.4.*
3. At *areas of refuge*, signage shall be provided in accordance with Section 1009.11.
4. At exterior areas for assisted rescue, signage shall be provided in accordance with Section 1009.11.
5. At two-way communication systems, signage shall be provided in accordance with Section 1009.8.2.
6. In *interior exit stairways* and *ramps*, floor level signage shall be provided in accordance with Section 1023.9.
7. Signs identifying the type of access provided on amusement rides required to be *accessible* by Section 1110.4.8 shall be provided at entries to queues and waiting lines. In addition, where *accessible* unload areas also serve as *accessible* load areas, signs indicating the location of the *accessible* load and unload areas shall be provided at entries to queues and waiting lines. These directional sign characters shall meet the visual character requirements in accordance with ICC A117.1.

Reason: I believe that the existing code language requires raised character and braille exit signs installed at every exit discharge door even when only one is required and regular exit signs are not required. I believe that the intent is to only require the raised character and braille exit signs to be installed at exit discharge doors when exit signs are requried as per Section 1013.
This proposed change will modify the 2 different sections that have these requirements

I also modified languge in section 1013.4 to clarify that the raised character and braille exit signs are only required at doors into the vertical exit enclosures - stairways or ramps.

Cost Impact: Will not increase the cost of construction
This would potentially decrease cost for jurisdictions who have taken the interpretation to be requiring the Braille exit signs at these additional locations.

E 88-15 : 1013.4-PATE4098

E 89-15

1013.4, 1111.3; (IFC[BE] 1013.4)

Proponent: Dominic Marinelli, representing United Spinal Association (DMarinelli@accessibility-services.com)

2015 International Building Code

Revise as follows:

1013.4 Raised character and braille exit signs. A sign stating EXIT in visual characters, raised characters and braille and complying with *ICC A117.1* shall be provided adjacent to each door to an *area of refuge*providing direct access to a stairway, an exterior area for assisted rescue, an *exit stairway* or *ramp*, an *exit passageway* and the *exit discharge*.

1111.3 Other signs. Signage indicating special accessibility provisions shall be provided as shown.

1. Each assembly area required to comply with Section 1108.2.7 shall provide a sign notifying patrons of the availability of assistive listening systems. The sign shall comply with ICC A117.1 requirements for visual characters and include the International Symbol of Access for Hearing Loss.

   Exception: Where ticket offices or windows are provided, signs are not required at each assembly area provided that signs are displayed at each ticket office or window informing patrons of the availability of assistive listening systems.
2. At each door to an *area of refuge providing direct access to the stairway*, an exterior area for assisted rescue, an ~~egress~~ *exit stairway, exit passageway and exit discharge, signage shall be provided in accordance with Section 1013.4.*
3. At *areas of refuge*, signage shall be provided in accordance with Section 1009.11.
4. At exterior areas for assisted rescue, signage shall be provided in accordance with Section 1009.11.
5. At two-way communication systems, signage shall be provided in accordance with Section 1009.8.2.
6. In *interior exit stairways* and *ramps*, floor level signage shall be provided in accordance with Section 1023.9.
7. Signs identifying the type of access provided on amusement rides required to be *accessible* by Section 1110.4.8 shall be provided at entries to queues and waiting lines. In addition, where *accessible* unload areas also serve as *accessible* load areas, signs indicating the location of the *accessible* load and unload areas shall be provided at entries to queues and waiting lines. These directional sign characters shall meet the visual character requirements in accordance with ICC A117.1.

Reason: The intent is coordination with the a revision to the next edition of the ICC A117.1 standard for tactile exit signage, Section 504.10.
The point of the tactile exit signage is to let a visually impaired person know what door they should enter to exit the building. When a stairway is accessed through an area of refuge, this signage is appropriate. Where the area of refuge is at the front of an elevator with standby power, this is not appropriate. Many lobbies have double doors with hold open devices, so there is also the question about where would be the correct location for this signage. This change in language will effectively not require the tactile exit signage at an elevator lobby.

Cost Impact: Will not increase the cost of construction
This is a possible reduction in signage.

E 89-15 : 1013.4-ROETHER5713

E 90-15

1013.6.3; (IFC[BE] 1013.6.3)

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Building Code

Revise as follows:

1013.6.3 Power source. Exit signs shall be illuminated at all times. To ensure continued illumination for a duration of not less than 90 minutes in case of primary power loss, the sign illumination means shall be connected to an emergency power system provided from storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Chapter 27. Group I-2 Condition 2 exit sign illumination shall not be provide by unit equipment batteries only.

~~Exceptions~~Exception:

1. *Approved* exit sign illumination means that provide continuous illumination independent of external power sources for a duration of not less than 90 minutes, in case of primary power loss, are not required to be connected to an emergency electrical system.
2. ~~Group I-2 Condition 2 exit sign illumination shall not be provided by unit equipment battery only.~~

Reason: This exception is a requirement for Group I-2 that exceeds the base paragraph requirements. It is proposed to be moved to the main paragraph to make it a requirement. As an exception it would be a choice. This requirement was added by E103-12 AMPC.

A correllative change is planned for the Group B cycle to IFC Chapter 11.

1104.5.1 Emergency power duration and installation. Emergency power for means of egress illumination shall be provided in accordance with Section 604. In other than Group I-2, emergency power shall be provided for not less than 60 minutes for systems requiring emergency power. ~~In Group I-2, essential electrical systems shall comply with Sections 1105.5.1 and 1105.5.2.~~

~~1105.5 Means of egress. In addition to the means of egress requirements in Section 1104, Group I-2 facilities shall meet the means of egress requirements in Section 1105.5.1 through 1105.5.8.~~

~~1105.5.1 Exit signs and emergency illumination. The power system for exit signs and emergency illumination for the means of egress shall provide power for not less than 90 minutes and consist of storage batteries, unit equipment or an on-site generator.~~

~~1105.5.2 Emergency power for operational needs. The essential electrical system shall be capable of supplying services in accordance with NFPA 99.~~

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This is a movement of requirements only, therefore, there is no change in cost.

E 90-15 : 1013.6.3-WILLIAMS4229

E 91-15

1014.9; (IFC[BE] 1014.9)

Proponent: Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

1014.9 Intermediate handrails. *Stairways* shall have intermediate *handrails* located in such a manner that all portions of the *stairway* minimum width or required capacity are within 30 inches (762 mm) of a handrail. On monumental *stairs*, *handrails* shall be located along the most direct path of egress travel.

Exception: Stairways less than 88 (2235 mm) inches in width are not required to have an intermediate handrail.

Reason: Section 1011.2 requires stair widths of at least 44". Exception 1 allows 36 inch widths serving occupant loads of less than 50. Table 1020.2 requires minimum corridor widths of 44 inches, with 36 inches for occupancies of less than 50, and within a dwelling unit. 24 inches is allowed to access mechanical and electrical equipment.

The existing language in the case of a 61-75 inch wide stair would reduce the usable exit width to less than 36 inches. While this does not present an issue with intermediate handrails for stairs 88 inches and wider, it does cause concern for path widths in stairs greater than 60 inches and less than 88 in., (Stairs between 72 and 88 inches are not included in this argument since 36 inch paths are reserved for low occupancy areas, which the areas we are referencing are not).

This exception would allow for base code to allow for stairs 88 inches in width or greater, while avoiding paths less 44 inches within the stairs smaller than 88 inches.

Cost Impact: Will not increase the cost of construction
This proposal would result in a decrease of construction costs by not requiring as many intermediate handrails as currently required by code.

E 91-15 : 1014.9-DIGIOVANNI3848

E 92-15

1015.3 (IFC[BE] 1015.3)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1015.3 Height.
Required *guards* shall be not less than 42 inches (1067 mm) high, measured vertically as follows:

1. From the adjacent walking surfaces.
2. On *stairways* and stepped *aisles* , from the line connecting the leading edges of the tread *nosings* .
3. On *ramps* and ramped *aisles* , from the *ramp* surface at the *guard* .

Exceptions:

1. For occupancies in Group R-3 not more than three stories above grade in height and within individual *dwelling units* in occupancies in Group R-2 not more than three stories above grade in height with separate *means of egress* , required *guards* shall be not less than 36 inches (914 mm) in height measured vertically above the adjacent walking surfaces~~ or adjacent *fixed seating*.~~
2. For occupancies in Group R-3, and within individual *dwelling units* in occupancies in Group R-2, *guards* on the open sides of *stairs* shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the leading edges of the treads.
3. For occupancies in Group R-3, and within individual *dwelling units* in occupancies in Group R-2, where the top of the *guard* also serves as a *handrail* on the open sides of *stairs* , the top of the *guard* shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.
4. The *guard* height in assembly seating areas shall comply with Section 1029.16 as applicable.
5. Along *alternating tread devices* and ships ladders, *guards* where the top rail also serves as a *handrail* shall have height not less than 30 inches (762 mm) and not more than 34 inches (864 mm), measured vertically from the leading edge of the device tread *nosing* .

Reason: The purpose of this proposal is coordination between the IBC and IRC. The phrase 'or adjacent fixed seating' was in exception 1 to coordinate with the provisions for guard height in the IRC. Previous edition of the IBC and IRC required guards to be placed adjacent to fixed seating that occurs on areas such as decks where the seat and guard are built integral with the deck. At those locations the guard height was measured from that seat. The requirement to measure from the fixed seating has been removed from the IBC and IRC.
In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled Climbable Guards. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will increase the cost of construction
This proposal could result in a reduction of the required guard height. This is coordination with the IRC.

E 92-15 : 1015.3-KULIK3331

E 93-15

1015.3; (IFC[BE] 1015.3)

Proponent: Thomas Dalton, representing Self

2015 International Building Code

Revise as follows:

1015.3 Height. Required *guards* shall be not less than 42 inches (1067 mm) high, measured vertically as follows:

1. From the adjacent walking surfaces.
2. On *stairways* and stepped *aisles*, from the line connecting the leading edges of the tread *nosings*.
3. On *ramps* and ramped *aisles*, from the *ramp* surface at the *guard*.

Exceptions:

1. For occupancies in Group R-3 not more than three stories above grade in height and within and serving individual *dwelling units* in occupancies in Group R-2 not more than three stories above grade in height with separate *means of egress*, required *guards* shall be not less than 36 inches (914 mm) in height measured vertically above the adjacent walking surfaces or adjacent *fixed seating*.
2. For occupancies in Group R-3, and within and serving individual *dwelling units* in occupancies in Group R-2, *guards* on the open sides of *stairs* shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the leading edges of the treads.
3. For occupancies in Group R-3, and within and serving individual *dwelling units* in occupancies in Group R-2, where the top of the *guard* also serves as a *handrail* on the open sides of *stairs*, the top of the *guard* shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.
4. The *guard* height in assembly seating areas shall comply with Section 1029.16 as applicable.
5. Along *alternating tread devices* and ships ladders, *guards* where the top rail also serves as a *handrail* shall have height not less than 30 inches (762 mm) and not more than 34 inches (864 mm), measured vertically from the leading edge of the device tread *nosing*.

Reason: Changing this section of the code will treat all types of long term residential occupancies with the same risk factors for falls and accessibility the same. Treating the exterior staircase serving individual condominium units differently from interior staircases within those units is not consistant in this type of occupancy.

Cost Impact: Will not increase the cost of construction
This change could decrease the cost of construction by reducing the amount of material and speeding up production by standardizing both the intereior and exterior guards.

E 93-15 : 1015.3-DALTON3984

E 94-15

1015.3; (IFC[BE] 1015.3)

Proponent: Jay Wallace, The Boeing Company, representing The Boeing Company (jay.s.wallace@boeing.com)

2015 International Building Code

Revise as follows:

1015.3 Height. Required *guards* shall be not less than 42 inches (1067 mm) high, measured vertically as follows:

1. From the adjacent walking surfaces.
2. On *stairways* and stepped *aisles*, from the line connecting the leading edges of the tread *nosings*.
3. On *ramps* and ramped *aisles*, from the *ramp* surface at the *guard*.

Exceptions:

1. For occupancies in Group R-3 not more than three stories above grade in height and within individual *dwelling units* in occupancies in Group R-2 not more than three stories above grade in height with separate *means of egress*, required *guards* shall be not less than 36 inches (914 mm) in height measured vertically above the adjacent walking surfaces or adjacent *fixed seating*.
2. For occupancies in Group R-3, and within individual *dwelling units* in occupancies in Group R-2, *guards* on_ the open sides of *stairs* shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the leading edges of the treads.
3. For occupancies in Group R-3, and within individual *dwelling units* in occupancies in Group R-2, where the top of the *guard* also serves as a *handrail* on the open sides of *stairs*, the top of the *guard* shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.
4. The *guard* height in assembly seating areas shall comply with Section 1029.16 as applicable.
5. Along *alternating tread devices* and ships ladders, *guards* where the top rail also serves as a *handrail* shall have height not less than 30 inches (762 mm) and not more than 34 inches (864 mm), measured vertically from the leading edge of the device tread *nosing*.
6. In Group F occupancies, where *exit access stairways* serve three stories or less and such stairs are not open to the public, where the top of the guard also serves as a handrail, the top of the guard shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.

Reason: Federal OSHA requirements restrict industrial stairway guard height to a maximum of 34"; it also intends that the top rail will be used as a handrail. The IBC range for handrails is 34 to 38 inches but also requires a guard at 42". This proposal attempts to find a reasonable middle ground making at least one solution acceptable to both IBC and OSHA requirements for non-egress stairways in factory type settings.
Factory workers are often required to carry out full range of motion activities and access work areas in tight spaces and sometimes maneuver into awkward positions. Their work often requires them to be more mobile and more athletic than their office sitting counterparts enabling them to negotiate a set of stairs with greater agility. They become very familiar with their workplace and like many of us, may spend more time on the job than they do at home.

The IBC recognizes that familiarity is a component of safe stairway design as reduced guard height and the use of the top guard rail as a handrail is already allowed for Group R-3 and in individual dwelling units of R-2 (see Exception 3 of this same section) where occupants normally experience extended time and acquire familiarity with stairway construction details in contrast to those in other Group R occupancies where visitors and residents are usually temporary. Granted, occupants in Group R occupancies may consume alcohol and other substances which could impair their ability to negotiate a set of stairs but such behavior is typically not allowed in Group F occupancies.

The three floor limit proposed is borrowed from Exception 3 to maintain the same level of safety as has been previously approved for use in the code. Exception 3 uses the term story stating that the exception is limited to 3 stories in height. This proposal limits floors to three instead of stories because the term floor in Group F correlates better with stories in Group R. In Group F, stairways could run between stories or within a single story to multiple levels of mezzanines or platforms located further above the ground floor than intended.

The focus of this proposal is on Factory workers on exit access stairways. These stairs are not intended nor required for emergency egress. They are not shared with other occupancies such as Group B or Group S which may be associated with a Group F. However, there is the reality that maintenance service may be required in these factory areas and so this proposal recognizes that maintenance service personnel may use the stairs. This distinct group of users is also highly accustomed to the facility and able to negotiate such construction details with ease.

This proposed change resolves conflicting requirements between OSHA and the IBC by applying an acceptable solution already approved for other occupancies where occupants experience similar long term exposure and familiarity.

Cost Impact: Will not increase the cost of construction
For the condition this proposal addresses, the IBC requires a 42 inch high guard and a handrail between 34 and 38 inches high. Construction cost is inherently less when the handrail and guard are one and the same.

E 94-15 : 1015.3-WALLACE5572

E 95-15

1015.6 (IFC[BE] 1015.6, IMC[BE] 304.11), 1015.7, (IFC[BE]1015.7, IMC[BE] 304.12 (New))

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

1015.6 Mechanical equipment, systems and devices. *Guards* shall be provided where ~~various components that require service~~ appliances and equipment within the scope of this code, including but not limited to HVAC equipment, refrigeration equipment, exhaust fans, energy recovery equipment, pollution control units, smoke control fans, solar thermal equipment, are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The *guard* shall extend not less than 30 inches (762 mm) beyond each end of such components. The *guard* shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter.

> **Exception:***Guards* are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire roof covering lifetime. The devices shall be reevaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from the roof edge or open side of the walking surface.

1015.7 Roof access. *Guards* shall be provided where the roof hatch opening is located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The *guard* shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter..

> **Exception:***Guards* are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire roof covering lifetime. The devices shall be reevaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from the roof edge or open side of the walking surface.

2015 International Mechanical Code

Revise as follows:

[BE] 304.11 Guards. Guards shall be provided where ~~various components that require service~~appliances and ~~roof hatch openings are~~equipment wihthin the scope of this code, including but not limited to HVAC equipment, refrigeration equipment, exhaust fans, energy recovery equipment, pollution control units, smoke control fans, solar thermal equipment,are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof, or grade below. The guard shall extend not less than 30 inches (762 mm) beyond each end of components that require service. The top of the guard shall be located not less than 42 inches (1067 mm) above the elevated surface adjacent to the guard. The guard shall be constructed so as to prevent the passage of a 21-inch-diameter (533 mm) sphere and shall comply with the loading requirements for guards specified in the *International Building Code*.

> **Exception:** Guards are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire lifetime of the roof covering. The devices shall be re-evaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from roof edges and the open sides of walking surfaces.

Add new text as follows:

[BE] 304.12 Roof access. Guards shall be provided where the roof hatch opening is located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The guard shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter.

> **Exception:** Guards are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire roof covering lifetime. The devices shall be reevaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from the roof edge or open side of the walking surface.

Reason: There are two purposes for this proposal - both dealing with clarification and coordination.
The change last cycle to "various components that require service" has made the intent ambiguous. What are various components? The current text may be appropriate for the IBC but it is inadequate for the IMC. The text needs to spell out what equipment is expected to require service in the context of a mechanical code. There could be some type of equipment that does not require periodic service and instead would simply be replaced at the end of its life, however, the PMG CAC cannot determine what equipment that would be. Even a direct -drive permanently lubricated toilet exhaust fan installed on a roof would eventually need to be cleaned. It is assumed that solar thermal equipment requires cleaning and servicing. If the appliance or equipment ends up being close to the roof edge, then protection from falling by means of a guard is warranted. If guards are undesirable for aesthetic or expense reasons, then the appliances and equipment should not be put close to the roof edge; simple solution.

Moving roof hatches into its own section will make the IMC and IBC/IFC match. Since this section is controlled by the IBC MOE committee now, this can be viewed as editorial only. There is no intent to change requirements. There is a companion proposal to revise the exception. If that proposal is approved, the exception should also be revised from the new IMC Section 304.12.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

E 95-15 : 1015.6-KULIK5052

E 96-15

1015.6 (IFC[BE] 1015.6), 1015.7 (IFC[BE] 1015.6), IMC [BE] 304.11

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1015.6 Mechanical equipment, systems and devices. *Guards* shall be provided where various components that require service are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The *guard* shall extend not less than 30 inches (762 mm) beyond each end of such components. The *guard* shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter.

> **Exception:***Guards* are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are ~~affixed for use during the entire roof covering lifetime. The devices shall be reevaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from the roof edge or open side of the walking surface~~installed.

1015.7 Roof access. *Guards* shall be provided where the roof hatch opening is located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The *guard* shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter.

> **Exception:***Guards* are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are ~~affixed for use during the entire roof covering lifetime. The devices shall be reevaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from the roof edge or open side of the walking surface~~installed.

2015 International Mechanical Code

[BE] 304.11 Guards. Guards shall be provided where various components that require service and roof hatch openings are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof, or grade below. The guard shall extend not less than 30 inches (762 mm) beyond each end of components that require service. The top of the guard shall be located not less than 42 inches (1067 mm) above the elevated surface adjacent to the guard. The guard shall be constructed so as to prevent the passage of a 21-inch-diameter (533 mm) sphere and shall comply with the loading requirements for guards specified in the *International Building Code*.

> **Exception:** Guards are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are ~~affixed for use during the entire lifetime of the roof covering. The devices shall be re-evaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from roof edges and the open sides of walking surfaces~~installed.

Reason: Section 306.5.1 of the IMC requires work platforms with guards for equipment and appliances installed on roofs with a slope 3 in 12 and greater, thus, the exception to Section 304.11 appears to apply only to roofs that are flat and up to 2 in 12 slope. The problem derives from the language referring to placement of anchors along hip or ridge lines and along roof edges. This language is not necessary for the application of the exception. Each building roof system and the equipment upon that roof system that might require access will be different and the anchors needed along with their locations will differ as well. As presently worded there has been some confusion on application and the location requirements spaced every ten feet require unnecessary expense.
This proposal eliminates confusion by deleting the unnecessary language leaving the application of the referenced standard to be applied on a case by case basis to fit the specific activities that may occur on the individual roof.

There is another change from this committee to split IMC 304.11 to make it consistent with the IRC that copies this exception. It is the intent of this committee for theese changes to be coordinated.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal will decrease the cost of construction in those cases where fall arrest anchorage devices would be installed instead of guards by providing increased flexibility in locating the anchors.

E 96-15 : 1015.6-KULIK5064

E 97-15

1017.2, 1017.2.3 (New); (IFC[BE] 1017.2, 1017.2.3 (New))

Proponent: Vickie Lovell, InterCode Incorporated, representing Fire Safe North America (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

1017.2 Limitations. *Exit access* travel distance shall not exceed the values given in Table 1017.2 except where limited by Section 1017.2.3.

Add new text as follows:

1017.2.3 Groups A, B, E and R decrease. In Groups A, B, E and R occupancies, assigned Risk Categories III and IV in Table 1604.5 and of Types IIB, IIIB and VB construction shall be limited to the travel distances in Table 1017.2 for buildings without sprinkler systems where such buildings are any of the following:

1. Assigned a Seismic Design Category C or D in Table 1613.3.5(1).
2. Located in a flood hazard area established in accordance with Section 1612.3.
3. Located in a hurricane-prone region.

Reason: As hazard events, both naturally-occurring and man-made, are increasing in number and severity in the United States and around the world, the resilience of communities and the individual buildings within those communities is becoming of vital importance.
A National Institute of Building Sciences Publication (May, 2014) entitled "Moving Forward: Findings and Recommendations", states that "while a long history of building codes has laid the foundation for addressing the impacts of natural and man-made hazards, changes in the frequency and severity of events have brought new challenges — challenges requiring the engagement and support of policymakers. While building codes serve as the minimum requirements for life-safety in the building stock, basic life-safety protections do not fully address building performance requirements to achieve resilience."

Mitigation includes, among other things, fortifying buildings so that they are less likely to be severely damaged or completely destroyed during or immediately after a disaster. It is the key to recovery after a disaster. Mitigation allows individuals and communities to lessen post-disaster disruption and rebuild more quickly. States and cities have started implementing more stringent requirements in specific geographic areas they have designated as higher-risk. The purpose of this series of code changes proposed by Fire Safe North America is to encourage the debate in the code development process to identify what constitutes resilient buildings, and begin to identify issues that will become the basis for "new minimum requirements" for increased building resiliency.

Responding to the challenge of mitigating damage and resilient buildings is an admittedly complex topic. Fire Safe North America proposals are intended to reduce the total reliance of a community and its firefighters on automatic sprinkler systems in disaster-prone areas of the country where the water supply and/or power are likely to be interrupted, or are likely to have water supply system operational issues. The proposals, if approved, will fortify the building code requirements for the most vulnerable buildings to fire - Type IIB, IIIB, and VB construction, which are also classified as Risk Category III and IV in Table 1604.5, and in high-risk, disaster prone regions. The proposals modify the following code requirements in such buildings:

1. Reduce allowable area limits
2. Protect the path of egress by limiting travel distances
3. Protect the path of egress by protecting corridors
4. Require higher fire resistance ratings for occupancy separations
5. Require higher fire resistance ratings for building elements

These proposals are intended to be conservative so as to promote community resiliency and disaster mitigation by protecting essential buildings with both sprinkler protection AND fire resistance rated compartmentation. These proposals may be fairly considered to be the proverbial "belt-and suspenders" approach, requiring both sprinkler protection and increased fire resistance rated compartmentation in specific buildings in high risk areas for disasters.

Historically, the code has been written using the general assumption that automatic sprinklers will operate satisfactorily and there will be suitable power for such building operations. Code users design and build assuming that firefighters will be able to respond at their normal efficiencies. In some parts of the country, buildings impacted by disasters may remain without reliable water and/or power for a considerable period of time, well after the occurrence of the disaster. History has shown that increased incidents of fires after a disaster can be more destructive to life and property than the disaster itself. Total reliance on an uninterrupted power and water supply may not be an acceptable risk. It may also be an unacceptable risk to assume that firefighters will be able to respond at their normal efficiencies.

For example, more than 15% of the U.S. population lives in potential major earthquake areas. 41 states and territories have moderate to high risk. There is a real likelihood of power and water supplies being interrupted following a major seismic event, along with the potential for multiple simultaneous structure fires and also building-to-building fire spread. In October 17, 1989, a 7.1 earthquake in Santa Cruz Mountains was responsible for 26 fires in San Francisco, 60 miles from epicenter. There were 67 documented breaks in water mains which effectively eliminated water pressure in the area. On January 19, 1994, a 6.8 earthquake centered in Northridge, CA. There were approximately 100 fire ignitions, 30 to 50 of those were considered significant. The water supply systems in the area were damaged causing low pressure in water distribution. On January 17, 1995, a 6.8 (approx.) earthquake near Kobe, Japan caused 90 fires to start within minutes. 85 spread to adjacent buildings and 10 approached or reached conflagration status. 1,700 water line breaks occurred within a couple of hours. There were 7,000 buildings destroyed by fire alone.

In 1997, the Red River flooded Grand Forks, North Dakota, causing $3.7 billion in flood losses, and displaced thousands of families and businesses. Similar data of increased fire incidents are available in other flood and hurricane-prone areas.

Undoubtedly, this will increase the cost of construction in these specific buildings. However, a recent FEMA's 2010 report "Mitigation's Value to Society" statement described how mitigation is an investment that needs to be made. A recent study by the NIBS Multihazard Mitigation Council (MMC) identified that each dollar spent on mitigation saves an average of $4.00 in disaster recovery.

Links:
http://www.dhses.ny.gov/oem/mitigation/documents/mitigations-value-to-society.pdf

The two-volume NIBS MMC study report is available for free download at:
http://www.nibs.org/index.php/mmc/projects/nhms

Cost Impact: Will increase the cost of construction
This code change proposal will increase the cost of construction for some building types.

E 97-15 : 1017.2-LOVELL5288

E 98-15

1017.2.2 (IFC[BE] 1017.2.2)

Proponent: Joe McELvaney, representing self (mcelvaney@cox.net)

2015 International Building Code

Revise as follows:

1017.2.2 Group F-1 and S-1 increase. The maximum *exit access* travel distance shall be 400 feet (122 m) in Group F-1 or S-1 occupancies where all of the following conditions are met:

1. The portion of the building classified as Group F-1 or S-1 is limited to one story in height.
2. The minimum height from the finished floor to the bottom of the ceiling or roof slab or deck is 24 feet (7315 mm).
3. The building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
4. <u>High Pile combustible storage areas greater than 500,000 square feet (46,450 square meters) are provided with additional fire protection in accordance with the *International Fire Code*, Table 3206.2, footnote g.</u>

Reason: High pile combustible storage have some special fire code requirements that would apply to these type of occupancies where the travel distance is 400 feet. Once the travel distance is above 300 feet the odds increase that the storage area may be over 500,000 sq. ft.. Once the stroage area is greater than 500,000 sq. ft. the fire code offical can ask for addtional fire protection based on IFC Table 3206.2 footnote g.
By adding this information to the IBC it will alert the design professional that addtional fire protection may be required per IFC Table 3206.2 footnote g., Hence the design professional should talk with the fire code offical to determine what may be required.

This new text may help in reducing the number of change orders and open a line of communication with the design professional and fire code official for this large building.

Cost Impact: Will not increase the cost of construction
No cost increase, already required per the IFC Table 3206.2 footnote g

E 98-15 : 1017.2.2-MCELVANEY3291

E 99-15

1017.2.3 (New); (IFC[BE] 1017.2.3 (New))

Proponent: Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Add new text as follows:

1017.2.3 **Corridor increases.** *Exit access* travel distances specified in Table 1017.2 shall be increased an additional 100 feet (30 480 mm) where the final portion of the *exit access* is within a corridor with minimum fire-resistance rating of 1 hour. The length of such *corridor* shall not be less than the amount of increase taken.

Reason: Larger buildings that have significant footprints are difficult to design with the travel distances outlined in Table 1017.2 without some increases allowed, such as the corridor increase.

Adding a maximum 100 foot increase to the travel distances outlined in Table 1017.2 would apply to those corridors constructed with a minimum one-hour fire resistance rating. Many of the occupancies that this proposal would apply to are allowed to have a non-fire resistive rated corridor under the sprinkler system provisions of Table 1020.1. The provisions for corridor increases would only apply if the corridor is provided with a minimum one-hour fire-resistive rating thereby providing a greater level of protection than currently required by code.

This proposal is not less restrictive than the current code as added protection is provided to the exit route if the 100 foot travel distance increase is applied. In fact, this proposal would provide an incentive to designers to use rated corridors. Please note that the wording of this proposal is essentially based on Section 1004.2.5.2.3 of the 1997 edition of the Uniform Building Code (UBC), and that many existing facilities have been constructed with this corridor increase provision. Also, this proposal has been adopted in Southern Nevada for several code cycles.

Cost Impact: Will not increase the cost of construction
This proposal provides for an option, and does not increase any requirements of the base code, so there is no cost impact associated with this proposal.

E 99-15 : 1017.2.3 (New)-DIGIOVANNI3849

E 100-15

202, 1017.3; (IFC[BE[1017.3)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

COMMON PATH OF EGRESS TRAVEL. That portion of ~~the~~ *exit access* travel distance measured from the most remote point ~~within a *story*~~ of each room, area or space to that point where the occupants have separate and distinct access to two exits or exit *access doorways.*

1017.3 Measurement. *Exit access* travel distance shall be measured from the most remote point ~~within a story~~ of each room, area or space along the natural and unobstructed path of horizontal and vertical egress travel to the entrance to an *exit*.

> **Exception:** In *open parking garages*, *exit access* travel distance is permitted to be measured to the closest riser of an *exit access stairway* or the closest slope of an *exit access ramp*.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
The definition of "common path of egress travel" was modified for the 2015 Edition of the IBC. The intent of the change was to clarify the common path of egress travel and exit access travel distance are measured in the same way. The terminus of each is different, but the route is the same. This logic was based on the last sentence of the 2012 IBC definition, "Common paths of travel shall be included within the permitted travel distance." and the language in 2012 Section 1016.3, "Exit access travel distance shall be measured from the most remote point within a story…"

If applied literally, it could be interpreted such that the common path of egress travel need be considered from only one point (the most remote) on a given story. Obviously, all potential paths of egress travel need to be considered when establishing occupant remoteness for the purposes of determining multiple exit or exit access doorway requirements. Clarifying that the path of travel originating from any room, area or space should be evaluated when determining common paths of egress travel will eliminate literal interpretations of the current definition. Additionally, the reference to a single story has been eliminated. Section 1006.3 allows for access to exits at an adjacent level. Common path of egress travel requirements could potentially apply to a multi-level design condition.

For purposes of consistency, Section 1017.3 has been modified to indicate that exit access travel distance is measured from all remote points within the means of egress system. The "story" approach is a little simplistic and does not represent the level of detail necessary to properly design or analyze a means of egress system. Additionally, when accessing an exit at an adjacent level, the exit access travel distance at both stories, to include the exit access stairways, is calculated. The single story reference could be misleading. Approval of this modification will clarify the definition of common path of egress travel for the benefit of all users.

Cost Impact: Will not increase the cost of construction
Provisions simply provide clarification of current requirements.

Staff note: There is a published errata to the definition for Common Path of Egress Travel. The errata is incorporated into the definition as existing text.

E 100-15 : 1017.3-KULIK3669

E 101-15

1018.6 (New); (IFC[BE] 1018.6 (New))

Proponent: Bryan Romney, University of Utah, Salt Lake City, Utah, representing self (bryan.romney@fm.utah.edu)

2015 International Building Code

Add new text as follows:

1018.6 **Aisle measurement** The clear width for aisles and aisle accessways shall be measured to walls, edges of seating and tread edges except for permitted projections.

> **Exception:** The clear width of aisles and aisle accessways adjacent to seating at tables shall be permitted to be measured in accordance with Section 1029.12.1.

Reason: The code requirements for seating at tables for all occupancy groups and uses were relocated from the 2009 IBC Section 1017.4 to Section 1028.10.1 under the ASSEMBLY section in the 2012 IBC. Code Change Proposal E140-09/10 was approved to relocate Seating at tables to Section 1028. In the 2015 IBC this requirement was modified and relocated to Section 1029.12.1, still under the ASSEMBLY section.
The reason for this proposed change is to establish the requirements for seating at tables in Section 1018 AISLES which can only be found in Section 1029.12.1. Occupancy groups other than Assembly such as Groups B and M certainly have aisles with seating located at desks, counters, and tables which need to be regulated. It is neither logical nor possible to regulate seating at tables for non-assembly occupancy groups or uses if the requirements are located in Section 1029 ASSEMBLY.

For example, research laboratories (Group B occupancy) typically have benches and seating on double and single loaded aisles. Without this proposed change to the code, there is no direct requirement to regulate aisle widths because seating at tables and benches is located in the Assembly section 1029.

Group M occupancies also have aisles with seating at tables which need to be regulated. Section 1029 Assembly occupancies is not the place to look for these requirements.

Cost Impact: Will not increase the cost of construction
This is simply a clarification of the requirements for seating at tables for all occupancy groups and uses

E 101-15 : 1018.6 (New)-ROMNEY3598

E 102-15

202, 1006.3, 1006.3.1, 1017.3.1, 1019.2(New), 1019.3, 1019.4, 1023.2; (IFC[BE] 1006.3, 1006.3.1, 1017.3.1, 1019.2(New), 1019.3, 1019.4, 1023.2)

Proponent: Gregory Keith, Professional heuristic Development, representing The Boeing Company (grkeith@mac.com); Stephen Thomas (sthomas@coloradocode.net) Colorado Code Consulting, LLC, representing self

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

EXIT ACCESS STAIRWAY. ~~A *stairway* with the~~An enclosed or unenclosed exit access ~~portion of the means~~ component that defines and provides a path of egress ~~system~~ travel.

1006.3 Egress from stories or occupied roofs. The *means of egress* system serving any *story* or occupied roof shall be provided with the number of *exits* or access to *exits*, or combination thereof, based on the ~~aggregate~~ cumulative *occupant load* served in accordance with this section. ~~The *path of egress travel* to an *exit* shall not pass through more than one adjacent *story*.~~

1006.3.1 Egress based on occupant load. Each *story* ~~and~~ or occupied roof shall have the minimum number of independent *exits*, or access to *exits*, or combination thereof, as specified in Table 1006.3.1. A single *exit* or access to a single *exit* shall be permitted in accordance with Section 1006.3.2. The required number of *exits*, or *exit access stairways* or *ramps* providing access to *exits*, from any *story* or occupied roof shall be maintained until arrival at the *exit discharge* or a *public way*.

1017.3.1 Exit access stairways and ramps. Travel distance on unenclosed portions of *exit access stairways* or *ramps* shall be included in the *exit access* travel distance measurement. The measurement along *stairways* shall be made on a plane parallel and tangent to the *stair* tread *nosings* in the center of the *stair* and landings. The measurement along *ramps* shall be made on the walking surface in the center of the *ramp* and landings.

Add new text as follows:

1019.2 Construction. Where exit access stairways and ramps are required to be enclosed by other provisions of this section, they shall comply with the provisions of Section 1023.

Revise as follows:

~~1019.2~~1019.3 **All occupancies.** *Exit access stairways* and *ramps* that serve floor levels within a single story are not required to be enclosed.

~~1019.3~~1019.4 **Occupancies other than Groups I-2 and I-3.** In other than Group I-2 and I-3 occupancies, floor openings containing *exit access stairways* or *ramps* that do not comply with one of the conditions listed in this section shall be enclosed ~~with a shaft enclosure constructed in accordance with Section 713~~.

1. *Exit access stairways* and *ramps* that serve or atmospherically communicate between only two stories. Such interconnected stories shall not be open to other stories.
2. In Group R-1, R-2 or R-3 occupancies, *exit accessstairways* and *ramps* connecting four stories or less serving and contained within an individual *dwelling unit* or *sleeping unit* or *live/work unit.*
3. *Exit access stairways* serving and contained within a Group R-3 congregate residence or a Group R-4 facility ~~are not required to be enclosed~~.
4. *Exit access stairways* and *ramps* in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the *stairway* or *ramp* and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Group B and M occupancies, this provision is limited to openings that do not connect more than four stories.
5. *Exit access stairways* and *ramps* within an *atrium* complying with the provisions of Section 404.
6. *Exit access stairways* and *ramps* in *open parking garages* that serve only the parking garage.
7. *Exit access stairways* and *ramps* serving open-air seating complying with the *exit access* travel distance requirements of Section 1029.7.
8. *Exit access stairways* and *ramps* serving the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, *places of religious worship*, auditoriums and sports facilities.

~~1019.4~~1019.5 **Group I-2 and I-3 occupancies.** In Group I-2 and I-3 occupancies, floor openings between stories containing *exit access stairways* or *ramps* are required to be enclosed ~~with a shaft enclosure constructed in accordance with Section 713~~.

Exception: In Group I-3 occupancies, *exit access stairways* or *ramps* constructed in accordance with Section 408 are not required to be enclosed.

1023.2 Construction. Enclosures for *interior exit stairways* and *ramps* shall be constructed as *fire barriers* in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. *Interior exit stairway* and *ramp* enclosures shall have a *fire-resistance rating* of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than four stories. The number of stories connected by the *interior exit stairways* or *ramps* shall include any *basements*, but not any *mezzanines*. *Interior exit stairways* and *ramps* shall have a *fire-resistance rating* not less than the floor assembly penetrated, but need not exceed 2 hours.

~~Exceptions~~Exception:

1. *Interior exit stairways* and *ramps* in Group I-3 occupancies in accordance with the provisions of Section 408.3.8.
2. ~~*Interior exit stairways* within an *atrium* enclosed in accordance with Section 404.6.~~

Reason: Code change proposal E5-09/10 formalized the technical relationship between interior exit stairways and exit access stairways. Previously, the issue was confused by a number of exceptions to former exit enclosure provisions. This proposal is intended to further clarify the applicable provisions and accomplish some necessary technical adjustments.
First, the Section 202 definition of exit access stairway has been modified so as to be consistent with the terminology used in the definitions of two other exit access components: aisles and corridors.

Section 1006.3 has been modified to clarify that combinations of exits or access to exits at other building levels may be used to satisfy multiple exit requirements. That is, a story may have two exits, two exit access stairways or ramps leading to exits at other building levels (within exit access travel distance limitations), or one of each. Also, the term "aggregate" occupant loads has been changed to "cumulative" so as to be consistent with the provisions of Section 1004.1.1. The last sentence of Section 1006.3, which limits exit access travel to only one adjacent story, is deleted. This provision was not a part of ICC Code Technology Committee proposal E5. This issue goes to the heart of the original intent of E5. Fire and smoke migration limits have been long identified in the IBC and former legacy codes. They define acceptable atmospheric boundaries under specific design conditions. It is only logical that horizontal and vertical travel within prescribed limitations should be allowed to include that number of stories permitted by any applicable design condition as described in Section 1019.3.

2009 IBC exit enclosure provisions contained numerous exceptions that allowed for extended travel on unenclosed stairways. Examples include atriums, single family residences and open parking garages. The retention of the current adjacent story restriction will simply proliferate exceptions that will return to the former technical status quo. One such exception has already been approved for inclusion in 2015 IBC Section 1023.2 that addresses the atrium design condition. A package of exceptions addressing multi-story residential occupancies has been submitted for consideration during this code development cycle. Approval of this proposal will render that submittal as unnecessary.

It should be noted that removal of the current single adjacent story restriction will not allow for carte blanche multi-story access to exits. The default requirement at Section 1019.3 is that <u>all</u> exit access stairways be enclosed. That section contains a list of eight conditions where unenclosed exit access stairways are permitted. The first is the most commonly used and allows for two story open stairways in other than Group I-2 and I-3 occupancies. This provision inherently complies with the single adjacent story limitation. The remaining seven items are specific in nature and their tenability limits have long been contained in the IBC. To circumnavigate the adjacent story travel restriction, exceptions have been approved or are proposed for six of the seven design conditions. So effectively, removal of the provision will have virtually no effect on means of egress design. Elimination of the growing list of exceptions in favor of a comprehensive base requirement is the preferred method of addressing the design condition.

Section 1006.3.1 has been modified to recognize combinations of exits or access to exits so as to be consistent with Section 1006.3.

An important change has been made to Section 1019, exit access stairways. The technical requirements for interior exit stairways (an exit component) are easily established. Typically, all interior exit stairways are enclosed with fire resistance-rated construction and they extend to the exterior of the building. With exit access stairways, there are two issues. One is their purpose as a means of egress component. Also of concern are building fire and smoke migration limits. Recent IBC editions had clarified that it is permissible to access exits at other building levels by way of exit access stairways or ramps. The general architectural need is to have an unenclosed exit access stairway(s) within a given portion of the building having common tenancy. Historical fire and smoke migration limits, however, limit the number of open stories that an unenclosed exit access stairway can serve. Numbers of stories greater than these limits would require the enclosure of exit access stairways based on <u>shaft</u> protection requirements.

The resultant 2012 IBC system was logical and clarified previous requirements. That said, it overlooked means of egress occupant expectation concerns and some theoretical technical issues. First, there is no requirement for an enclosed exit access stairway to extend to the exterior of the building. Such a stairway may terminate at any building level. Additionally, there is no requirement to maintain exit access stairway rating continuity simialr to that required for rated corridors. It is believed that due to occupant conditioning, that there is the expectation that when a person enters an enclosed stairway, that they are in a relatively safe area that will lead to the exterior of the building. Another complication is that travel to exits at other building levels is permitted where the exit access travel distance does not exceed that allowed. An enclosed exit access stairway may allow for acceptable travel limitations; however, remaining portions of the same enclosure would exceed requirements. The point being that occupants are not aware of when they should leave the exit access stairway enclosure--an exit access component--so as to meet exit access travel distance requirements.

The original purpose of the exit access stairway concept was to allow for unenclosed, non-rated interior stairways within building spaces so as to allow for occupant circulation and access to exits at other building levels. To meet occupant expectations and increase fire and life safety, shaft enclosure requirements are proposed to be replaced by interior exit stairway construction requirements. This also resolves the extended travel within an exit access component issue because occupants would be entering a formal exit component.

This apparent upgrade is less impactful that might be thought. Construction requirements for interior exit stairways and enclosed exit access stairways are virtually identical. The primary difference ocurrs with opening and penetration protection requirements. Obviously, interior exit stairway opening and penetration provisions are better suited to protect occupants in the means of egress as opposed to present utility protection concerns.

Approval of this proposal would add balance to current IBC means of egress provisions and react to likely occupant expectation of enclosed interior stairways. Approval will result in functional and understandable provisions and increase the level of occupant safely.

Cost Impact: Will increase the cost of construction
Although the opening protection requirements for interior exit stairways are apparently more stringent, they may or may not actually be more expensive than shaft protection requirements.

Staff note: There is a published errata to Section 1006.3 and 1006.3.1. The errata is incorporated into this proposal as existing text.

E 102-15 : 1006.3-KEITH4635

E 103-15

202, 1019.3; (IFC[BE] 1019.3)

Proponent: Robert Davidson, Davidson Code Concepts, LLC, representing Myself (rjd@davidsoncodeconcepts.com)

2015 International Building Code

Revise as follows:

SECTION 202 DEFINITIONS

ATRIUM. An opening connecting two or more *stories* other than <u>unenclosed exit access stairways and ramps that do not connect more than four stories,</u> enclosed *stairways*, elevators, hoistways, escalators, plumbing, electrical, air-conditioning or other equipment, which is closed at the top and not defined as a mall. *Stories*, as used in this definition, do not include balconies within assembly groups or *mezzanines* that comply with Section 505.

1019.3 Occupancies other than Groups I-2 and I-3. In other than Group I-2 and I-3 occupancies, floor openings containing *exit access stairways* or *ramps* that do not comply with one of the conditions listed in this section shall be enclosed with a shaft enclosure constructed in accordance with Section 713.

1. *Exit access stairways* and *ramps* that serve or atmospherically communicate between only two stories. Such interconnected stories shall not be open to other stories.
2. In Group R-1, R-2 or R-3 occupancies, *exit accessstairways* and *ramps* connecting four stories or less serving and contained within an individual *dwelling unit* or *sleeping unit* or *live/work unit.*
3. *Exit access stairways* serving and contained within a Group R-3 congregate residence or a Group R-4 facility are not required to be enclosed.
4. *Exit access stairways* and *ramps* in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the *stairway* or *ramp* and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. ~~In other than Group B and M occupancies, this~~<u>This</u> provision is limited to openings that do not connect more than four stories.
5. *Exit access stairways* and *ramps* within an *atrium* complying with the provisions of Section 404.
6. *Exit access stairways* and *ramps* in *open parking garages* that serve only the parking garage.
7. *Exit access stairways* and *ramps* serving open-air seating complying with the *exit access* travel distance requirements of Section 1029.7.
8. *Exit access stairways* and *ramps* serving the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, *places of religious worship*, auditoriums and sports facilities.

Reason: The purpose of this proposal is to update the definition of atrium to include unenclosed exit access stairways and ramps and to modify the permitted number of stories an unenclosed exit access stairway or ramp can connect before additional fire protection features must be provided.
Prior to the 2012 edition of the IBC unenclosed exit access stairways were simply called unenclosed stairways and they were only permitted to connect more than two stories within a building if they were not part of a means of egess system or were located within an atrium. In other words they were restricted to being an extra stairway. It was not common to have an extra unenclosed stairway other than one located within an atrium.

2009 IBC

> 708.2 Shaft enclosure required.
> Openings through a floor/ceiling assembly shall be protected by a shaft enclosure complying with this section.
>
> Exceptions:
>
> 2. A shaft enclosure is not required in a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 for an escalator opening or stairway <u>that is not a portion of the means of egress</u> protected according to Item 2.1 or 2.2.
>
> 2.1. Where the area of the floor opening between stories does not exceed twice the horizontal projected area of the escalator or stairway and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Groups B and M, this application is limited to openings that do not connect more than four stories .

With changes for the 2012 IBC these stairways and ramps became "unenclosed exit access stairways and ramps", part of the egress system. The same number of stories could be connected, up to 4 stories for all Groups other than B and M which are unlimited, and the unenclosed exit access stairways and ramps are now part of the egress system. Occupants are expected to use them in evacuating/egressing from the floor or building. That was a major technical change and one that encourages increased useage in design.

Since the 2006 edition of the IBC the definition of atrium and the allowance for unenclosed stairs has overlapped. (Prior to the 2006 edition of the IBC there were specific exceptions for smoke control for these types of unenclosed stairways). From a fire protection standpoint they conflict with each other. If applied together you can have the unenclosed stairway, but if you connect three or more stories you needed smoke control.

What this proposal does is add "unenclosed exit access stairways and ramps that do not connect more than four stories" to the methods of openings in floor construction not defined as an atrrium and modifying Section 1919.3, Item 4 to limit the unenclosed exit access stairs and ramps to 4 stories. With these changes the two concepts are coordinated for application of the IBC and to provide for a level of safety for occupants traversing down an unenclosed exit access stairway or ramp, potentially towards the source of the fire and into the products of combustion.

Cost Impact: Will increase the cost of construction
I chose will increase the cost of construction only because of the limitation of 4 stories imposed upon the B and M Group stairways and ramps. However, it is my belief that increae is minimal or not at all since it doesn't increase contstruction cost, it simply limits an architectural feature that is typically unnecessary in code complaint design.

E 103-15 : 1019.3-DAVIDSON5281

E 104-15

1019.3 (IFC [BE] 1019.3)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1019.3 Occupancies other than Groups I-2 and I-3. In other than Group I-2 and I-3 occupancies, floor openings containing *exit access stairways* or *ramps* that do not comply with one of the conditions listed in this section shall be enclosed with a shaft enclosure constructed in accordance with Section 713.

1. *Exit access stairways* and *ramps* that serve or atmospherically communicate between only two stories. Such interconnected stories shall not be open to other stories.
2. *In Group R-1, R-2 or R-3 occupancies, exit accessstairways and ramps connecting four stories or less serving and contained within an individual dwelling unit or sleeping unit or live/work unit.*
3. *Exit access stairways* serving and contained within a Group R-3 congregate residence or a Group R-4 facility are not required to be enclosed.
4. *Exit access stairways* and *ramps* in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the *stairway* or *ramp* and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Group B and M occupancies, this provision is limited to openings that do not connect more than four stories.
5. *Exit access stairways* and *ramps* within an *atrium* complying with the provisions of Section 404.
6. *Exit access stairways* and *ramps* in *open parking garages* that serve only the parking garage.
7. *Exit access stairways* and *ramps* serving open-air seating complying with the *exit access* travel distance requirements of Section 1029.7.
8. *Exit access stairways* and *ramps* ~~serving~~ between the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, *places of religious worship*, auditoriums and sports facilities.

Reason: This exception previously read as follows. "Stairways are permitted to be open between the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, places of religious worship, auditoriums and sports facilities." The revision last cycle had an unintended consequence. The current text can be read differently without 'between'. It could be read to allow open stairways serving the main assembly floor to be open exit access stairways.
In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled Unenclosed Exit Stairs. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.http://www.iccsafe.org/cs/CTC/Pages/default.aspx

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal is a clarification of provisions. There is no change in requirements.

E 104-15 : 1019.3-KULIK3644

E 105-15

1020.1; (IFC[BE] 1020.1)

Proponent: Vickie Lovell, InterCode Incorporated, representing Fire Safe North America (vickie@intercodeinc.com)

2015 International Building Code

Revise as follows:

1020.1 Construction. *Corridors* shall be fire-resistance rated in accordance with Table 1020.1. The *corridor* walls required to be fire-resistance rated shall comply with Section 708 for *fire partitions*.

<u>In addition, corridors in buildings of Types IIB, IIIB, and VB construction and assigned Risk Categories III and IV in Table 1604.5, other than Group I, shall have a fire resistance rating of not less than 1 hour where such buildings are any of the following:</u>

1. <u>Assigned a Seismic Design Category C or D in Table 1613.3.5(1).</u>
2. <u>Located in a flood hazard area established in accordance with Section 1612.3.</u>
3. <u>Located in a *hurricane-prone regions*.</u>

Exceptions:

1. A *fire-resistance rating* is not required for *corridors* in an occupancy in Group E where each room that is used for instruction has not less than one door opening directly to the exterior and rooms for assembly purposes have not less than one-half of the required *means of egress* doors opening directly to the exterior. Exterior doors specified in this exception are required to be at ground level.
2. A *fire-resistance rating* is not required for *corridors* contained within a *dwelling unit* or *sleeping unit* in an occupancy in Groups I-1 and R.
3. A *fire-resistance rating* is not required for *corridors* in *open parking garages*.
4. A *fire-resistance rating* is not required for *corridors* in an occupancy in Group B that is a space requiring only a single *means of egress* complying with Section 1006.2.
5. *Corridors* adjacent to the *exterior walls* of buildings shall be permitted to have unprotected openings on unrated *exterior walls* where unrated walls are permitted by Table 602 and unprotected openings are permitted by Table 705.8.

Reason: As hazard events, both naturally-occurring and man-made, are increasing in number and severity in the United States and around the world, the resilience of communities and the individual buildings within those communities is becoming of vital importance.
A National Institute of Building Sciences Publication (May, 2014) entitled "Moving Forward: Findings and Recommendations", states that "while a long history of building codes has laid the foundation for addressing the impacts of natural and man-made hazards, changes in the frequency and severity of events have brought new challenges — challenges requiring the engagement and support of policymakers. <u>While building codes serve as the minimum requirements for life-safety in the building stock, basic life-safety protections do not fully address building performance requirements to achieve resilience."</u>

Mitigation includes, among other things, fortifying buildings so that they are less likely to be severely damaged or completely destroyed during or immediately after a disaster. It is the key to recovery after a disaster. Mitigation allows individuals and communities to lessen post-disaster disruption and rebuild more quickly. States and cities have started implementing more stringent requirements in specific geographic areas they have designated as higher-risk. The purpose of this series of code changes proposed by Fire Safe North America is to encourage the debate in the code development process to identify what constitutes resilient buildings, and begin to identify issues that will become the basis for "new minimum requirements" for increased building resiliency.

Responding to the challenge of mitigating damage and resilient buildings is an admittedly complex topic. Fire Safe North America proposals are intended to reduce the total reliance of a community and its firefighters on automatic sprinkler systems in disaster-prone areas of the country where the water supply and/or power are likely to be interrupted, or are likely to have water supply system operational issues. The proposals, if approved, will fortify the building code requirements for the most vulnerable buildings to fire - Type IIB, IIIB, and VB construction, which are also classified as Risk Category III and IV in Table 1604.5, and in high-risk, disaster prone regions. The proposals modify the following code requirements in such buildings:

1. Reduce allowable area limits
2. Protect the path of egress by limiting travel distances
3. Protect the path of egress by protecting corridors
4. Require higher fire resistance ratings for occupancy separations
5. Require higher fire resistance ratings for building elements

These proposals are intended to be conservative so as to promote community resiliency and disaster mitigation by protecting essential buildings with both sprinkler protection AND fire resistance rated compartmentation. These proposals may be fairly considered to be the proverbial "belt-and suspenders" approach, requiring both sprinkler protection and increased fire resistance rated compartmentation in specific buildings in high risk areas for disasters.

Historically, the code has been written using the general assumption that automatic sprinklers will operate satisfactorily and there will be suitable power for such building operations. Code users design and build assuming that firefighters will be able to respond at their normal efficiencies. In some parts of the country, buildings impacted by disasters may remain without reliable water and/or power for a considerable period of time, well after the occurrence of the disaster. History has shown that increased incidents of fires after a disaster can be more destructive to life and property than the disaster itself. Total reliance on an uninterrupted power and water supply may not be an acceptable risk. It may also be an unacceptable risk to assume that firefighters will be able to respond at their normal efficiencies.

For example, more than 15% of the U.S. population lives in potential major earthquake areas. 41 states and territories have moderate to high risk. There is a real likelihood of power and water supplies being interrupted following a major seismic event, along with the potential for multiple simultaneous structure fires and also building-to-building fire spread. In October 17, 1989, a 7.1 earthquake in Santa Cruz Mountains was responsible for 26 fires in San Francisco, 60 miles from epicenter. There were 67 documented breaks in water mains which effectively eliminated water pressure in the area. On January 19, 1994, a 6.8 earthquake centered in Northridge, CA. There were approximately 100 fire ignitions, 30 to 50 of those were considered significant. The water supply systems in the area were damaged causing low pressure in water distribution. On January 17, 1995, a 6.8 (approx.) earthquake near Kobe, Japan caused 90 fires to start within minutes. 85 spread to adjacent buildings and 10 approached or reached conflagration status. 1,700 water line breaks occurred within a couple of hours. There were 7,000 buildings destroyed by fire alone.

In 1997, the Red River flooded Grand Forks, North Dakota, causing $3.7 billion in flood losses, and displaced thousands of families and businesses. Similar data of increased fire incidents are available in other flood and hurricane-prone areas.

Undoubtedly, this will increase the cost of construction in these specific buildings. However, a recent FEMA's 2010 report "Mitigation's Value to Society" statement described how mitigation is an investment that needs to be made. A recent study by the NIBS Multihazard Mitigation Council (MMC) identified that each dollar spent on mitigation saves an average of $4.00 in disaster recovery.

Links:
http://www.dhses.ny.gov/oem/mitigation/documents/mitigations-value-to-society.pdf

The two-volume NIBS MMC study report is available for free download at:
http://www.nibs.org/index.php/mmc/projects/nhms

Cost Impact: Will increase the cost of construction
This code change proposal will increase the cost of construction for some building types.

E 105-15 : 1020.1-LOVELL5278

E 106-15

Table 1020.2; (IFC[BE] Table 1020.2)

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Building Code

TABLE 1020.2
MINIMUM CORRIDOR WIDTH

OCCUPANCY	MINIMUM WIDTH (inches)
Any facilities not listed below	44
Access to and utilization of mechanical, plumbing or electrical systems or equipment	24
With an occupant load of less than 50	36
Within a *dwelling unit*	36
In Group E with a *corridor* having an occupant load of 100 or more	72
In corridors and areas serving stretcher traffic in ~~occupancies where patients receive outpatient medical care, that causes the patient to be incapable of self-preservation~~ <u>ambulatory care facilities</u>	72
Group I-2 in areas where required for bed movement	96

For SI: 1 inch = 25.4 mm.

Reason: The intent of this proposal is coordination of this table with the defined term for ambulatory care facilities
.
The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This is a clarification; therefore, there is no change in cost.

Staff note: There is a published errata to Table 1020.2. The errata has been incorporated into the table as existing text.

E 106-15 : T1020.2-WILLIAMS4230

E 107-15

1020.4 (IFC[BE] 1020.4)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

1020.4 Dead ends. Where more than one *exit* or *exit access doorway* is required, the *exit access* shall be arranged such that there are no dead ends in *corridors* more than 20 feet (6096 mm) in length.

Exceptions:

1. In occupancies in Group I-3 of Condition 2, 3 or 4, the dead end in a *corridor* shall not exceed 50 feet (15 240 mm).
2. In occupancies in Groups B, E, F, I-1, M, R-1, R-2~~, R-4~~, S and U, where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, the length of the dead-end *corridors* shall not exceed 50 feet (15 240 mm).
3. A dead-end *corridor* shall not be limited in length where the length of the dead-end *corridor* is less than 2.5 times the least width of the dead-end *corridor*.

Reason: Single exit building do not have dead end corridors, therefore this should be removed. Group R-4 are permitted to have single exits per Section 1006.3.2 Item 4.
The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This is eliminating an erroneous requirement.

E 107-15 : 1020.4-BALDASSARRA4279

E 108-15

1020.4; (IFC[BE] 1020.4)

Proponent: Ronald Geren, representing Self (ron@specsandcodes.com)

2015 International Building Code

Revise as follows:

1020.4 Dead ends. Where more than one *exit* or *exit access doorway* is required, the *exit access* shall be arranged such that there are no dead ends in *corridors* more than 20 feet (6096 mm) in length.

Exceptions:

1. In occupancies in Group I-3 of Condition 2, 3 or 4, the dead end in a *corridor* shall not exceed 50 feet (15 240 mm).
2. In occupancies in Groups B, E, F, I-1, M, R-1, R-2, R-4, S and U, where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, the length of the dead-end *corridors* shall not exceed 50 feet (15 240 mm).
3. A dead-end *corridor* shall not be limited in length where the length of the dead-end *corridor* is less than 2.5 times the least width of the dead-end *corridor*.
4. <u>In occupancies in Groups B, E, F, I-1, M, R-1, R-2, R-4, S and U, where the building is equipped througout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, a dead-end *corridor* shall not be limited in length where the length of the dead-end *corridor* is less than 6.25 times the least width of the dead-end *corridor*.</u>

Reason: This proposal parallels the logic of Exception 2 and 3.
Exception 3 allows a nonsprinklered building to extend a dead-end corridor beyond 20 feet if the corridor is wider than 8 feet (8' × 2.5 = 20'). However, a sprinkler system will allow a dead-end corridor to extend up to 50 feet for the occupancy groups indicated in Exception 2. But, for a sprinklered building to go beyond the 50-foot limitation, the dead-end corridor would need to be wider than 20 feet per Exception 3 (20' × 2.5 = 50').

Thus, if a dead-end corridor that is wider than 8 feet can extend beyond 20 feet in a nonsprinklered building (Exception 3), then a dead-end corridor that is also wider than 8 feet in a sprinklered building should also be allowed to go beyond 50 feet (8' x 6.25 = 50').

Cost Impact: Will not increase the cost of construction
The proposed exception is an option for designers and its use would have no negative impact on material or labor costs; it will more likely have a positive impact on cost by adding more flexibility for designer in means of egress design.

E 108-15 : 1020.4-GEREN5148

E 109-15

1021.4; (IFC[BE] 1021.4)

Proponent: Victor Cuevas, representing City of Los Angeles

2015 International Building Code

Revise as follows:

1021.4 Location. Exterior egress balconies shall have a minimum *fire separation distance* of 10 feet (3048 mm) measured at right angles from the exterior edge of the egress balcony to the following:

1. Adjacent *lot lines*.
2. Other portions of the building.
3. Other buildings on the same lot unless the adjacent building *exterior walls* and openings are protected in accordance with Section 705 based on *fire separation distance*.

For the purposes of this section, other portions of the building shall be treated as separate buildings.

<u>**Exception:** Exterior egress balconies shall be permitted to have a minimum fire separation distance of 5 feet (1524 mm), where the exterior edge of the egress balcony has openings protected and limited in accordance with Section 705.8</u>

Reason: It is not practical to provide 10' setbacks for buildings. With this exception, balconies will be similar to corridors, which do not have specific fire separation distance limitations.

Cost Impact: Will not increase the cost of construction
This is a design option.

E 109-15 : 1021.4-CUEVAS4829

E 110-15

1023.3.1; (IFC[BE] 1023.3.1)

Proponent: Raymond Grill, Arup, representing Arup (ray.grill@arup.com)

2015 International Building Code

Revise as follows:

1023.3.1 Extension. Where *interior exit stairways* and *ramps* are extended to an *exit discharge* or a *public way* by an *exit passageway*, the *interior exit stairway* and *ramp* shall be separated from the *exit passageway* by a *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both. The *fire-resistance rating* shall be not less than that required for the *interior exit stairway* and *ramp*. A *fire door* assembly complying with Section 716.5 shall be installed in the *fire barrier* to provide a *means of egress* from the *interior exit stairway* and *ramp* to the *exit passageway*. Openings in the *fire barrier* other than the *fire door* assembly are prohibited. Penetrations of the *fire barrier* are prohibited.

Exceptions:

1. Penetrations of the *fire barrier* in accordance with Section 1023.5 shall be permitted.
2. Separation between an *interior exit stairway* or *ramp* and the *exit passageway* extension shall not be required where there are no openings into the *exit passageway* extension.
3. <u>Separation between an interior exit stairway or ramp and the exit passageway extension shall not be required when the interior exit stair and the exit passageway extension are pressurized in accordance with Section 909.20.5.</u>

Reason: Pressurized stairs often discharge through an exit passageway. The exit passageway is also typically required to be pressurized since it is a coninuation of the pressurized stair enclosure. The system providing pressurization of the stair and passageway is typically the same system. Technical compliance would require separate systems if a separation is required to be maintained. The introduction of a door and fire barrier between the exit passageway and the stair creates an obstruction to airflow which inhibits the pressurization of the stair and passageway. The provision of a separation does not provide any added safety and could also impede egress.

Cost Impact: Will not increase the cost of construction
This code change will reduce the cost of construction where pressurized stairs discharge through an exit passageway extension. The door and fire barrier between the exit passageway extension and the stair would not be required.

E 110-15 : 1023.3.1-GRILL5191

E 111-15

1023.4; (IFC[BE] 1023.4)

Proponent: Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com)

2015 International Building Code

Revise as follows:

1023.4 Openings. *Interior exit stairway* and *ramp* opening protectives shall be in accordance with the requirements of Section 716.

Openings in *interior exit stairways* and *ramps* other than unprotected exterior openings shall be limited to those ~~necessary~~ required for *exit access* to the enclosure from normally occupied spaces and for egress from the enclosure.

Elevators shall not open into *interior exit stairways* and *ramps*.

Reason: The word "necessary" is subjective. However, the word "required" is more definitive and has been used throughout the code consistantly.

Cost Impact: Will not increase the cost of construction
This code change proposal will not increase cost of construction.

E 111-15 : 1023.4-MAIEL4690

E 112-15

1023.5; (IFC[BE] 1023.5)

Proponent: William Koffel, representing Firestop Contractors International Association (wkoffel@koffel.com)

2015 International Building Code

Revise as follows:

1023.5 Penetrations. Penetrations into or through *interior exit stairways* and *ramps* are prohibited except for equipment and ductwork necessary for independent ventilation or pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication <u>and security </u>systems and electrical raceway serving the *interior exit stairway* and *ramp* and terminating at a steel box not exceeding 16 square inches (0.010 m^2). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communication openings, whether protected or not, between adjacent *interior exit stairways* and *ramps*.

> **Exception:** Membrane penetrations shall be permitted on the outside of the *interior exit stairway* and *ramp*. Such penetrations shall be protected in accordance with Section 714.3.2.

Reason: Building security systems, including cameras in stairways, are becoming more prevalent. If properly protected, a limited number of penetrations for security systems will not result in an unacceptable level of safety. NFPA 101-2015 requires stairway video monitoring in high-rise buildings having an occupant load of 4,000 or more persons.

Cost Impact: Will not increase the cost of construction
The proposed language addressed a limitation in the code regarding security systems being able to penetrate exit enclosures. If anything, the cost of construction will be decreased by allowing an acceptable way for installing such systems.

E 112-15 : 1023.5-KOFFEL4844

E 113-15

1023.5, 1024.6; (IFC[BE] 1023.5, 1024.6)

Proponent: William King, City of Alexandria, representing Virginia Building Code Officials Association (william.king@alexandriava.gov)

2015 International Building Code

Revise as follows:

1023.5 Penetrations. Penetrations into or through *interior exit stairways* and *ramps* are prohibited except for equipment and ductwork necessary for independent ventilation or pressurization, ~~sprinkler piping~~*fire protection systems*, ~~standpipes~~two-way communication systems, electrical raceway for fire department communication systems and electrical raceway serving the *interior exit stairway* and *ramp* and terminating at a steel box not exceeding 16 square inches (0.010 m^2). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communication openings, whether protected or not, between adjacent *interior exit stairways* and *ramps*.

> ~~**Exception:** Membrane penetrations shall be permitted on the outside of the *interior exit stairway* and *ramp*. Such penetrations shall be protected in accordance with Section 714.3.2.~~

1024.6 Penetrations. Penetrations into or through an *exit passageway* are prohibited except for equipment and ductwork necessary for independent pressurization, ~~sprinkler piping~~*fire protection systems*, ~~standpipes~~two-way communication systems, electrical raceway for fire department communication and electrical raceway serving the *exit passageway* and terminating at a steel box not exceeding 16 square inches (0.010 m^2). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communicating openings, whether protected or not, between adjacent *exit passageways*.

> ~~**Exception:** Membrane penetrations shall be permitted on the outside of the *exit passageway*. Such penetrations shall be protected in accordance with Section 714.3.2~~.

Reason: The purpose of these two code sections are to protect the integrity of the exit enclosure and allow for safe egress for the occupants. The current exceptions, first included in the 2012 IBC, as written put the integrity of the exit enclosure at risk.
The reason statement for the creation of this exception in the 2012 code stated:

"As currently written, a pull station next to a door into the stair, fire hose cabinets, fire extinguisher cabinets, request-to-exit devices related to access control locks, notification appliances, etc., are not permitted on the outside of the exit enclosure. This exceptions needs to clarify the intent of Sections 1022.4 and 1023.6".

The commentary for this section of the code states the following:

"The intent is to maintain the integrity of the enclosure for the exit access stairway."

"The exception allows for electrical boxes, "Exit" signs or fire alarm pull stations to be installed on the outside of the enclosure provided that the boxes are installed so that the required fire-resistance rating is not reduced."

The exception as it currently exists is significantly broader than just addressing those items. Using the exception, any and all items can penetrate the membrane of an exit enclosure without limitation to size or quantity as long as they are part of a tested penetration. This puts the exit enclosure at significant risk and degrades the overall safety afforded by an exit enclosure. As the code continues to reduce the times in which a rated exit enclosure is provided, the protection of these enclosures becomes even more critical to the safety of the building's occupants.

The current proposal looks to remove the blanket allowance for any system to be placed in the exit enclosure assembly. The inclusion of additional items in the main text of the section is designed to address the items noted as the basis for the original code change, but would keep the rated exit enclosure wall from being used as a chase for plumbing, fuel gas, med gas, low voltage wiring and any of the other myriad of hazards the current exception would allow.

Cost Impact: Will increase the cost of construction
This change would not allow the rated exit enclosure wall to be used as a chase for building services. This may require an additional chase to be constructed.

E 113-15 : 1023.5-KING3314

E 114-15

1023.11; (IFC[BE] 1023.11)

Proponent: Christopher Moran, Jensen Hughes, representing Airport Traffic Control Tower Technical Working Group (cmoran@jensenhughes.com); Eric Rosenbaum, Jensen Hughes, representing Airport Traffic Control Tower Fire/Life Safety Technical Working Group (erosenbaum@jensenhughes.com)

2015 International Building Code

Revise as follows:

1023.11 Smokeproof enclosures. Where required by Section 403.5.4 ~~or~~, 405.7.2, or 412.3.2, *interior exit stairways* and *ramps* shall be *smokeproof enclosures* in accordance with Section 909.20.

Reason: Section 412.3.2 requires smokeproof enclosures for air traffic control tower stairs and refers to section 1023.11 but section 1023.11 does not reference back to 412.3.2 as it does for high-rise buildings (403.5.4) and underground buildings (405.7.2). This change is proposed to reduce potential confusion from the lack of the reference statement in 1023.11. The current code requirement from 412.3.2 is included below for reference.

> **412.3.2 Stairways.** Stairways in airport traffic control towers shall be in accordance with Section 1011. Stairways shall be smokeproof enclosures complying with one of the alternatives provided in Section 909.20.
>
> **Exception:** Stairways in airport traffic control towers are not required to comply with Section 1011.12.

Cost Impact: Will not increase the cost of construction
This proposal only reduces potential confusion and clarifies the intent of the code. No cost impact is associated with this change.

E 114-15 : 1023.11-MORAN5073

E 115-15

1023.12 (New), 1024.8 (New), 1026.5 (New); (IFC[BE] 1023.12 (New), 1024.8 (New), 1026.5 (New))

Proponent: Lee Kranz, City of Bellevue, WA, representing Washington Association of Building Officials Technical Code Development Committee

2015 International Building Code

Add new text as follows:

1023.12 **Standpipes.** Standpipes and standpipe hose connections shall be provided in accordance with Sections 905.3 and 905.4.

1024.8 **Standpipes.** Standpipes and standpipe hose connections shall be provided in accordance with Sections 905.3 and 905.4.

1026.5 **Standpipes.** Standpipes and standpipe hose connections shall be provided in accordance with Sections 905.3 and 905.4.

Reason: Placing references to Sections 905.3 and 905.4 standpipe requirements for interior exit stairways & ramps (Section 1023), exit passageways (Section 1024) and horizontal exits (Secion 1026) will help designers and reviewers to include this requirement early in the building design process. During the means of egress design process, the requirement for standpipes for interior exit stairways/ramps, exit passageways and horizontal exits are frequently overlooked and may have significant cost impacts to correct later during construction. Including the standpipe references will make the design team aware of the requirement early in the design process and help insure cost impacts are considered at the appropriate time.

Cost Impact: Will not increase the cost of construction
This code change will save money by providing a reminder to designers and plan reviewers to check for the need for standpipes when the design includes interior exit stairways or ramps, exit passageways and horizontal exits.

E 115-15 : 1023.12 (New)-KRANZ3768

E 116-15

403.5.5, 1025; (IFC[BE] 1025)

Proponent: Victor Cuevas, representing City of Los Angeles

2015 International Building Code

Delete without substitution:

~~**403.5.5 Luminous egress path markings.** Luminous egress path markings shall be provided in accordance with Section 1025.~~

~~**SECTION1025 LUMINOUS EGRESS PATH MARKINGS**~~

Revise as follows:

~~**1025.1**~~ **403.5.5 General.** *Approved* luminous egress path markings delineating the exit path shall be provided in *high-rise buildings* of Group A, B, E, I, M, and R-1 occupancies in accordance with Sections ~~1025.1~~ 403.5.5 through ~~1025.5~~ 403.5.5.4.

> **Exception:** Luminous egress path markings shall not be required on the *level of exit discharge* in lobbies that serve as part of the exit path in accordance with Section 1028.1, Exception 1.

~~**1025.2**~~ **403.5.5.1 Markings within exit components.** Egress path markings shall be provided in *interior exit stairways*, *interior exit ramps* and *exit passageways*, in accordance with Sections ~~1025.2.1~~ 403.5.5.1.1 through ~~1025.2.6~~ 403.5.5.1.6.

~~**1025.2 .1**~~**403.5.5.1.1 Steps.** *No change to text*

~~**1025.2.2**~~ **403.5.5.1.2 Landings.** *No change to text*

~~**1025.2.3**~~ **403.5.5.1.3 Handrails.** *No change to text*

~~**1025.2.4**~~ **403.5.5.1.4 Perimeter demarcation lines.** *No change to text*

~~**1025.2.4.1**~~ **403.5.5.1.4.1 Floor-mounted demarcation lines.** *No change to text*

~~**1025.2.4.2**~~ **403.5.5.1.4.2 Wall-mounted demarcation lines.** *No change to text*

~~**1025.2.4.3**~~ **403.5.5.1.4.3 Transition.** *No change to text*

~~**1025.2.5**~~ **403.5.5.1.5 Obstacles.** *No change to text*

~~**1025.2.6**~~ **403.5.5.1.6 Doors within the exit path.** Doors through which occupants must pass in order to complete the exit path shall be provided with markings complying with Sections ~~1025.2.6.1~~ 403.5.5.1.6.1 through ~~1025.2.6.3~~ 403.5.5.1.6.3.

~~**1025.2.6.1**~~ **403.5.5.1.6.1 Emergency exit symbol.** *No change to text*

~~**1025.2.6.2**~~ **403.5.5.1.6.2 Door hardware markings.** *No change to text*

~~**1025.2.6.3**~~ **403.5.5.1.6.3 Door frame markings.** *No change to text*

~~**1025.3**~~ **403.5.5.2 Uniformity.** *No change to text*

~~**1025.4**~~ **403.5.5.3 Self-luminous and photoluminescent.** *No change to text*

~~**1025.5**~~ **403.5.5.4 Illumination.** *No change to text*

Reason: These requirements best fit in Section 403 where other "High Rise" requirements are found.

Cost Impact: Will not increase the cost of construction
There is not change in requirements.

E 116-15 : 1025-CUEVAS4830

E 117-15

1025.1; (IFC[BE] 1025.1)

Proponent: John Williams, CBO, CBO, Chair, Adhoc Healthcare Committee, representing Adhoc Health Care Committee (AHC@iccsafe.org); Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

1025.1 General. *Approved* luminous egress path markings delineating the exit path shall be provided in *high-rise buildings* of Group A, B, E, ~~I~~I-1, I-3, I-4, M, and R-1 occupancies in accordance with Sections 1025.1 through 1025.5.

> **Exception:** Luminous egress path markings shall not be required on the *level of exit discharge* in lobbies that serve as part of the exit path in accordance with Section 1028.1, Exception 1.

Reason: The intent of this proposal is to delete Group I-2 from the facilities that require luminous egress path markings. Hospitals and nursing homes have trained staff that operate with a defend-in-place strategy for fires. The emergency generators are continually monitored and maintained, so the change of the emergency egress lighting required in the means of egress (Section 1008) failing is extremely minimal. Requiring egress path marking is the stairways in high-rise hospitals and nursing homes is a redundant feature that is costly and unnecessary.
In addition, the hospitals will have the emergency lighting on their emergency generator, not just battery power. For the stripes to be utilized, both the general means of egress lighting and the emergency lighting has to have failed.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
The deletion of luminous egress markings will be a saving in initial construction, maintenance cost of the markings and a savings in energy if the lights do not have to stay on.

E 117-15 : 1025.1-WILLIAMS4232

E 118-15

1025.1 (IFC[BE] 1025.1)

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

1025.1 General. *Approved* luminous egress path markings delineating the exit path shall be provided in *high-rise buildings* of Group A, B, E, ~~I~~I-1, I-2, I-3, M, and R-1 occupancies in accordance with Sections 1025.1 through 1025.5.

> **Exception:** Luminous egress path markings shall not be required on the *level of exit discharge* in lobbies that serve as part of the exit path in accordance with Section 1028.1, Exception 1.

Reason: The intent of this proposal is to delete Group I-4 from the facilities that require luminous egress path markings. The current provisions appear to have been written for single occupancy buildings in mind. While there could be a day care in a high rise building, there is no justification for the presence of a small Group I-4 in a building to require photoluminescent stripes throughout.
Perhaps additional clarification is needed for mixed use buildings and when luminous egress path markings should be required, however, that is outside the scope of the CTC Care committees, so nothing is proposed at this time.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This will eliminate a requirement for luminous egress path markings in buildings that had a day care but were not one of the use groups named.

E 118-15 : 1025.1-BALDASSARRA4290

E 119-15

1025.1; (IFC[BE] 1025.1)

Proponent: Robert Davidson, Davidson Code Concepts, LLC, representing Davidson Code Concepts, LLC (rjd@davidsoncodeconcepts.com)

2015 International Building Code

Revise as follows:

1025.1 General. *Approved* luminous egress path markings delineating the exit path shall be provided in *high-rise buildings* of Group A, B, E,~~I~~ I-1, I-2, I-4, M, and R-1 occupancies in accordance with Sections 1025.1 through 1025.5.

> **Exception:** Luminous egress path markings shall not be required on the *level of exit discharge* in lobbies that serve as part of the exit path in accordance with Section 1028.1, Exception 1.

Reason: The intent of this proposal is to delete Group I-3 from the facilities that require luminous egress path markings. Jails have trained staff that operate with a defend-in-place strategy for fires. The emergency generators are continually monitored and maintained, so the change of the emergency egress lighting required in the means of egress (Section 1008) failing is extremely minimal. Requiring egress path marking is the stairways in high-rise jails is a redundant feature that is costly and unnecessary.

Cost Impact: Will not increase the cost of construction
The deletion of luminous egress markings will be a saving in initial construction, maintenance cost of the markings and a savings in energy if the lights do not have to stay on.

E 119-15 : 1025.1-DAVIDSON4226

E 120-15

1025.2.5; (IFC[BE] 1025.2.5)

Proponent: Manny Muniz, representing self (Mannymuniz.mm@gmail.com)

2015 International Building Code

Revise as follows:

1025.2.5 Obstacles. Obstacles at or below 6 feet 6 inches (1981 mm) in height and projecting more than 4 inches (102 mm) into the egress path shall be outlined with markings not less than 1 inch (25 mm) in width comprised of a pattern of alternating equal bands, of luminous material and black, with the alternating bands not more than 2 inches (51 mm) thick and angled at 45 degrees (0.79 rad). Obstacles shall include, but are not limited to, standpipes, hose cabinets, wall projections and restricted height areas. However, such markings shall not conceal any required information or indicators including but not limited to instructions to occupants for the use of standpipes.

Exception: The minimum width of 1 inch (25 mm) shall not apply to markings listed in accordance with UL 1994.

Reason: Sections 1025.2.1 steps, 1025.2.3 handrails, and 1025.2.4 perimeter demarcation lines, all provide an exception to the minimum width of 1 inch when the step, handrail and perimeter demarcation lines are listed in accordance with UL 1994, a performance standard. This exception should also apply to Section 1025.2.5 for obstacle markings as the performance has been evaluated and validated by UL 1994.

Cost Impact: Will not increase the cost of construction
This exception will simply provide an equivalent method of compliance similar to what is already provided for in 1025.2.1, 1025.2.3 and 1025.2.4.

E 120-15 : 1025.2.5-MUNIZ5706

E 121-15

1025.4, 1025.4.1(New). 1025.4.1.1(New), 1025.4.1.2(New), 1025.4.1.3(New); (IFC[BE] 1025.4, 1025.4.1(New). 1025.4.1.1(New), 1025.4.1.2(New), 1025.4.1.3(New))

Proponent: Lee Devito, FIREPRO Incorporated, representing FIREPRO Incorporated (ldevito@fireproincorporated.com)

2015 International Building Code

Revise as follows:

1025.4 Self-luminous and photoluminescent. Luminous egress path markings shall be permitted to be made of any material, including paint~~, provided that an electrical charge is not required to maintain the required luminance~~. Such materials shall include, but not be limited to, *self-luminous* materials ~~and~~, *photoluminescent* materials and electroluminescent materials. Materials shall comply with either of the following standards:

1. UL 1994.
2. ASTM E 2072, except that the charging source shall be 1 footcandle (11 lux) of fluorescent illumination for 60 minutes, and the minimum luminance shall be 30 milicandelas per square meter at 10 minutes and 5 milicandelas per square meter after 90 minutes.

Add new text as follows:

1025.4.1 Electroluminescent materials. Electroluminescent materials shall be powered by at least two independent and reliable power supplies in accordance with Sections 1025.4.1.1 and 1025.4.1.2 and supervised in accordance with Section 1025.4.1.3.

1025.4.1.1 Primary power source. The primary power supply shall be a branch circuit supplying no other loads and shall be supplied from a commercial light and power source, or an equivalent source acceptable to the authority having jurisdiction.

1025.4.1.2 Secondary power source. The seconday power source shall automaticaly provide power to the electroluminescent system within 10 seconds whenever the primary power supply fails to provide the minimum voltage required for proper operation.

1025.4.1.3 Supervision. Electroluminescent materials shall be supervised by the building fire alarm contol system, and the fire alarm control system shall provide a supervisior signal when a supervisory condition occurs. Supervisory conditions shall be loss of power to the electroluminescent system and breakage of the electroluminescent materials.

Reason: The intent of the Building Code is described in Section 101.3 Intent:

> The purpose of this code is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, sanitation, adequate light and ventilation, energy conservation, and safety to life and property from fire and other hazards attributed to the built environment and to provide safety to fire fighters and emergency responders during emergency operations.

The key information in the Section 101.3 Intent is to provide "minimum requirements".

> ASTM E 2072 establishes a minimum requirement for photometric requirements for newly applied photoluminescent safety materials used to provide supplemental markings of escape routes. It requires that ten minutes after it is activated that it have a photopic luminance of 20.0 millicandelas per square meter at ten minutes and 2.8 millicandelas per square meter at sixty minutes.
>
> The deterioration of the light level of photoluminescent materials essentially establishes a time limit for the lighting from luminous path marking equipment of sixty minutes as the minimum requirement. Additionally, ASTM E 2072 specification does not cover potentially diminished performance due to wear and tear or aging, so the actual operating time may vary.

Where the building code establishes minimum requirements, the building owner may wish to go beyond the minimum requirements and establish a higher design standard. With the requirement that the egress path marking product can only be self-luminous materials and photoluminescent materials, minimum path marking illumination time is set at 60 minutes, and because of the deterioration of the photoluminescent material it also sets the maximum illumination time as also 60 minutes.

The National Institute of Standards and Technology, Technology Asminsitration of the U.S. Department of Commerce published the report "NIST Response to the World Trade Center Disaster", Federal; Building and Fire Safety Investigation of the World Trade Center Disaster, Part IV - Life safety on April 5, 2005. Based on interviews with responding personnel it was determined that it took 125 minutes for firefighters carrying equipment and not wearing PPE 125 minutes to climb 58 floors, and for firefighters carrying no equipment and not wearing PPE it toook 90 minutes to climb to the 58th floor. Using photoluminescent material for the luminous egress path markings, the light developed by the photoluminescent material will be deleted in the observed climbing time.

The building owner may desire to have the luminous path marking equipment operate for a longer time frame. That may be because the building owner's desires to have the capability to provide longer egress path lighting if the building egress may take longer than sixty minutes, or that there is a desire to provide longer lighting for the firefighters and emergency responders. Because of their deterioration properties, photoluminescent materials may not be able to provide a longer time frame for illumination that may be appropriate for the building owners desires.

Electrical systems provide the building management with more flexibility with the operaton of the exit path marking systems. Using a commercial power source the egress path marking system can be illuminated continuously. Also, battery backup can be adjusted so that when the commercial power is eliminated the batteries can provide an operating time much longer than the sixty minutes that would be provided by photoluminescent material. This can be selected at the time of the system design by the building owner.

Electrical systems do not need backup lighting which will allow building managers to control the building lighting systems in the egress path.

Furthermore, energy savings and Green/LEEDS requirements (for example through the use of motion sensor lighting) may be further achieved with electroluminescent materials, as separate continuously operational light sources for photoluminescent systems are not required for charging the proposed electroluminescent systems.

A later section of this code, 1024.5 Illumination, requires that means of egress path marking systems that use independent illumination for charging of photoluminescent exit path markings is rquired to be operational for at least 60 minutes prior to periods when the building is occupied. Electro luminescent exit path markings would not require this, relieving the energy usage burden on the building.

Electrical systems can be operated at any time since they have available power and they are protected with battery standby support. Therefore, the building management can utilize the electrical systems when ever there is an alarm activity or other situation in the buildig, whether the building power is available or not. Selfluminous and photoluminescent materials only provide lighting when the background lighting is limited.

Electrical systems are supervised so the building management will know that there is a problem. Self-luminous materials and photoluminescent materials are not supervised, so they can be damaged or removed and no one is notified until a manual check is perfomed on the system. Whereas, the path marking systems are required in some high-rise building , manual inspection will be time consuming and possibly burdonsosme, which may mean that self-luminous or photoluminescent systems may not be inspected.

The management can utilize the flexibility of the electrical system to provide further information on the availability or disruption of an egress path. Potentially by not turning on the egress path marking system in an egress path that has been interupted, it can allow the evacuees to change the egress path they are using.

Code Impact: If an adoptive organization does not agree with the use of electroluninescent technology, then through an amendment policy they can delete those sections that relate to electroluminescent technology. This allows adoptive organizations the opportunity to allow electroluninescent technology.

Bibliography: "NIST Response to the World Trade Center Disaster", Federal; Building and Fire Safety Investigation of the World Trade Center Disaster, Part IV - Life safety on April 5, 2005, pages 33 & 34

Cost Impact: Will not increase the cost of construction
The requirement for path marking already exists, therefore there would be no additional cost impact. This approach provides an option that allows building owners to choose equivalent systems that provide more features for the end user.

E 121-15 : 1025.4-DEVITO3601

E 122-15

1025.4; (IFC[BE] 1025.4)

Proponent: Manny Muniz, representing self (Mannymuniz.mm@gmail.com)

2015 International Building Code

Revise as follows:

1025.4 Self-luminous and photoluminescent. Luminous egress path markings shall be permitted to be made of any material, including paint, provided that an electrical charge is not required to maintain the required luminance. Such materials shall include, but not be limited to, *self-luminous* materials and *photoluminescent* materials. Materials shall ~~comply~~ be listed in accordance with either of the following standards:

1. UL 1994.
2. ASTM E 2072, except that the charging source shall be 1 footcandle (11 lux) of fluorescent illumination for 60 minutes, and the minimum luminance shall be 30 milicandelas per square meter at 10 minutes and 5 milicandelas per square meter after 90 minutes.

Reason: Section 1025.4 only requires that materials comply with UL 1994 or ASTM E 2072, not that they actually be listed. When materials are only tested (no listing) for compliance with a test standard, the test samples can be submitted directly to the test agency by the manufacturer with no follow up Quality Control inspections, thus making it unclear as to what was actually tested and what is being manufactured and sold.
By contrast, materials that are tested and listed must be randomly selected by the testing lab to insure the integrity of the test results and requires follow up Quality Control inspections to insure that what is manufactured and sold is what was originally tested.

Underwriters Laboratory confirmed that "As you've noted, a test certificate can be issued without any subsequent product surveillance, leaving open the question of whether the installed product actually matches the tested product. For many products, an AHJ really has few tools to validate this. Listing programs are not foolproof but they do provide a pretty significant upgrade in confidence that someone other than a fox is watching the hen house."

Cost Impact: Will not increase the cost of construction
Regardless of whether an item is listed or not, the cost of the test is the same.

E 122-15 : 1025.4-MUNIZ5601

E 123-15

1026.4; (IFC[BE] 1026.4)

Proponent: Ronald Geren, RLGA Technical Services, LLC, representing Self (ron@specsandcodes.com)

2015 International Building Code

Revise as follows:

1026.4 Refuge area. The refuge area of a *horizontal exit* shall be a space occupied by the same tenant or a public area and each such refuge area shall be adequate to accommodate the original *occupant load* of the refuge area plus the *occupant load* anticipated from the adjoining compartment. The anticipated *occupant load* from the adjoining compartment shall be based on the capacity of the *horizontal exit doors* entering the refuge area<u>, but not more than the total occupant load of the adjoining compartment</u>.

Reason: If the total occupant load of the compartment egressing through the horizontal exit is less than the capacity of the horizontal exit door, the maximum capacity of the refuge area should not be more than the legal capacity of the compartment egressing.
For example, a standard 36-inch-wide door has a clear width of 33 inches. At 0.20" per occupant, the capacity of the door is 165 occupants. For sprinklered buildings at 0.15" per occupant, the load is even greater at 220 occupants. So, if the total occupant load on one side of the horizontal exit door is less than 165 for a nonsprinklered building, or less than 220 occupants for a sprinklered building, then the refuge area on the other side should only be required to accommodate the design occupant load and not the capacity of the door in the horizontal exit.

Cost Impact: Will not increase the cost of construction
The proposed change will actually relax the requirement. Thus, building owners can maximize the use of the floor area for their buildings without having to make floor areas usuable for refuge areas in order to accommodate more occupants than the area is legally permitted to have.

E 123-15 : 1026.4-GEREN5149

E 124-15

1026.4.1; (IFC[BE] 1026.4.1)

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Building Code

Revise as follows:

1026.4.1 Capacity. The capacity of the refuge area shall be computed based on a *net floor area* allowance of 3 square feet (0.2787 m^2) for each occupant to be accommodated therein. Where the horizontal exit also forms a smoke compartment, the capacity of the refuge area for Groups I-1, I-2 and I-3 occupancies and Group B ambulatory care facilities shall comply with Section 407.5.1, 408.6.2, 420.4.1 and 422.3.2 as applicable.

~~**Exceptions:** The *net floorarea* allowable per occupantshall beas follows for the indicated occupancies:~~

1. ~~Six square feet (0.6 m^2) per occupant for occupancies in Group I-3.~~
2. ~~Fifteen square feet (1.4 m^2) per occupant for ambulatory occupancies in Group I-2.~~
3. ~~Thirty square feet (2.8 m^2) per occupant for nonambulatory occupancies in Group I-2.~~

Reason: This proposal clarifies the capacity requirements for horizontal exit refuge areas for defend in place occupancies. Currently, the requirements for defend in place occupancies are located in the exception, rather than being located in the body of the text. Since the exception would be more restrictive than the section, we are suggesting moving the requirements by reference into the main body of the text. In addition, by a reference back to the refuge area capacities in Chapter 4, the provisions will always stay coordinated.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This is a reference to more specific requirements already in the code.

E 124-15 : 1026.4.1-WILLIAMS4244

E 125-15

1027.5; (IFC[BE] 1027.5)

Proponent: Victor Cuevas, representing City of Los Angeles

2015 International Building Code

Revise as follows:

1027.5 Location. *Exterior exit stairways* and *ramps* shall have a minimum fire separation distance of 10 feet (3048 mm) measured at right angles from the exterior edge of the *stairway* or *ramps*, including landings, to:

1. Adjacent *lot lines*.
2. Other portions of the building.
3. Other buildings on the same lot unless the adjacent building *exterior walls* and openings are protected in accordance with Section 705 based on *fire separation distance.*

For the purposes of this section, other portions of the building shall be treated as separate buildings.

<u>**Exception:** Exterior exit stairways and ramps shall be permitted to have a minimum fire separation distance of 5 feet (1524 mm), where a solid masonry or concrete wall is provided at the adjacent lot line or assumed property line. The wall shall be a minimum of 6 feet (1830 mm) in height and at least the same width as the exterior exit stairway or ramp.</u>

Reason: It's not practical to provide 10'-0" setback for stairs. The stairs usually come out of the building and exit next to the building. If stairs have to have 10' setback, the buildings themselves have to have 13'-14' setback. The exception provides equivalent protection.

Cost Impact: Will not increase the cost of construction
This is a design option.

E 125-15 : 1027.5-CUEVAS4831

E 126-15

1027.5, 1027.6; (IFC[BE] 1027.5, 1027.6)

Proponent: Ali Fattah, City of San Diego Development Services Department, representing City of San Diego (afattah@sandiego.gov)

2015 International Building Code

Revise as follows:

1027.5 Location. *Exterior exit stairways* and *ramps* shall have a minimum fire separation distance of 10 feet (3048 mm) measured at right angles from the exterior edge of the *stairway* or *ramps*, including landings, to:

1. Adjacent *lot lines*.
2. Other portions of the building.
3. Other buildings on the same lot unless the adjacent building *exterior walls* and openings are protected in accordance with Section 705 based on *fire separation distance.*

For the purposes of this section, other portions of the building shall be treated as separate buildings.

<u>**Exception:** Exterior exit stairways and ramps serving individual dwelling units of Group R-3 shall have a minimum fire separation distance of 5 feet.</u>

1027.6 Exterior exit stairway and ramp protection. *Exterior exit stairways* and *ramps* shall be separated from the interior of the building as required in Section 1023.2. Openings shall be limited to those necessary for egress from normally occupied spaces. Where a vertical plane projecting from the edge of an *exterior exit stairway* or *ramp* and landings is exposed by other parts of the building at an angle of less than 180 degrees (3.14 rad), the exterior wall shall be rated in accordance with Section 1023.7.

Exceptions:

1. Separation from the interior of the building is not required for occupancies, other than those in Group R-1 or R-2, in buildings that are not more than two stories above *grade plane* where a *level of exit discharge* serving such occupancies is the first story above *grade plane*.
2. Separation from the interior of the building is not required where the *exterior exit stairway* or *ramp* is served by an *exterior exitramp* or balcony that connects two remote *exterior exit stairways* or other *approved exits* with a perimeter that is not less than 50 percent open. To be considered open, the opening shall be not less than 50 percent of the height of the enclosing wall, with the top of the openings not less than 7 feet (2134 mm) above the top of the balcony.
3. Separation from the open-ended *corridor* of the building is not required for *exterior exit stairways* or *ramps*, provided that Items 3.1 through 3.5 are met:
   - 3.1. The building, including open-ended *corridors*, and *stairways* and *ramps*, shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
   - 3.2. The open-ended *corridors* comply with Section 1020.
   - 3.3. The open-ended *corridors* are connected on each end to an *exterior exit stairway* or *ramp* complying with Section 1027.
   - 3.4. The *exterior walls* and openings adjacent to the *exterior exit stairway* or *ramp* comply with Section 1023.7.
   - 3.5. At any location in an open-ended *corridor* where a change of direction exceeding 45 degrees (0.79 rad) occurs, a clear opening of not less than 35 square feet (3.3 m^2) or an *exterior stairway* or *ramp* shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or toxic gases.
4. <u>In Group R-3 occupancies not more than 4 stories in height, exterior exit stairways and ramps serving individual dwelling units are not required to be separated from the interior of the building where the exterior exit stairway or ramp discharges directly to grade.</u>

Reason: The proposed code change to Section 1027.5 adds an exception to limit the fire separation distance to 5 ft for an R-3 occupancy. The proposed exception # 4 to Section 1027.6 exempts an exterior exit stairway on up to a 4 story R-3 from being separated from the interior of a building. A four story R-3 should be the upper limit since the type of construction will have to be increased from type if more than 4 stories in height.
The IBC regulates Group R-3 occupancies, typically one dwelling or two dwellings units located within the same building when the building configuration is not within the scope of the International Residential Code. So Group R-3 occupancies more than three stories above grade plane andgroup R-3 occupancieswith 2 units using a common means of egress are required to comply with the IBC. Additionally, Townhouses that have a height of more than three stories above grade plane, and townhouses with only one side open to a pubic way also need to comply with the IBC.

The IBC in many instances exempts R-3 occupancies from means of egress requirements more appropriate for buildings with larger occupant loads and buildings with multiple tenant spaces/units sharing a common means of egress system.

- For example Section 1028.4.2 Exception # 2 exempts exit courts serving Group R-3 occupancies from exterior wall and opening protection requirements regardless of the occupant load served.
- Similarly Section 1019.3 Exception 2 exempts exit access stairways and ramps in Group R-3 occupancies from requirements that include enclosure requirements. Interior exit stairways within Group R-3 and within individual units classified as R-2 are not classified as exits since they are permitted to be exit access stairways per Section 1019.
- Another example is Section 1027.6 exception # 1 allows the exterior exit stairway not be protected from the interior of the buildings other than Group

R1 and R2 and 2 stories in height. The exeception recognizes a lesser hazard.

As a consequence it does not make sense to require a fire separation distance of 10 ft adjacent to an exterior stairway serving an individual unit in a Group R-3 occupancy. Additionally since stairways serving Group R-3 occupancies and individual units in Group R-2 are exempt from interior stairway enclosure requirements it makes no sense to separate the exterior stairway from the interior of the unit.

Cost Impact: Will not increase the cost of construction
This code change adds clarity to the code and codifies current practice of not requiring a separation from the dwelling unit. Additionally the reduced side yard increases buildable area.

E 126-15 : 1027.5-FATTAH4665

E 127-15

1028.1; (IFC[BE] 1028.1)

Proponent: William Koffel, Koffel Associates, Inc., representing Self (wkoffel@koffel.com)

2015 International Building Code

1028.1 General. *Exits* shall discharge directly to the exterior of the building. The *exit discharge* shall be at grade or shall provide a direct path of egress travel to grade. The *exit discharge* shall not reenter a building. The combined use of Exceptions 1 and 2 shall not exceed 50 percent of the number and minimum width or required capacity of the required exits.

Exceptions:

1. Not more than 50 percent of the number and minimum width or required capacity of *interior exit stairways* and *ramps* is permitted to egress through areas on the level of discharge provided all of the following conditions are met:
    1.1. Discharge of *interior exit stairways* and *ramps* shall be provided with a free and unobstructed path of travel to an exterior *exit* door and such ~~*exit*~~ path of travel is readily visible and identifiable from the point of termination of the enclosure.
    1.2. The entire area of the *level of exit discharge* is separated from areas below by construction conforming to the *fire-resistance rating* for the enclosure.
    1.3. The egress path from the *interior exit stairway* and *ramp* on the *level of exit discharge* is protected throughout by an *approved automatic sprinkler system*. Portions of the *level of exit discharge* with access to the egress path shall be either equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of *interior exit stairways* or *ramps*.
    1.4. Where a required *interior exit stairway* or *ramp* and an *exit access stairway* or *ramp* serve the same floor level and terminate at the same *level of exit discharge*, the termination of the *exit access stairway* or *ramp* and the *exit discharge* door of the *interior exit stairway* or *ramp* shall be separated by a distance of not less than 30 feet (9144 mm) or not less than one-fourth the length of the maximum overall diagonal dimension of the building, whichever is less. The distance shall be measured in a straight line between the *exit discharge* door from the *interior exit stairway* or *ramp* and the last tread of the *exit access stairway* or termination of slope of the *exit access ramp*.
2. Not more than 50 percent of the number and minimum width or required capacity of the *interior exitstairways* and *ramps* is permitted to egress through a vestibule provided all of the following conditions are met:
    2.1. The entire area of the vestibule is separated from areas below by construction conforming to the *fire-resistance rating* of the *interior exit stairway* or *ramp enclosure*.
    2.2. The depth from the exterior of the building is not greater than 10 feet (3048 mm) and the length is not greater than 30 feet (9144 mm).
    2.3. The area is separated from the remainder of the *level of exit discharge* by a *fire partition* constructed in accordance with Section 708.
    2.4. The area is used only for *means of egress* and *exits* directly to the outside.
    Exception: The maximum transmitted temperature rise is not required.
3. *Horizontal exits* complying with Section 1026 shall not be required to discharge directly to the exterior of the building.

Reason: Proposal E140-07/08 revised the text of the 2006 Edition of the IBC to require that the exit be visible from the discharge of the exit enclosure instead of the path of travel being visible and identifiable. The Commentary to the 2006 Edition of the IBC had similar language regarding the exit being visible. As the original proponent of the language in this section, I challenged the Commentary language and ICC Staff acknowledged that the Commentary was in error.
The Proponent of E140-07/08 described a scenario wherein the "path winds through various areas on the level of exit discharge." It should be noted that the same path would be taken by an occupant who is on the level of exit discharge at the point the stair discharges. The path is the exit access route for that occupant. If the path is acceptable as part of the exit access from that level, why is it not also acceptable for an occupant who discharges the stair into a space that is protected with an automatic sprinkler system.

The current Code text is overly restrictive by requiring that the exterior exit door itself be readily visible from the stair discharge. The current language essentially eliminates any arrangement in which the stair would discharge into a corridor unless once one enters the corridor they can immediately see the exterior door from that point. The key performance is that the occupant can effectively identify the path of travel to be taken upon arrival at the level of exit discharge.

The Proponent of E140-07/08 cited no incidents in with the existing Code text at the time presented any problems in effectively egressing from the building despite that text existing in previous codes for decades.

Cost Impact: Will not increase the cost of construction
By providing additional flexibility, the proposal will result in a reduction in the cost of construction for projects attempting to utilze the provisions.

E 127-15 : 1028.1-KOFFEL5004

E 128-15

403.5.1, 1028.1, 1028.2; (IFC[BE] 1028.1, 1028.2)

Proponent: Ali Fattah, City of San Diego Development Services Department, representing City of San Diego

2015 International Building Code

Revise as follows:

1028.1 General. *Exits* shall discharge directly to the exterior of the building. The *exit discharge* shall be at grade or shall provide a direct path of egress travel to grade. The *exit discharge* shall not reenter a building. The combined use of Exceptions 1 and 2 shall not exceed 50 percent of the number and minimum width or required capacity of the required exits.

Exceptions:

1. Not more than 50 percent of the number and minimum width or required capacity of *interior exit stairways* and *ramps* is permitted to egress through areas on the level of discharge provided all of the following conditions are met:
   1.1. Discharge of *interior exit stairways* and *ramps* shall be provided with a free and unobstructed path of travel to an exterior *exit* door and such *exit* is readily visible and identifiable from the point of termination of the enclosure.
   1.2. The entire area of the *level of exit discharge* is separated from areas below by construction conforming to the *fire-resistance rating* for the enclosure.
   1.3. The egress path from the *interior exit stairway* and *ramp* on the *level of exit discharge* is protected throughout by an *approved automatic sprinkler system*. Portions of the *level of exit discharge* with access to the egress path shall be either equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of *interior exit stairways* or *ramps*.
   1.4. Where a required *interior exit stairway* or *ramp* and an *exit access stairway* or *ramp* serve the same floor level and terminate at the same *level of exit discharge*, the termination of the *exit access stairway* or *ramp* and the *exit discharge* door of the *interior exit stairway* or *ramp* shall be separated by a distance of not less than 30 feet (9144 mm) or not less than one-fourth the length of the maximum overall diagonal dimension of the building, whichever is less. The distance shall be measured in a straight line between the *exit discharge* door from the *interior exit stairway* or *ramp* and the last tread of the *exit access stairway* or termination of slope of the *exit access ramp*.
   1.5. Where two or more required interior exit stairways or ramps provide means of egress from the same story and discharge through the same story at the level of exit discharge, the exit discharge doors from such interior exit stairways or ramps shall be separated by a distance of not less than 30 feet (9144 mm) or not less than one-fourth the length of the maximum overall diagonal dimension of the building, whichever is less. The distance shall be measured in a straight line between the exit doorways from such interior exit stairway or ramp.
2. Not more than 50 percent of the number and minimum width or required capacity of the *interior exitstairways* and *ramps* is permitted to egress through a vestibule provided all of the following conditions are met:
   2.1. The entire area of the vestibule is separated from areas below by construction conforming to the *fire-resistance rating* of the *interior exit stairway* or *ramp enclosure*.
   2.2. The depth from the exterior of the building is not greater than 10 feet (3048 mm) and the length is not greater than 30 feet (9144 mm).
   2.3. The area is separated from the remainder of the *level of exit discharge* by a *fire partition* constructed in accordance with Section 708.
   2.4. The area is used only for *means of egress* and *exits* directly to the outside.
   Exception: The maximum transmitted temperature rise is not required.
3. *Horizontal exits* complying with Section 1026 shall not be required to discharge directly to the exterior of the building.

1028.2 Exit discharge width or capacity and seperation. The minimum width or required capacity of the *exit discharge* shall be not less than the minimum width or required capacity of the *exits* being served. Where more than one exit is required, the path of travel for the exit discharge shall be arranged to comply with the required separation determined in Section 1007.

403.5.1 Remoteness of interior exit stairways. Required *interior exit stairways* shall be separated by a distance not less than 30 feet (9144 mm) or not less than one-fourth of the length of the maximum overall diagonal dimension of the building or area to be served, whichever is less. The distance shall be measured in a straight line between the nearest points of the enclosure surrounding the *interior exit stairways*. In buildings with three or more *interior exit stairways,* no fewer than two of the *interior exit stairways* shall comply with this section. Interlocking or *scissor stairways* shall be counted as one *interior exit stairway*. Where two or more *interior exit stairways* egress through interior areas on the level of exit discharge, the required separation for the exit discharge shall be in accordance with Section 1028.

Reason: Code change # E7-12/13 submitted by the ICC Code Technology Committee added exception # 1.4 to Section 1027.1 Exception 1 (now 1028.1 Exception 1)
The reason statement of the code change on page E-58 of the code change monograph states " 1027.1 exception #1.4-This limitation is proposed to prevent

an exit access stair and separate exit stair, which begin on the same floor, from termination to close together on the exit discharge floor. This is proposed so that one localized fire event on the exit discharge floor will not take out the termination of both means of egress components when an exit stair is permitted to discharge into the building. The 30 feet or ¼ diagonal separation distances were based on the 30 feet or ¼ diagonal that is specified for separation of interior stairways in high-rise section 403.5.1."

The ICC Code Technology Committee code change does not address maintaining separation of exits when Section 1028.1 Exception 1 permits more than one interior exit stairway to discharge through areas of the story on the level of exit discharge. Condition 1.5 is added to exception # 1 to be consistent with the code's intent that unprotected paths be separated, this condition ensures that the doorways are adequately separated to prevent both from being compromised, this condition may occur in public assembly buildings where 4 or more exits are required or large buildings where travel distance needs to be limited with exits. Egress elements can be compromised by more than fire, they can be compromised by falling debris, fire fighting operations, etc..

Section 1028.2 is modified to address separation of the means of in the exit discharge. The exit discharge includes elevated courts on podium style buildings with multiple buildings atop of a large base, exit courts, and while not called exit discharge ground floor lobbies through which interior exit stairways pas to reach the public way or exterior exit discharge. While the IBC does not consider multiple fire scenarios egress paths that converge when exterior exit doorways from an exit passageway or exit enclosure terminate adjacent to an exterior exit doorway. The means of egress requirements in Chapter 10 of the IBC have their origins in the NFPA 101 life safety. Section 7.7.3.1 of the 2015 Life Safety Code requires that means of egress in the exit discharge be separated. Without the proposed change to Section 1028.2 the IBC will continue to allow converging paths for example when a rear exit discharges to a rear yard that accesses a public way on a side opposite the court via a perpendicular exit court and the path converges with the front exit from a building when arriving at the public way. Another example is where multiple stairways terminate at a ground floor and are served by one group of lobby doors.

Section 1028.2 currently only requires the width be maintained and exterior exit discharge elements are required to be protected from a building and in some cases from adjacent lot lines. It can be assumed that the IBC does not believe that the exit discharge is as safe as the public way, whether it be within the ground floor lobby of a high rise building or the 6 ft wide exit court serving 300 occupants from an auditorium or theater. The Life Safety Code recognizes this omission and addresses exit separation do to the hazards that exist in the exit discharge.

Cost Impact: Will not increase the cost of construction
This code change may increase the cost of construction of narrow sites by limiting the size and intensity of the development to require only 1 exit or to reduce the footprint of a building. this code change is necessary to improve public safety.

E 128-15 : 1028.1-FATTAH4700

E 129-15

1028.4, 1028.4.1; (IFC[BE] 1028.4, 1028.4.1)

Proponent: Jon Siu, representing City of Seattle Department of Planning & Development (jon.siu@seattle.gov)

2015 International Building Code

Revise as follows:

1028.4 Egress courts. *Egress courts* serving as a portion of the *exit discharge* in the *means of egress* system shall comply with the requirements of Sections 1028.4.1 ~~and 1028.4.2.~~through 1028.4.3.

1028.4.1 Width or capacity.
The required capacity of *egress courts* shall be determined as specified in Section 1005.1, but the minimum width shall be not less than 44 inches (1118 mm), except as specified herein. *Egress courts* serving Group R-3 and U occupancies shall be not less than 36 inches (914 mm) in width. The required capacity and width of *egress courts* shall be unobstructed to a height of 7 feet (2134 mm).

Exception: Encroachments complying with Section 1005.7. 1028.4.2 1028.3.2 Constrution and openings.

1028.4.2 Reduction in width. Where an *egress court* exceeds the minimum required width and the width of such *egress court* is then reduced along the path of exit travel, the reduction in width shall be gradual. The transition in width shall be affected by a guard not less than 36 inches (914 mm) in height and shall not create an angle of more than 30 degrees (0.52 rad) with respect to the axis of the *egress court* along the path of egress travel. The width of the *egress court* shall not be less than the required capacity.

Exception: The reduction in width is not required to be gradual where the width of the walking surface at any point of the exit court is not less than 1.5 times the required capacity.

(Renumber subsequent sections)

Reason: This proposal is intended to provide an alternative to the "funnel" required in exit courts. There are many cases where an exit discharges into a very wide plaza, which then has a stair or gate at one end that leads to the public way. Under the current provisions in the code, a guard of unspecified length would have to be provided to reduce the width gradually. This is regardless of the width of the plaza, the number of occupants, or the actual width of the stair or gate. Our understanding is the intent is to reduce the hazards of crushing or bottlenecking at a sudden change of width, but the hazard should be low if the actual width provided is substantially larger than required for the number of occupants.
The code also appears to assume the entire width of the exit court is a walking surface that can be used for egress purposes. In our experience, this is rarely the case. Many times, landscaping is required in side yards where the exit courts are located. The landscaping can be vegetation that is planted at the ground level, or for the plazas mentioned above, may be in raised planters. This proposal makes sure a real exit capacity is maintained when the funnel is eliminated, by specifying the walking surface must be wide enough to accommodate the required extra capacity.

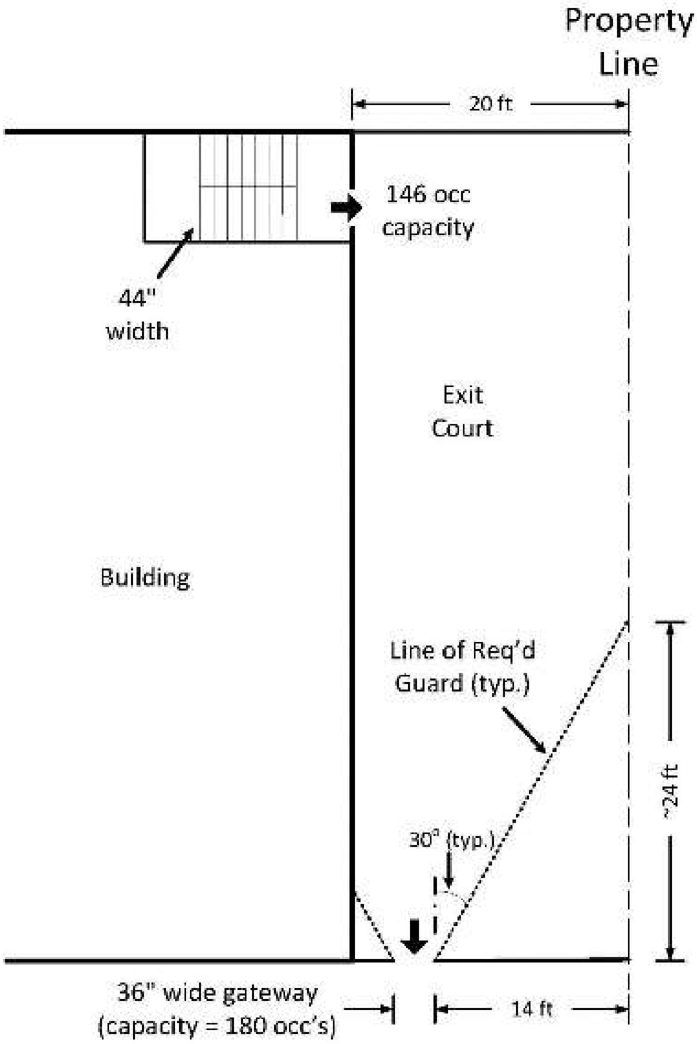


Figure 1.A

Figure 1.A shows an example of how the current code can be interpreted. A stair with the minimum 44-inch width required by the code (capacity = 44/0.3 = 146 occupants) discharges into a 20-foot wide exit court. The exit court has a 36-inch wide gateway at the front property line (capacity = 36/0.2 = 180 occupants). The current code can be interpreted to require the width to be reduced by guards at 30 degrees as shown in the figure. If one interprets the code to say that the guard must extend from the reduced section (the 36" gateway) to the widest point of the court (20'), and taking into account a 3-foot offset of the gateway, the result is a guard that extends to a point approximately 24 feet from the front property line.

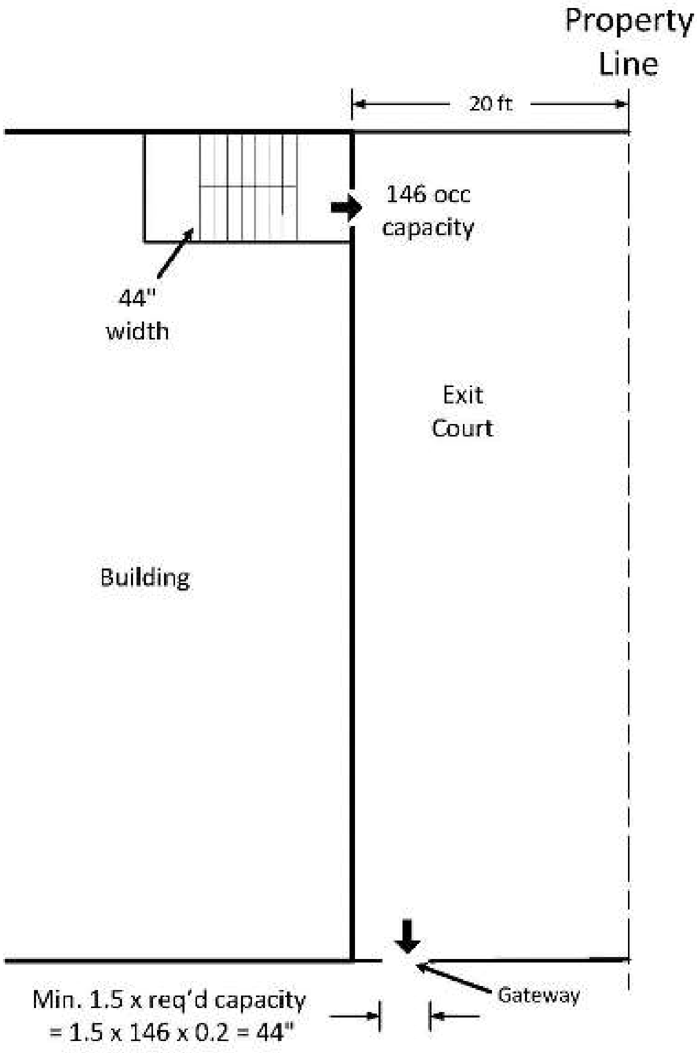


Figure 1.B

Figure 1.B shows the results if the designer opts for alternative being proposed. The gateway is now required to be 44 inches wide, but the guard is no longer required.

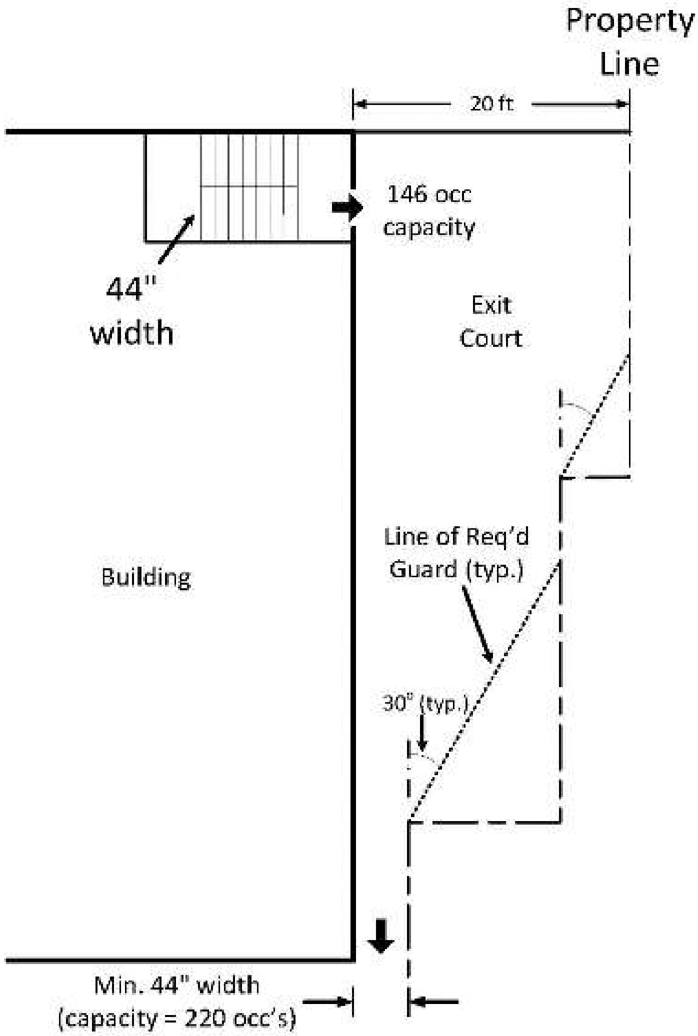


Figure 2.A

Figure 2.A depicts an exit court that reduces in width along its length and opens directly to the public way (no gateway). The same occupant load is being served by the exit court as in Figure 1.A. In this case, the code dictates a minimum 44 inch width for the exit court. The current code would clearly require the guards as shown.

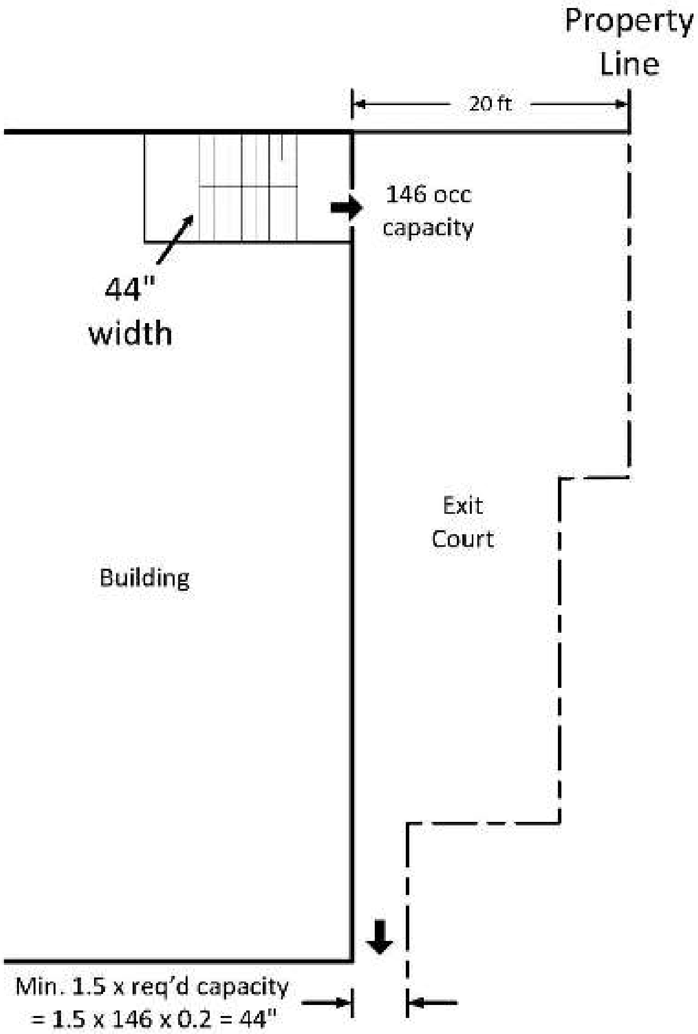


Figure 2.B

Figure 2.B shows that the minimum 44 inch exit court width required by the code would also satisfy the proposed 1.5 times the capacity requirement.

It is notable that a gradual reduction is not required anyplace else, regardless of occupant load, or required capacity. A hotel ballroom or a nightclub can have sudden changes of width at the doors, but a funnel is not required. It is therefore questionable as to what hazard in an exit court the currently required guards are addressing, and whether they are needed at all. While we would not object to eliminating the guards entirely, should it be felt there is a hazard being addressed by the guards, this proposal at least gives designers an option.

Cost Impact: Will not increase the cost of construction
Because this proposal provides an alternative to an existing code requirement, the cost of construction will not change. However, in many cases, this will reduce the cost of construction in jurisdictions that have been enforcing these "funnel" provisions.

E 129-15 : 1028.4.1-TRAXLER3475

E 130-15

1028.4.1; (IFC[BE] 1028.4.1)

Proponent: Lee Kranz, City of Bellevue, Wa, representing Washington Association of Building Officials Technical Code Development Committee

2015 International Building Code

Revise as follows:

1028.4.1 Width or capacity. The required capacity of *egress courts* shall be determined as specified in Section 1005.1, but the minimum width shall be not less than 44 inches (1118 mm), except as specified herein. *Egress courts* serving Group R-3 and U occupancies shall be not less than 36 inches (914 mm) in width. The required capacity and width of *egress courts* shall be unobstructed to a height of 7 feet (2134 mm).

Exception: Encroachments complying with Section 1005.7.

~~Where an *egress court* exceeds the minimum required width and the width of such *egress court* is then reduced along the path of exit travel, the reduction in width shall be gradual. The transition in width shall be affected by a guard not less than 36 inches (914 mm) in height and shall not create an angle of more than 30 degrees (0.52 rad) with respect to the axis of the *egress court* along the path of egress travel.~~ The width of the *egress court* shall not be less than the required capacity.

Reason: This proposal deletes an outdated and unused code requirement for egress courts. The concept of using a 36" tall guardrail to "herd" occupants toward the exit when the egress court exceeds the minimum required width is absurd and does nothing to improve the safety of occupants. Can you imagine a building owner's response when an architect shows this on a design development plan? The guard would effectively elliminate portions of the egress court exceeding the minimum required width from use by occupants. Why would anyone ever design the court to be larger than the minimum required width only to install a guardrail to prevent it's use? This is an obsolete regulation and needs to be deleted.

Cost Impact: Will not increase the cost of construction
This will save money by reducing the need to install a useless guardrail in oversized egress courts.

E 130-15 : 1028.4.1-KRANZ4316

E 131-15

1028.5; (IFC[BE] 1028.5)

Proponent: Daniel Nichols, New York State Division of Building Standards and Codes, representing New York State Division of Building Standards and Codes (dnichols@dos.state.ny.us)

2015 International Building Code

Revise as follows:

1028.5 Access to a public way. The *exit discharge* shall provide a direct and unobstructed access to a *public way*.

Exception: Where access to a *public way* cannot be provided, a safe dispersal area shall be provided where all of the following are met:

1. The area ~~shall be of a size~~is sized to accommodate not less than 5 square feet (0.46 m^2) for each person using the exit discharge and wheelchair spaces in accordance with Section 1009.6.3.
2. The area shall be located on the same lot ~~not less than~~at a distance of 50 feet (15 240 mm) minimum or a distance of 1.5 times the total building height, whichever is greater, away from the building requiring egress.
3. The area shall be permanently maintained and identified as a safe dispersal area.
4. The area shall be provided with a safe and unobstructed path of travel from the building.

Reason: This proposal is to provide improved protection and availability to a safe dispersal area.
The change in condition #1 is to size the safe dispersal area to address those with physical disabilities. The additional space that is being proposed matches the same space requirements as found in Section 1009.6.3 for area of refuge. Since the exit discharge needs to consider accessible means of egress when more than one means of egress is required (1009.1), it is appropriate to size the safe dispersal area accordingly. The addition of "occupant load of the exit discharge" is to make it clear what the basis of the area size and wheelchair spaces.

The change in condition #2 is to add an additional requirement to the distance a safe dipersal area needs to be away from a building. A 50 foot distance is not appropriate for taller buildings since falling debris from firefighting operations (such as break out windows for post-fire ventilation required inhi-rise buildings in Section 403), hazards due to exterior fire spread, and building collapse would not adequately provide a safe area. The proposal adds the requirement of 150% of the building height to address this safety issue; a number that is used in firefighting operations to determine the collapse zone of a building.

A safe dispersal area is taking a full building exit model and replacing the last portion with a defend-in-place model due to site constraints. This proposal will provide needed safety features that are currently not addressed in this exception.

Cost Impact: Will increase the cost of construction
The increase in cost or construction will occur only when this section is elected to be used by the code user. The only increase in cost would be the increased distance and area needed to be provide the proposed additional requirements.

E 131-15 : 1028.5-NICHOLS5723

E 132-15

202(New), 1005.3.1, 1005.3.2, 1009.3, 1009.4, 1019.3, 1029.6, 1029.6.3, 1029.7, 1029.8, 1029.8.1, 1029.9.5, 1029.12.2.1, Table 1029.12.2.1, 1029.12.2.2 (IFC[BE] 1005.3.1, 1005.3.2, 1009.3, 1009.4, 1019.3, 1029.6, 1029.6.3, 1029.7, 1029.8, 1029.8.1, 1029.9.5, 1029.12.2.1, Table 1029.12.2.1, 1029.12.2.2)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

OPEN-AIR ASSEMBLY SEATING. Seating served by *means of egress* that is not subject to smoke accumulation within or under a structure and is open to the atmosphere.

Revise as follows:

SECTION 202 DEFINITIONS

SMOKE-PROTECTED ASSEMBLY SEATING. Seating served by *means of egress* that is not subject to smoke accumulation within or under a structure for a specified design time by means of passive design or by mechanical ventilation.

1005.3.1 Stairways. The capacity, in inches, of *means of egress stairways* shall be calculated by multiplying the *occupant load* served by such *stairways* by a means of egress capacity factor of 0.3 inch (7.6 mm) per occupant. Where *stairways* serve more than one story, only the occupant load of each story considered individually shall be used in calculating the required capacity of the *stairways* serving that story.

Exceptions:

1. For other than Group H and I-2 occupancies, the capacity, in inches, of *means of egress stairways* shall be calculated by multiplying the *occupant load* served by such *stairways* by a means of egress capacity factor of 0.2 inch (5.1 mm) per occupant in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an *emergency voice/alarm communication* system in accordance with Section 907.5.2.2.
2. Facilities with *smoke-protected assembly seating* shall be permitted to use the capacity factors in Table 1029.6.2 indicated for stepped aisles for *exit access* or *exit stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is provided with a smoke control system complying with Section 909.
3. Facilities with ~~outdoor~~ ~~*smoke-protected*~~*open-air assembly seating* shall be permitted to the capacity factors in Section 1029.6.3 indicated for stepped aisles for *exit access* or *exit stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is open to the outdoors.

1005.3.2 Other egress components. The capacity, in inches, of *means of egress* components other than *stairways* shall be calculated by multiplying the *occupant load* served by such component by a means of egress capacity factor of 0.2 inch (5.1 mm) per occupant.

Exceptions:

1. For other than Group H and I-2 occupancies, the capacity, in inches, of *means of egress* components other than *stairways* shall be calculated by multiplying the *occupant load* served by such component by a means of egress capacity factor of 0.15 inch (3.8 mm) per occupant in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an *emergency voice/alarm communication* system in accordance with Section 907.5.2.2.
2. Facilities with *smoke-protected assembly seating* shall be permitted to use the capacity factors in Table 1029.6.2 indicated for level or ramped *aisles* for *means of egress* components other than *stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is provided with a smoke control system complying with Section 909.
3. Facilities with ~~outdoor~~ ~~*smoke-protected*~~ *open-air assembly seating* shall be permitted to the capacity factors in Section 1029.6.3 indicated for level or ramped *aisles* for *means of egress* components other than *stairways* where the entire path for *means of egress* from the seating to the *exit discharge* is open to the outdoors.

1009.3 Stairways. In order to be considered part of an accessible *means of egress*, a *stairway* between *stories* shall have a clear width of 48 inches (1219 mm) minimum between *handrails* and shall either incorporate an *area of refuge* within an enlarged floor-level landing or shall be accessed from an *area of refuge* complying with Section 1009.6. *Exit accessstairways* that connect levels in the same *story* are not permitted as part of an accessible *means of egress*.

Exceptions:

1. *Exit access stairways* providing *means of egress* from *mezzanines* are permitted as part of an accessible *means of egress*.

2. The clear width of 48 inches (1219 mm) between *handrails* is not required in buildings equipped throughout with an *automatic sprinkler* system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
3. The clear width of 48 inches (1219 mm) between *handrails* is not required for *stairways* accessed from a refuge area in conjunction with a *horizontal exit*.
4. *Areas of refuge* are not required at *exit access stairways* where two-way communication is provided at the elevator landing in accordance with Section 1009.8.
5. *Areas of refuge* are not required at *stairways* in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.
6. *Areas ofrefuge* are not required at *stairways* serving *open parking garages*.
7. *Areas ofrefuge* are not required for *smoke-protected* or *open-air* *assembly seating* areas complying with ~~Section~~Sections 1029.6.2 and 1029.6.3.
8. *Areas of refuge* are not required at *stairways* in Group R-2 occupancies.
9. *Areas of refuge* are not required for *stairways* accessed from a refuge area in conjunction with a *horizontal exit*.

1009.4 Elevators. In order to be considered part of an accessible *means of egress*, an elevator shall comply with the emergency operation and signaling device requirements of Section 2.27 of ASME A17.1. Standby power shall be provided in accordance with Chapter 27 and Section 3003. The elevator shall be accessed from an *area of refuge* complying with Section 1009.6.

Exceptions:

1. *Areas of refuge* are not required at the elevator in *open parking garages*.
2. *Areas of refuge* are not required in buildings and facilities equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.
3. *Areas of refuge* are not required at elevators not required to be located in a shaft in accordance with Section 712.
4. *Areas of refuge* are not required at elevators serving *smoke-protected* or *open-air* *assembly seating* areas complying with ~~Section~~Sections 1029.6.2 and 1029.6.3.
5. *Areas of refuge* are not required for elevators accessed from a refuge area in conjunction with a *horizontal exit*.

1019.3 Occupancies other than Groups I-2 and I-3. In other than Group I-2 and I-3 occupancies, floor openings containing *exit access stairways* or *ramps* that do not comply with one of the conditions listed in this section shall be enclosed with a shaft enclosure constructed in accordance with Section 713.

1. *Exit access stairways* and *ramps* that serve or atmospherically communicate between only two stories. Such interconnected stories shall not be open to other stories.
2. *In Group R-1, R-2 or R-3 occupancies, exit accessstairways and ramps connecting four stories or less serving and contained within an individual dwelling unit or sleeping unit or live/work unit.*
3. *Exit access stairways* serving and contained within a Group R-3 congregate residence or a Group R-4 facility are not required to be enclosed.
4. *Exit access stairways* and *ramps* in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the *stairway* or *ramp* and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Group B and M occupancies, this provision is limited to openings that do not connect more than four stories.
5. *Exit access stairways* and *ramps* within an *atrium* complying with the provisions of Section 404.
6. *Exit access stairways* and *ramps* in *open parking garages* that serve only the parking garage.
7. *Exit access stairways* and *ramps* serving smoke-protected or open-air assembly seating complying with the *exit access* travel distance requirements of Section 1029.7.
8. *Exit access stairways* and *ramps* serving the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, *places of religious worship*, auditoriums and sports facilities.

1029.6 Capacity of aisle for assembly. The required capacity of *aisles* shall be not less than that determined in accordance with Section 1029.6.1 where *smoke-protected assembly seating* is not provided and with Section 1029.6.2 ~~or 1029.6.3~~ where *smoke-protected assembly seating* is provided and with Section 1029.6.3 where open-air assembly seating is provided.

1029.6.3 ~~Outdoor smoke-protected~~Open-air assembly seating. ~~The~~
In open-air assembly seating the required capacity in inches (mm) of *aisles* shall be not less than the total *occupant load* served by the egress element multiplied by 0.08 (2.0 mm) where egress is by stepped *aisle* and multiplied by 0.06 (1.52 mm) where egress is by level *aisles* and ramped *aisles*.

Exception: The required capacity in inches (mm) of *aisles* shall be permitted to comply with Section 1029.6.2 for the number of seats in the ~~outdoor~~open-air *smoke-protected assembly seating* where Section 1029.6.2 permits less capacity.

1029.7 Travel distance. ~~*Exits* and *aisles* shall be so located that the~~The exit access travel distance ~~to an *exit* door~~ shall ~~be not greater than 200 feet (60 960 mm) measured along the line of travel in nonsprinklered buildings. Travel distance shall be not more than 250 feet (76 200 mm) in sprinklered buildings~~comply with Section 1017. Where *aisles* are provided for seating, the distance shall be measured along the *aisles* and *aisle accessways* without travel over or on the seats.

Exceptions:

1. In facilties with~~*Smoke-protected*~~ *smoke-protected assembly seating*~~: The~~ the total exit access travel distance shall be not greater than 400 feet (122 m). That portion of the total permitted exit access travel distance from each seat to the nearest entrance to a vomitory or concourse shall not exceed 200 feet (60 960 mm). The portion of the total permitted exit access travel distance from the entrance to the vomitory or concourse to ~~a *stairway*, *ramp* or walk on the exterior~~one of the ~~building~~following shall not exceed 200 feet (60 960 mm):
    - 1.1. The closest riser of an exit access stairway.
    - 1.2. ~~Open-air~~The closest slope of an exit access ramp.
    - 1.3. An exit.
2. In facilities with open-air assembly seating~~: The~~ of Type III, IV or V construction, the exit access travel distance ~~from each seat to~~to one of the ~~building exterior~~following shall not exceed 400 feet (122 m):
    - 2.1. The closest riser of an exit access stairway.~~ The~~
    - 2.2. The closest slope of an exit access ramp.
    - 2.3. An exit.
3. In facilities with open-air assembly seatin of Type I or II construction, the exit access travel distance shall not be limited~~ in facilities of Type I or II construction~~.

1029.8 Common path of egress travel. The *common path of egress travel* shall not exceed 30 feet (9144 mm) from any seat to a point where an occupant has a choice of two paths of egress travel to two *exits*.

Exceptions:
1. For areas serving less than 50 occupants, the *common path of egress travel* shall not exceed 75 feet (22 860 mm).
2. For *smoke-protected* or *open-air assembly seating*, the *common path of egress travel* shall not exceed 50 feet (15 240 mm).

1029.8.1 Path through adjacent row. Where one of the two paths of travel is across the *aisle* through a row of seats to another *aisle*, there shall be not more than 24 seats between the two *aisles*, and the minimum clear width between rows for the row between the two *aisles* shall be 12 inches (305 mm) plus 0.6 inch (15.2 mm) for each additional seat above seven in the row between *aisles*.

Exception: For *smoke-protected*or *open-air assembly seating* there shall be not more than 40 seats between the two *aisles* and the minimum clear width shall be 12 inches (305 mm) plus 0.3 inch (7.6 mm) for each additional seat.

1029.9.5 Dead end aisles. Each end of an *aisle* shall be continuous to a cross *aisle*, foyer, doorway, vomitory, concourse or *stairway* in accordance with Section 1029.9.7 having access to an *exit*.

Exceptions:
1. Dead-end *aisles* shall be not greater than 20 feet (6096 mm) in length.
2. Dead-end *aisles* longer than 16 rows are permitted where seats beyond the 16th row dead-end *aisle* are not more than 24 seats from another *aisle*, measured along a row of seats having a minimum clear width of 12 inches (305 mm) plus 0.6 inch (15.2 mm) for each additional seat above seven in the row where seats have backrests or beyond 10 where seats are without backrests in the row.
3. For *smoke-protected* or *open-air assembly seating*, the dead end *aisle* length of vertical *aisles* shall not exceed a distance of 21 rows.
4. For *smoke-protected*or *open-air assembly seating*, a longer dead-end *aisle* is permitted where seats beyond the 21-row dead-end *aisle* are not more than 40 seats from another *aisle*, measured along a row of seats having an *aisle* accessway with a minimum clear width of 12 inches (305 mm) plus 0.3 inch (7.6 mm) for each additional seat above seven in the row where seats have backrests or beyond 10 where seats are without backrests in the row.

1029.12.2.1 Dual access. For rows of seating served by *aisles* or doorways at both ends, there shall be not more than 100 seats per row. The minimum clear width of 12 inches (305 mm) between rows shall be increased by 0.3 inch (7.6 mm) for every additional seat beyond 14 seats where seats have backrests or beyond 21 where seats are without backrests. The minimum clear width is not required to exceed 22 inches (559 mm).

Exception: For s*moke-protected*or *open-air assembly seating*, the row length limits for a 12-inch-wide (305 mm) *aisle accessway*, beyond which the *aisle accessway* minimum clear width shall be increased, are in Table 1029.12.2.1.

TABLE 1029.12.2.1
SMOKE-PROTECTED OR OPEN-AIR ASSEMBLY AISLE ACCESSWAYS

<table>
<tr><th rowspan="3">TOTAL NUMBER OF SEATS IN THE SMOKE-PROTECTED OR OPEN-AIR ASSEMBLY SEATING</th><th colspan="2">MAXIMUM NUMBER OF SEATS PER ROW PERMITTED TO HAVE A MINIMUM 12-INCH CLEAR WIDTH AISLE ACCESSWAY</th></tr>
<tr><th>Aisle or doorway at both ends of row</th><th>Aisle or doorway at one end of row only</th></tr>
<tr><td></td><td></td></tr>
</table>

	Seats with backrests	Seats without backrests	Seats with backrests	Seats without backrests
Less than 4,000	14	21	7	10
4,000	15	22	7	10
7,000	16	23	8	11
10,000	17	24	8	11
13,000	18	25	9	12
16,000	19	26	9	12
19,000	20	27	10	13
22,000 and greater	21	28	11	14

For SI: 1 inch = 25.4 mm.

1029.12.2.2 Single access. For rows of seating served by an *aisle* or doorway at only one end of the row, the minimum clear width of 12 inches (305 mm) between rows shall be increased by 0.6 inch (15.2 mm) for every additional seat beyond seven seats where seats have backrests or beyond 10 where seats are without backrests. The minimum clear width is not required to exceed 22 inches (559 mm).

> **Exception:** For *smoke-protected*or *open-air assembly seating*, the row length limits for a 12-inch-wide (305 mm) *aisle accessway*, beyond which the *aisle accessway* minimum clear width shall be increased, are in Table 1029.12.2.1.

Reason: In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled Unenclosed Exit Stairs. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

The intent of this proposal is to provide terminology consistent with the rest of Chapter 10 regarding exit access travel distance (Section 1017) and open-air and outdoor smoke-protected seating. Currently the term outdoor smoke protected assembly seating and open-air assembly seating appear to be used interchangeably. Also, sometime smoke-protected assembly seating is used to mean just indoors, and sometimes indoors and outdoors.

There is no intent for any technical changes to the provisions from what was permitted in the 2012 IBC and previous editions.

There are three terms being used:

• Smoke protected assembly seating - Section 410.3.5, Table 903.2.11.6, 909.16, 1005.1, 1005.3.2, 1009.3, 1009.4, 1029.6, 1029.6.2, Table 1029.6.2, 1029.6.2.1, 1029.6.2.2, 1029.6.2.3, 1029.7, 1029.8, 1029.8.1, 1029.9.5, 1029.12.2.1, 1029.12.2.1
• Outdoor smoke protected assembly seating - 1005.3.1, 1005.3.2, 1029.6.3
• Open-air assembly seating - Sections 905.3.2, 1019.1, 1029.7

Definitions: The revisions for 'smoke-protected assembly seating' and the new definition for 'open-air assembly seating' are intended to separate the two types of systems that provide smoke protection for assembly seating. The definition and the revisions throughout the proposal will coordinate the use of the terms.

Section 1029.6: This scoping section currently used the term smoke-protected to mean both indoor and outdoor.

Sections 1029.6.3 and 1005.3.2: Change outdoor smoke-protected seating to open-air seating. In addition, Section 1029.6.3 only includes the separation in the title and not the text.

Section 1029.7: In the current text of the main paragraph, the sentence for non-sprinklered building and sprinklered building requirements are confusing and inconsistent. The 200 and 250 feet exit access travel distances are already in Table 1017.2. The current text only says how to measure the travel distance in the sentence dealing with non-sprinklered buildings, not sprinklered buildings. Measuring along the natural and unobstructed path of travel is addressed in Section 1017.3; therefore, only the specific language regarding the seating is needed. A reference back to Section 1017 will allow for consistency over time and pick up all the technical criteria for exit access travel distance.

The exceptions are reworded for consistency and correct code terminology. In addition, there is a concern over consistent interpretation. The exception's current text has terminology that could be interpreted as always measuring travel distance to the building exit at grade. Where there are provisions for smoke protection, or where there are facilities that are open to the exterior, historically these facilities have allowed for open stairway where the means of egress is open to the outside.

The 2012 IBC included an exception to Section 1016.3 (now Section 1017.3) that allowed exit access travel distance to be measured to the top of an open exit access stairway or ramp in outdoor seating. This was deleted by E7-12 with the explanation in the reason that this was more appropriately addressed in this section.

Sections 1029.8, 1029.8.1 and 1029.9.5, 1029.12.2.1, 1029.12.2.2, 1009.3, 1009.4 – add 'open-air' to clarify that both smoke protection options are viable in these code sections.

Section 1019.3 Exception 7 is revised to be consistent with the allowances in Section 1029.7, which addresses other than just open air seating.

Cost Impact: Will not increase the cost of construction
This proposal is a clarification of provisions. There will be no change in the cost of construction.

E 132-15 : 1005.3.2-KULIK3641

E 133-15

1029.6.2; (IFC[BE] 1029.6.2)

Proponent: Daniel Nichols, representing New York State Division of Building Standards and Codes (dnichols@dos.state.ny.us)

2015 International Building Code

Revise as follows:

1029.6.2 Smoke-protected assembly seating. The required capacity in inches (mm) of the aisle for *smoke-protected assembly seating* shall be not less than the occupant load served by the egress element multiplied by the appropriate factor in Table 1029.6.2. The total number of seats specified shall be those within the space exposed to the same smoke-protected environment. Interpolation is permitted between the specific values shown. ~~A life safety evaluation, complying with NFPA 101, shall be done for a facility utilizing the reduced width requirements of Table 1029.6.2 for *smoke-protected assembly seating.*~~

> **Exception:** For outdoor *smoke-protected assembly seating* with an *occupant load* not greater than 18,000, the required capacity in inches (mm) shall be determined using the factors in Section 1029.6.3.

Reason: The requirements for smoke-protected assembly seating currently require a life safety evaluation by NFPA 101. These requirements have been updated in 2015 edition of NFPA 101; with further modification under NFPA TIA 101-15-3.
This proposal request the elimination of the life safety evaluation for several reasons:

Section 12.4.1.1 is the general requirements for the life safety evaluation. Item #3 requires an annual filing and approval by the AHJ. This is not appropriate within the construction requirements of the IBC.
Section 12.4.1.2 is a list of conditions for assessment; including the need to assess conditions related to earthquakes, hazardous materials within and near the facility, medical emergencies, hazarous materials, and relationships between various facility stakeholders. Whereas these are important items to overall occupant safety, there is little or no correlation between them and an allowance to utilize the narrower dimensions of aisles in assembly seating as regulated in IBC Section 1029.6.2
Section 12.4.1.3.1 requires the design team to provide all building systems documentation to the AHJ prior to the issuance of a building permit, per Section 12.4.1.4. This sounds like a good idea, but the requirements of 12.4.1.4 requires the submission of items including specific event floor plans (including exhibits), smoke control design documentation that is in conflict with the smoke control provisions of IBC Section 1029.6.2.1, and a loading diagram for the stage gridiron. Several items are either in conflict of the requirements of IBC 1029.6.2 or are not relevant to asembly seating design.
Section 12.4.1.3.2 requires a facility management plan per 12.4.1.5 (labeled in the section as a life safety management document). There are several items within the list that have no bearing on assembly seating aisle widths; such as contact information for venue personnel, first aid treatment plans, food safety plans, and terrorism operating protocols.

It is very clear that the update to NFPA 101 is comprehensive. However, it does cover hazards outside of fire and life safety provided in the purpose and scope of the IBC and has little bearing on the diminishment of assembly seating aisles. In short, the information within the life safety evaluation does not provide any additional requirements to the actual measurement of the aisle widths for smoke protected seating.

Finally, the International Fire Code is the appropriate place for emergency plans. Chapter 4 makes an emergency plan enforceable during the use of smoke protected assembly seating; not just during the filing of a building permit. IFC Chapter 4 is very comprehensive and requires these plans for all assembly occupancies and public gatherings.

Bibliography: NFPA 101- 2015 edition Section 12.4.1 (as modified by NFPA 101 TIA 15-3)

Cost Impact: Will not increase the cost of construction
This proposal is to remove requirements related to emergency plan filing prior to the issuance of a building permit

E 133-15 : 1029.6.2-NICHOLS5757

E 134-15

1029.9.1 (IFC[BE] 1029.9.1)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1029.9.1 Minimum aisle width. The minimum clear width for *aisles* shall comply with one of the following:

1. Forty-eight inches (1219 mm) for stepped *aisles* having seating on ~~each side.~~both sides.
   Exception: Thirty-six inches (914 mm) where the stepped *aisles* serve less than 50 seats.
2. Thirty-six inches (914 mm) for stepped *aisles* having seating on only one side.
   Exception: Twenty-three inches (584 mm) between a stepped aisle handrail and seating where a stepped *aisle* does not serve more than five rows on one side.
3. Twenty-three inches (584 mm) between a stepped *aislehandrail* or *guard* and seating where the stepped *aisle* is subdivided by a mid-aisle *handrail*.
4. Forty-two inches (1067 mm) for level or ramped *aisles* having seating on both sides.
   Exceptions:
   1. Thirty-six inches (914 mm) where the *aisle* serves less than 50 seats.
   2. Thirty inches (762 mm) where the *aisle* serves less than 15 seats and does not serve ~~more than 14 seats~~as part of an accessible route.
5. Thirty-six inches (914 mm) for level or ramped *aisles* having seating on only one side.
   Exception:~~For other than ramped *aisles* that serve as part of an *accessible route*, 30~~ Thirsty inches (762 mm) where the ~~ramped~~ *aisle* serves less than 15 seats and does not serve ~~more than 14 seats~~as part of an accessible route.

Reason: In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.http://www.iccsafe.org/cs/CTC/Pages/default.aspx This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

The intent of this proposal is consistency in language. E87-12 added the language as a reminder for the accessible route to the exception for Item 5, but missed the same concern in Item 4 exception 2. The accessible route provisions require 36" width and are required by Section 1009 and 1104 to the wheelchair spaces for ingress and egress. The reminder should be in both locations. If it is felt that this is already addressed, it should be removed from the exception in Item 5.

The strike out of 'ramped' in the exception to item 5 is because this item deals with both ramped and level aisles. The limitation of this option to 'ramped' aisles was a mistake in E87-12. Level aisles are less hazardous than ramped aisles. Changing the language to 'serve less than 15 seats' instead 'does not serve more than 14 seats' is not a technical change. It is for consistency with the language in the other exceptions.

There will be a Group B corresponding code change proposal to IFC Section 1104.23 to provide consistency and so that existing requirements are not more restrictive than new. The ICC Fire Code Action Committee (FCAC) supports this proposal and will be submitting the Group B proposal that follows:

IFC 1104.23 Minimum aisle width. The minimum clear width of aisles shall ~~be~~comply with one of the following:

1. Forty-two inches (1067 mm) for ~~aisle stairs~~stepped aisles having seating on ~~each~~both sides.
   Exception: Thirty-six inches (914 mm) where the stepped aisle serves less than 50 seats.
2. Thirty-six inches (914 mm) for stepped aisles having seating on only one side.
   Exceptions:
   1. Thirty inches (760 mm) for catchment areas serving not more than 60 seats.
   2. Twenty-three inches (584 mm) between a stepped aisle handrail and seating where a stepped an aisle does not serve more than five rows on one side.
3. Twenty inches (508 mm) between a stepped aisle handrail or guard and seating where the aisle is subdivided by the handrail.
4. Forty-two inches (1067 mm) for level or ramped aisles having seating on both sides.
   Exceptions:
   1. Thirty-six inches (914 mm) where the aisle serves less than 50 seats.
   2. Thirty inches (762 mm) where the aisle serves less than 15 seats and does not serve as part of an accessible route.
5. Thirty-six inches (914 mm) for level or ramped aisles having seating on only one side.
   Exception: Thirty inches (760 mm) for catchment areas serving not more than 60 seats and does not serve as part of an accessible route .
6. In Group I-2, where aisles are used for movement of patients in beds, aisles shall comply with Section 1105.5.8.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification and coordination of current requirements; therefore, there is no impact on the cost.

E 134-15 : 1029.9.1-KULIK3617

E 135-15

1029.10.1, 1029.10.2, 1029.10.2.1, 1029.10.2.2, 1029.10.3; (IFC[BE] 1029.10.1, 1029.10.2, 1029.10.2.1, 1029.10.2.2, 1029.10.3)

Proponent: Ed Roether, representing Ed Roether Consulting (ed@edroetherconsulting.com)

2015 International Building Code

Revise as follows:

1029.10 Transitions. Transitions between *stairways* and stepped *aisles* shall comply with either Section 1029.10.1 or 1029.10.2.

1029.10.1 Transitions ~~and~~ to stairways that maintain stepped aisle riser and tread dimensions. Stepped *aisles*, transitions and *stairways* that maintain the stepped aisle riser and tread dimensions shall comply with Section 1029.13 as one *exit access* component.

1029.10.2 Transitions to stairways that do not maintain stepped aisle riser and tread dimensions. Transitions ~~to~~ between *stairways* ~~from~~ and stepped *aisles* ~~with~~ having different riser and tread dimensions ~~that differ from the *stairways*~~ shall comply with Sections 1029.10.2.1 through 1029.10.3.

1029.10.2.1 Stairways and stepped aisles in a straight run. ~~Transitions where the stairway is~~ Where *stairways*and stepped aisle are in a straight run ~~from thestepped *aisle*~~ the transition shall have one of the following:

1. A minimum depth of 22 inches (559 mm) where the treads on the descending side of the transition have greater depth ~~and~~.
2. A minimum depth of 30 inches (762 mm) where the treads on the descending side of the transition have lesser depth.

1029.10.2.2 Stairways ~~and stepped aisles~~ that change direction from stepped aisles. Transitions where the *stairway* changes direction from the stepped *aisle* shall have a minimum depth of 11 inches (280 mm) or the stepped *aisle* tread depth, whichever is greater, between the stepped *aisle* and *stairway*.

1029.10.3 Transition marking. A distinctive marking stripe shall be provided at each *nosing* or leading edge adjacent to the transition. Such stripe shall be ~~not less than~~ a minimum of 1 inch (25 mm), and ~~not more than~~ a maximum of 2 inches (51 mm), wide. The edge marking stripe shall be distinctively different from the stepped *aisle* contrasting marking stripe.

Reason: This section was extensively revised last cycle. The intent of this proposal is to provide minor revisions to clarify the language relating to the transitions between stepped aisle and stairways.

Cost Impact: Will not increase the cost of construction
This is a clarification only.

E 135-15 : 1029.10.1-ROETHER5825

E 136-15

1029.11, 1029.11.1, 1029.11.2, 1029.13, 1029.13.3 (New), 1029.13.3.1 (New), 1029.13.3.2 (New)

Proponent: Gregory Cahanin, Cahanin Fire & Code Consulting (firemc2@tampabay.rr.com)

2015 International Building Code

Revise as follows:

1029.11 Construction. ~~*Aisles*~~*Aisle accessways, level aisles*, stepped *aisles* and ramped *aisles* shall be built of materials consistent with the types permitted for the type of construction of the building.

> **Exception:** Wood *handrails* shall be permitted for all types of construction.

1029.11.1 Walking surface materials. The surface of *aisle accessways, level aisles*, stepped *aisles* and ramped *aisles* shall be of slip-resistant materials that are securely attached. The surface for stepped *aisles* shall comply with Section 1011.7.1.

1029.11.2 Outdoor conditions. Outdoor ~~*aisles*~~aisle accessways, level, stepped~~*aisles*~~ and ramped *aisles* and outdoor approaches to ~~*aisles*~~level, stepped~~*aisles*~~ and ramped *aisles* shall be designed so that water will not accumulate on the walking surface.

1029.13 ~~Assembly aisle walking~~Walking surfaces. ~~Ramped~~ Walking surfaces of ramped*aisles* shall comply with Sections 1029.13.1 through 1029.13.1.3. ~~Stepped~~Walking surfaces of stepped*aisles* shall comply with Sections 1029.13.2 through 1029.13.2.4. Walking surfaces of aisle accessways shall comply with Sections 1029.13.3 through 1029.13.3.2.

Add new text as follows:

1029.13.3 Aisle accessway. Aisle accessway cross slope is measured perpendicular to the direction of travel along the aisle accessway. Aisle Accessways serving seating in rows shall have a maximum cross slope not exceeding one unit vertical in five units horizontal (20-percent slope).

1029.13.3.1 Aisle accessway to aisle transition. Where the aisle accessway transitions to an aisle and there is an elevation change there shall be a sloped transition located in the aisle accessway. Transition slope is measured in the direction of travel along the aisle accessway. The maximum slope of the transition shall not exceed one unit vertical in five units horizontal (20-percent).

1029.13.3.2 Transition contrast marking stripe. Where the elevation change exceeds 3/16-inch (4.8 mm) between aisle accessways and aisles the transitions shall be indicated with a distinctive marking stripe at the edge of the transition slope along the aisle. Such stripes shall have a width of not less than 1-inch (25 mm) but not more than 2-inches (51 mm).

Reason: An Aisle Accessway is defined as being distinctively different than an aisle while also being a part of the means of egress. Aisles have a maximum slope under Section 1029.13.1 of 12.5-percent or one in eight. Aisle accessway walking surfaces do not have a stated maximum slope or cross slope. To allow for a seating area sloped floor in a venue, the aisle accessway cross slope must be permitted to match or exceed the aisle slope. Line of sight for legitimate stage seating areas in many instances requires a slope greater than that stated in the IBC for aisles and this proposal allows for a slope up to 20-percent. Outdoor seating areas in amphitheaters are often in the range of 17 to 20-percent and have been found acceptable walking surfaces. For indoor seating some maximum slope should be defined as a part of the code since aisle accessways are part of the means of egress and the cross slope perpendicular to the aisle forming the aisle accessway must be defined because it is distinctly different than the 2-percent maximum for ramps. The proposed change also dictates that when the aisle accessway is not the same slope or elevation as the aisle there must transition to the ramped or stepped aisle. the sloped and marked transition where there is an elevation change is similar to the provisions for edge marking on stairs and ramps as newly revised in the previous edition.

The organization of the current provisions do not specify the requirements for aisle accessways, so it was difficult to determine where to add this requirement. The provions in Section 1029.12, while entitled aisle accessways, also deals with the clear width of aisles in seating at tables. It appears that the best place to locate this slope issue would be under Section 1029.13 Assembly aisle walking surfaces, because that is where slope of the aisles is defined for fixed seating.

Cost Impact: Will not increase the cost of construction
There is no cost impact to this proposal since it defines a design consideration that to this point has remained vague.

E 136-15 : 1029.11-CAHANIN5637

E 137-15

1029.11(New), 1029.11.1(New), 1029.11.2(New); (IFC[BE] 1029.11(New), 1029.11.1(New), 1029.11.2(New))

Proponent: Ed Roether, representing Ed Roether Consulting (ed@edroetherconsulting.com)

2015 International Building Code

Add new text as follows:

1029.11 Stepped aisles at vomitories. Stepped aisles that change direction at vomitories shall comply with 1029.11.1 Transitions between a stepped aisle above a vomitory and stepped aisle to the side of vomitory shall comply with 1029.11.2.

1029.11.1 Stepped aisles that change direction at vomitories. Stepped aisle treads where the stepped aisle changes direction at a vomitory shall have a minimum depth of 11 inches (280 mm) or the stepped aisle tread depth, whichever is greater. The height of a stepped aisle tread above a transition at a vomitory shall comply with Section 1029.13.2.2.

1029.11.2 Stepped aisle transitions at the top of vomitories. Transitions between the stepped aisle above a vomitory and stepped aisles to the side of a vomitory shall have a minimum depth of 11 inches (280mm) or the stepped aisle tread depth, whichever is greater.

(Renumber subsequent sections)

Reason: The intent of this proposal is to provide language addressing the most common concerns with stepped aisles around vomitories.

Cost Impact: Will not increase the cost of construction
Attempting to clarifty the language.

E 137-15 : 1029.11.1 (New)-ROETHER5823

E 138-15

1029.13.2.1; (IFC[BE] 1029.13.2.1)

Proponent: Ronald Geren, RLGA Technial Services, LLC, representing Self (ron@specsandcodes.com)

2015 International Building Code

Revise as follows:

1029.13.2.1 Treads. Tread depths shall be not less than 11 inches (279 mm) and shall have dimensional uniformity.

~~Exception~~Exceptions:

1. The tolerance between adjacent treads shall not exceed $^{3}/_{16}$ inch (4.8 mm).
2. Where *aisle accessways* provide access to stepped *aisles*, the tread depth at the transitions shall be not less than the required width of *aisle accessways*. Treads with nonuniform depths shall be indicated with a distinctive marking stripe on each tread *nosing* or leading edge adjacent to the nonuniform tread. Such stripe shall be not less than 1 inch (25 mm), and not more than 2 inches (51 mm), wide. The edge marking stripe shall be distinctively different from the contrasting marking stripe.

Reason: Section 1029.13.2.1 requires treads within a stepped aisle to have a uniform depth; but based on sightlines and row lengths (which affect aisle accessway widths), the number of risers and a uniform tread depth may place a step within the transition from aisle accessway to aisle. This can cause a tripping hazard. This proposal ensures that the full width of the required aisle accessway is provided at an aisle and that no steps encroach into this area. Section 1029.13.2.2 allows nonuniform risers, but allowing the treads to be deeper where aisle accessways enter the aisle may permit more uniform riser heights. A stair safety study conducted by Cornell University has identified riser height variation as a significant contributing factor to falls on stairs. Variations in tread depth does not even make the list. Although the study involved residential stairs, stairs are stairs regardless of the building type.

Bibliography: *Stair Safety: Causes and Prevention of Residential Stair Injuries*, Cornell Cooperative Extension; Department of Design & Environmental Analysis, Cornell Univeristy, Accessed 1/9/15, Page 2,
http://www.human.cornell.edu/dea/outreach/upload/Stair-Safety-2-2.pdf

Cost Impact: Will not increase the cost of construction
This proposal will only adjust the arrangment of steps within an aisle, but should not affect material or labor costs for installation.

E 138-15 : 1029.13.2.1-GEREN5150

E 139-15

1029.16.3; (IFC[BE] 1029.16.3)

Proponent: Scott Dornfeld, City of Delano, MN, representing Myself (sdornfeld@delano.mn.us)

2015 International Building Code

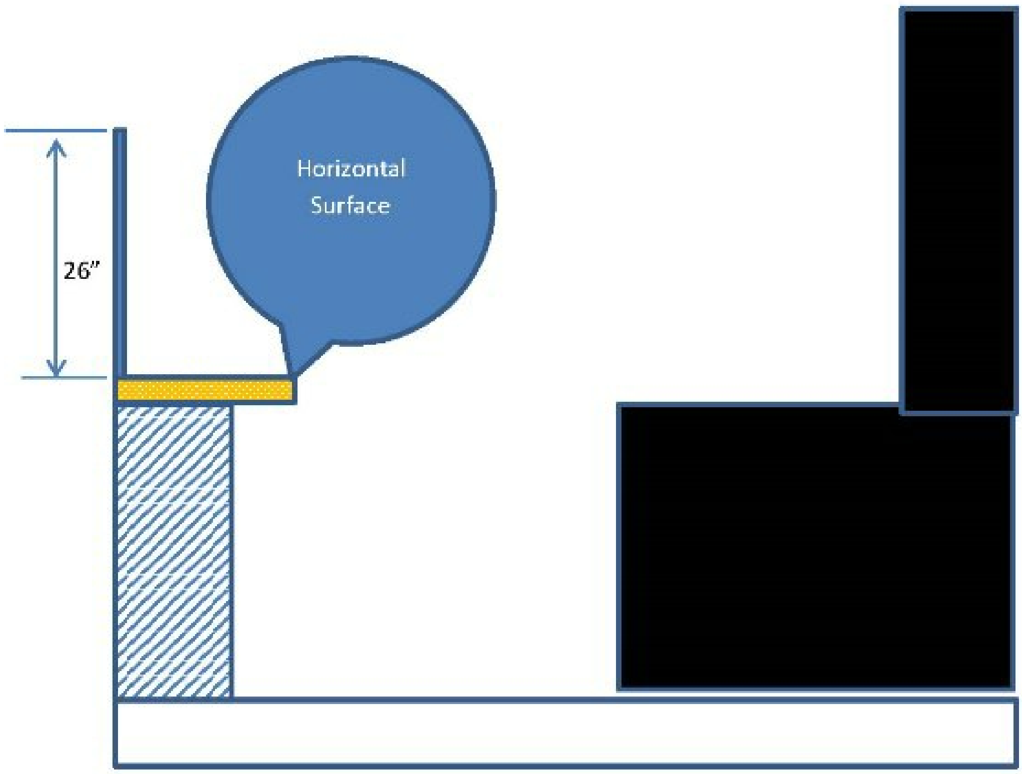
Revise as follows:

1029.16.3 Sightline-constrained guard heights. Unless subject to the requirements of Section 1029.16.4, a fascia or railing system in accordance with the *guard* requirements of Section 1015 and having a minimum height of 26 inches (660 mm) shall be provided where the floor or footboard elevation is more than 30 inches (762 mm) above the floor or grade below and the fascia or railing would otherwise interfere with the sightlines of immediately adjacent seating. <u>Where a dining or drinking surface is provided above the floor in front of the seating, the 26 inches (660 mm) guard height shall be measured from the top of the dining or drinking surface to the top of the guard.</u>

Reason: The purpose of this code change is to add a new requirement to ensure that the intended level of protection provided by guards at affected assembly venues is maintained. This proposed code is consistent with other barrier requirement found in the IBC such as swiming pool barrier requirements that do not allow barriers that are easily climbable and that effectively reduce the intended level of protection.
The code change would prohibit the installation of a climbable horizontal surface or require that a compliant guard be installed with the 26" required dimension being measured from the top of the horizontal surface to the top of the guard. The proposed does not represent a significant modification for the public in these assembly venues. Typically all of the seats that are not located adjacent to the rail do not have a horizontal area above the walking surface; therefore the change will not detract from the public enjoyment of the venue.

This code change will end the practice of trading protection of the public in order to provide a minor convenience for a limited number of seats in the venue. If the designer chooses to incorporate a horizontal surface above the walking surface; then a clear glass guard can be provided that will extend 26" above that horizontal surface.

Refer to the figure which shows how the effective level of protection is compromised by the installation of a horizontal surface.



IBC sec. 1029.16.3

Cost Impact: Will increase the cost of construction
The increase cost for the extra rail height will be minimum and is necessary for public safety. There would be no increase if the designer decides not to add the dining and drinking surface.

E 139-15 : 1029.16.3-DORNFELD5569

E 140-15

1030.1; (IFC[BE] 1030.1)

Proponent: Paul Tidwell, representing Utah Chapter ICC (ptidwell@saratogaspringscity.com)

2015 International Building Code

Revise as follows:

1030.1 General. In addition to the *means of egress* required by this chapter, provisions shall be made for *emergency escape and rescue openings* in Group R-2 occupancies on stories with a one exit or access to one exit in accordance with Tables 1006.3.2(1) and 1006.3.2(2) and Group R-3 occupancies. *Basements* and sleeping rooms below the fourth story above *grade plane* shall have at least one exterior *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, *emergency escape and rescue openings* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way*.

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior exit balcony that opens to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.

Reason: The requirements of 1030 are driven by the footnotes in tables 1006.3.2(1) and 1006.3.2(2) which is a indirect path. By stating "on stories with a one exit or access to one exit" in the first sentence of the charging statement the code user can quickly identify the requirements.

Cost Impact: Will not increase the cost of construction
This is a code clarification only, it does not change the requirements.

E 140-15 : 1030.1-TIDWELL4036

E 141-15

1030.1; (IFC[BE] 1030.1)

Proponent: Jeffrey Shapiro, National Multifamily Housing Council, representing National Multifamily Housing Council

2015 International Building Code

Revise as follows:

1030.1 General. In addition to the *means of egress* required by this chapter, ~~provisions shall be made for~~ *emergency escape and rescue openings* shall be provided in the following occupancies:

1. Group R-2 occupancies located in ~~accordance~~stories with only one exit or access to only one exit as permitted by Tables 1006.3.2(1) and 1006.3.2(2) ~~and~~
2. Group R-3 occupancies.

Basements and sleeping rooms below the fourth story above *grade plane* shall have at least one exterior *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, *emergency escape and rescue openings* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way*.

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior exit balcony that opens to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.

Reason: The proposal is simply a clarification of the current requirements. As currently worded, it is unclear in Section 1030 that emergency escape and rescue openings are only required for Group R-2 occupancies that are located on stories with a single exit. That is what the references to Tables 1021.2(1) and 1021.2(2) convey, but forcing the reader to go back to 1021.2 to determine this makes interpreting and applying Section 1030 unnecessarily cumbersome, given that most R-2 occupancies have 2 exits and are not required to comply with Section 1030.

Cost Impact: Will not increase the cost of construction
The proposal is simply a clarification of current provisions and does not increase the cost of construction.

E 141-15 : 1030.1-SHAPIRO5519

E 142-15

1030.1; (IFC[BE] 1030.1)

Proponent: Stephen Thomas, Colorado Code Consulting, LLC, representing Colorado Chapter (sthomas@coloradocode.net)

2015 International Building Code

Revise as follows:

1030.1 General. In addition to the *means of egress* required by this chapter, ~~provisions shall be made for~~ *emergency escape and rescue openings* shall be provided in Group ~~R-2~~R-3 occupancies~~ in accordance with~~, and where required by footnote a of Tables 1006.3.2(1) and 1006.3.2(2) ~~and~~for Group ~~R-3~~R-2 occupancies. *Basements* and sleeping rooms below the fourth story above *grade plane* shall have at least one exterior *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, *emergency escape and rescue openings* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way*.

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior exit balcony that opens to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.

Reason: The revision to this section has created a lot of confusion among code users as to when emergency escape and rescue openings are requried. The purpose of this revision is to clarify the requirement by rearranging the language and providing a clearer requirement for emergency escape and rescue openings.

Cost Impact: Will not increase the cost of construction
This change is a clarification of the requirements. There is no cost impact of this change.

E 142-15 : 1030.1-THOMAS4456

E 143-15

1030.1; (IFC[BE] 1030.1)

Proponent: Jay Hyde, representing Sacramento (jhyde@mognot.com)

2015 International Building Code

Revise as follows:

1030.1 General. In addition to the *means of egress* required by this chapter, provisions shall be made for *emergency escape and rescue openings* in Group R-2 occupancies in accordance with Tables 1006.3.2(1) and 1006.3.2(2) and Group R-3 occupancies. *Basements* and sleeping rooms below the fourth story above *grade plane* shall have at least one exterior *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, *emergency escape and rescue openings* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way*or to a covered porch, deck, balcony or egress balcony that opens directly on to a yard, court or public way and provides a minimum 36-inch wide by minimum 80-inch high path of travel to the edge or guard.

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior exit balcony that opens to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.

Reason: Consistency: the 2015 International Residential Code, Section R310.2.4 permits emergency escape and rescue openings under decks and porches. It also permits restricted height of 36-inches. The restricted height does not appear to be appropriate under multi-family conditions where several units may require emergency escape and rescue at the same time, therefore the Code Change Proposal specifically incorporates the minimum corridor width specified for a dwelling unit (Table 1020.2) and the minimum height for a door (Section 1010.1.1.1).

Cost Impact: Will not increase the cost of construction
This is design issue that lermits a perticular design, no construction work is mandated.

E 143-15 : 1030.1-HYDE5280

E 144-15

Table 1006.3.2(2), 1030.1; (IFC[BE] Table 1006.3.2(2), 1030.1)

Proponent: Victor Cuevas, representing City of Los Angeles

2015 International Building Code

Revise as follows:

1030.1 General. In addition to the *means of egress* required by this chapter, provisions shall be made for *emergency escape and rescue openings* in Group ~~R-2 occupancies in accordance with Tables 1006.3.2(1) and 1006.3.2(2) and Group R-3~~R occupancies. *Basements* and sleeping rooms below the fourth story above *grade plane* shall have at least one exterior *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, *emergency escape and rescue openings* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way*.

Exceptions:

1. *Groups R-1 and R-2 occupancies are not required to provide emergency and escape openings where they comply with all of the following:*
   - 1.1. *Each story has access to two or more means of egress.*
   - 1.2. *The building is constructed of Type I, Type II, Type IIIA or Type IV construction.*
   - 1.3. *The building is equipped throughout with an approved automatic sprinkler system in accordance with Sections 903.3.1.1 or 903.3.3.2.*
2. ~~*The emergency escape and rescue opening is permitted to open onto a balcony within an atrium in accordance with the requirements of Section 404, provided the balcony provides access to an exit and the dwelling unit or sleeping unit has a means of egress that is not open to the atrium.*~~
3. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
4. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior exit balcony that opens to a *public way*.
5. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.

TABLE 1006.3.2(2)
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)
First story above or below grade plane	A, B[b] , E F[b] , M, U	49	75
	H-2, H-3	3	25
	H-4, H-5, I, R-1[a], R-2[a,c] , R-4	10	75
	S[b,d]	29	75
Second story above grade plane	B, F, M, S[d]	29	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. Buildings classified as ~~Group~~Groups R-1 and R-2 equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with *emergency escape and rescue openings* in accordance with Section 1030.

b. Group B, F and S occupancies in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 shall have a maximum *exit access* travel distance of 100 feet.

c. This table is used for R-2 occupancies consisting of *sleeping units*. For R-2 occupancies consisting of *dwelling units*, use Table 1006.3.2(1).

d. The length of *exit access* travel distance in a Group S-2 *open parking garage* shall be not more than 100 feet

Reason: The intent is to at require emergency escape and rescue openings in all Group R occupanies. Exception 1 will exempt Group R-1 and R-2 occupancies except for Type IIIB and Type V construction and Group R-1 and R-2 with one exit. Exception 2 was found in the 2009 IBC. This could be used by a hotel with balconies that open into an atrium with smoke protection rather than balconies that open to the outside. Group R-3 and Group R-4 would still be required to have emergency escape and window openings. That would not change.
The change to add emergency escape windows for Group R-1 in Table 1006.3.2(2) for single exit buildings is correllative.

Cost Impact: Will increase the cost of construction
This would be an increase for Group R-1 and R-2 buildings of Type IIIB and V construction.

E 144-15 : 1030.1-CUEVAS4873

E 145-15

1030.1; (IFC[BE] 1030.1)

Proponent: Jeffrey Shapiro, International Code Consultants, representing International Code Consultants

2015 International Building Code

Revise as follows:

1030.1 General. In addition to the *means of egress* required by this chapter, provisions shall be made for *emergency escape and rescue openings* in Group R-2 occupancies in accordance with Tables 1006.3.2(1) and 1006.3.2(2) and Group R-3 occupancies. *Basements* and sleeping rooms below the fourth story above *grade plane* shall have at least one exterior *emergency escape and rescue opening* in accordance with this section. Where *basements* contain one or more sleeping rooms, *emergency escape and rescue openings* shall be required in each sleeping room, but shall not be required in adjoining areas of the *basement*. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way*.

Exceptions:

1. *Basements* with a ceiling height of less than 80 inches (2032 mm) shall not be required to have *emergency escape and rescue openings*.
2. *Emergency escape and rescue openings* are not required from *basements* or sleeping rooms that have an *exit* door or *exit access* door that opens directly into a *public way* or to a *yard*, *court* or exterior exit balcony that opens to a *public way*.
3. *Basements* without *habitable spaces* and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have *emergency escape and rescue openings*.
4. Within individual dwelling and sleeping units in Groups R-2 and R-3, where the buildings is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, sleeping rooms in basements shall not be required to have *emergency escape and rescue openings* provided that the basement has one of the following:
   4.1. One means of egress and one *emergency escape and rescue opening*
   4.2. Two means of egress.

Reason: This Section has very limited application, only applying to Group R-3 and a small number of Group R-2 occupancies that have only one exit per story. It does not apply to Group R-1 or any Group I occupancy, all of which are permitted to have sleeping rooms in basements and stories of sprinklered buildings, even those with a single exit per Tables 1006.3.2(1) and 1006.3.2(2). The reason for not applying a similar allowance to Group R-3 and single exit Group R-2 is not evident considering that other occupancies pose a more significant life-safety risk.
Nevertheless, rather than seeking full equivalency with these other occupancies when sprinklers are provided, this proposal seeks only a partial credit for basements, with the hope of finding common ground with parties who have previously argued against a general exception for means of escape in fully sprinklered buildings. This proposal maintains at least one basement escape window or door or an additional means of egress in addition to the primary means of egress. Plus, it is important to remember that both sprinklers and hard-wired interconnected smoke alarms are required to qualify for the proposed exception.

This combination of sprinklers and smoke alarms is well established by the NFPA 101 - Life Safety Code as a basis for eliminating all required means of escape openings from sprinklered one- and two-family dwellings, hotels, motels, apartments and similar uses. In addition, the states of New Hampshire and Virginia have amended their statewide code adoptions by eliminating all requirement for means of escape openings when sprinklers are provided. Minnesota adopted a similar amendment, but the allowance was limited to exempting all basement escape windows (these were IRC amendments, but the logic conveys to the IBC discussion).

There are many reasons for adding this exception to the IBC. First, 16 states have legislatively preempted adoption of residential sprinkler requirements for one- and two-family dwellings, and in some cases, townhouses. Recognizing that some homes and townhouses may be built under the IBC (perhaps where IRC height limits are exceeded or where the IRC isn't adopted), it is important to provide code incentives to strongly encourage the installation of sprinkler systems. It is also fair to offer these incentives to builders and homebuyers in other states. Second, passing this exception in the IBC will remove the question of IBC-IRC correlation as a basis for arguing against a similar change that will be proposed to the IRC in the Group B code cycle. Third, there is less benefit to a basement means of escape because the dynamics of a basement fire differ from fires above grade. In a non-sprinklered fire event, it might be possible for an occupant to be rescued or escape using an above-grade window because the lower portion of the window may initially draw fresh air. However, a basement window well will quickly fill with smoke and heated gases if there's an uncontrolled fire in the basement, and the importance of fire sprinklers in providing extra egress time cannot be overstated. Likewise, by the time firefighters arrive, rescuing an occupant from a developed basement fire through a means of escape window or using such window as an escape route for a firefighter seems highly unlikely. Firefighter safety is far better assured by sprinklers.

Looking at the value of this incentive, the cost savings associated with eliminating even one basement escape window and the associated ladder and window well is significant. Combine that with the benefit of eliminating leakage and maintenance issues and tripping/fall hazards that may be associated with window wells, and the incentive grows. Finally, recognize the enormous benefit that this change will offer for homebuyers, who will gain the option of finishing a rough-in basement without the contsraint of laying out sleeping rooms based on existing window locations or having to add windows to an existing basement. This single incentive might be valuable enough to encourage voluntary sprinkler installations, and still, the level of safety will exceed what is required by the IBC for similar occupancies and by NFPA 101.

Cost Impact: Will not increase the cost of construction
The proposal adds an option to the code. There is no requirement to utilize this option; however, if it is used, the cost of construction may decrease.

E 145-15 : 1030.1-SHAPIRO5526

E 146-15

1030.1.1(New), 1030.4; (IFC[BE] 1030.1.1(New), 1030.4)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Add new text as follows:

1030.1.1 Operational constraints and opening control devices. Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys or tools. Window opening control devices complying with ASTM F 2090 shall be permitted for use on windows serving as a required emergency escape and rescue opening.

Revise as follows:

~~1030.4~~1030.5 ~~Operational constraints.~~Bars, grilles, covers and screens. ~~*Emergency escape and rescue openings* shall be operational from the inside of the room without the use of keys or tools.~~

Bars, grilles, ~~grates~~covers, screens or similar devices are permitted to be placed over *emergency escape and rescue openings*, bulkhead enclosures, or window wells that serve such openings, provided that the minimum net clear opening size complies with Section ~~1030.2~~1030.1.1 through 1030.4 and such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the *emergency escape and rescue opening*. Where such bars, grilles, ~~grates~~covers, screens or similar devices are installed in existing buildings, *smoke alarms* shall be installed in accordance with Section 907.2.11 regardless of the valuation of the *alteration*.

(Renumber the following sections:)

~~1030.5~~1030.4 Window wells. *(No change to text.)*

~~1030.5.1~~1030.4.1Minimum size. *(No change to text.)*

~~1030.5.2~~1030.4.2Ladders or steps. *(No change to text.)*

Reason: In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled Child Window Safety. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

2015 IRC Section R310.1.1 specifically notes that devices complying with ASTM F2090 do not jeopardize compliance with the emergency escape and rescue provisions. A similar requirement is needed in the IBC.

Note that the requirements for bars, grilles, covers and screens are addressed in IRC R310.4. This proposal splits and relocates the requirements to be consistent with what is in the IRC for emergency and escape windows operational constraints. The relocation of the provisions for window wells is to allow for the window size requirements to be grouped together for reference in the same manner as the IRC.

R310.1.1 Operational constraints and opening control devices. Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys, tools or special knowledge. Window opening control devices complying with ASTM F 2090 shall be permitted for use on windows serving as a required emergency escape and rescue opening.

R310.4 Bars, grilles, covers and screens. Bars, grilles, covers, screens or similar devices are permitted to be placed over emergency escape and rescue openings, bulkhead enclosures, or window wells that serve such openings, provided that the minimum net clear opening size complies with Sections R310.1.1 to R310.2.3, and such devices shall be releasable or removable from the inside without the use of a key, tool, special knowledge or force greater than that required for the normal operation of the escape and rescue opening.

Cost Impact: Will not increase the cost of construction
The proposal is coordination with IRC allowances for emergency escape windows and allows for another design option.

E 146-15 : 1030.4-KULIK3326

E 147-15

Part I:
1030.4 (IFC[BE]1030.4)
Part II:
406, 406.4 (New), 701.4 (New)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC-MEANS OF EGRESS COMMITTEE. PART II WILL BE HEARD BY THE IEBC COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

Part I

2015 International Building Code

Revise as follows:

1030.4 Operational constraints. *Emergency escape and rescue openings* shall be operational from the inside of the room without the use of keys or tools. Bars, grilles, grates or similar devices are permitted to be placed over *emergency escape and rescue openings* provided the minimum net clear opening size complies with Section 1030.2 and such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the *emergency escape and rescue opening*. Where such bars, grilles, grates or similar devices are installed in existing buildings, they shall not reduce the net clear opening of the *emergency escape and rescue openings* and *smoke alarms* shall be installed in accordance with Section 907.2.11 regardless of the valuation of the *alteration*.

Part II

2015 International Existing Building Code

SECTION 406
~~GLASS REPLACEMENT~~WINDOWS AND ~~REPLACEMENT WINDOWS~~EMERGENCY ESCAPE OPENINGS

Add new text as follows:

406.4 Emeregency escape and rescue openings. Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys or tools. Bars, grilles, grates or similar devices are permitted to be placed over emergency escape and rescue openings provided the minimum net clear opening size complies with the code that was in effect at the time of construction and such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the escape and rescue opening. Where such bars, grilles, grates or similar devices are installed, they shall not reduce the net clear opening of the emergency escape and rescue openings and smoke alarms shall be installed in accordance with Section 907.2.11 of the International Building Code regardless of the valuation of the alteration.

701.4 Emergecy escape and rescue openings. Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys or tools. Bars, grilles, grates or similar devices are permitted to be placed over emergency escape and rescue openings provided the minimum net clear opening size complies with the code that was in effect at the time of construction and such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the escape and rescue opening. Where such bars, grilles, grates or similar devices are installed, they shall not reduce the net clear opening of the emergency escape and rescue openings and smoke alarms shall be installed in accordance with Section 907.2.11 of the International Building Code regardless of the valuation of the alteration.

Staff note: Emergency escape and rescue openings provisions are also included in Sections 406.3 amd 702.5.

Reason: The emergency escape and rescue provisions within IBC section 1030.4 includes requirements that speak to installations that may take place on an existing building, yet no such provision is found within the IEBC. It is appropriate to have such a reference within the IEBC.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact:

Part I: Will not increase the cost of construction
The proposal is coordination with IRC allowances for emergency escape windows and allows for another design option.

Part II: Will not increase the cost of construction
The proposal is coordination with IRC allowances for emergency escape windows and allows for another design option.

E 148-15

[BE] 1031.4

Proponent: Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Fire Code

Revise as follows:

[BE] 1031.4 Exit signs. Exit signs shall be installed and maintained in accordance with the building code that applied at the time of construction and the applicable provisions in Section ~~1013~~1104. Decorations, furnishings, equipment or adjacent signage that impairs the visibility of exit signs, creates confusion or prevents identification of the *exit* shall not be allowed.

Reason: Current language has been interpreted to require existing buildings to install new components to meet the provisions of Section 1013. In effect, the current code acts as a retroactive provision. Retroactive requirements should be contained in Chapter 11. This revision requires that the building have exit signs in accordance with the applicable code of record and in accordance with the applicable requirements from Section 1104. This is more appropriate for dealing with existing buildings.

Cost Impact: Will not increase the cost of construction
There is no increase in requirements

E 148-15 : [BE] 1031.4-DIGIOVANNI5858

E 149-15

1103.2.4, 1106.5

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1103.2.4 Utility buildings. Group U occupancies are not required to comply with this chapter other than the following:

1. In agricultural buildings, access is required to paved work areas and areas open to the general public.
2. ~~Private~~Group U private garages or carports that contain required *accessible* parking.

1106.5 Van spaces. For every six or fraction of six *accessible* parking spaces, at least one shall be a van-accessible parking space.

> **Exception:** In Group R-2 and R-3 occupancies, van-accessible spaces located within Group U private garages that serve Type B units shall be permitted to have vehicular routes, entrances, parking spaces and access aisles with a minimum vertical clearance of 7 feet (2134 mm).

Reason: The definitions and requirements for private garages was revised in the 2015 IBC. This proposal will coordinate Sections 1103.2.4 and 1106.3 with how the term is used in Section 406.3. This will also help clarify the original intent that these exceptions were intended for small garages, not larger garages that are for residents only. The latter interpretation would be a conflict with federal accessibility requirements.
In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification of current requirements; therefore, there is no impact on the cost.

E 149-15 : 1103.2.4-KULIK3336

E 150-15

1103.2.14

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Revise as follows:

1103.2.14 Walk-in coolers and freezers. Walk-in ~~coolers~~cooler and ~~freezers intended for~~freezer equipment accessed from employee ~~use only~~work areas are not required to comply with this chapter.

Reason: The current language could be misread to allow for giant coolers where employees work all day or where they are large enough to allow fork lifts. The revised language would be clarify that this intended to address a walk-in cooler equipment provided off a restaurant commercial kitchen. It is not intended to allow for a walk-in refrigerated room that was part of a facility such as a meat packing plant. 'Employee work area' is a defined term.
In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification of current requirements; therefore, there is no impact on the cost.

E 150-15 : 1103.2.14-KULIK3337

E 151-15

1104.4

Proponent: Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com)

2015 International Building Code

Revise as follows:

1104.4 Multistory buildings and facilities. At least one *accessible route* shall connect each *accessible story*, ~~and~~ mezzanine and occupiable roof in multilevel buildings and *facilities*.

Exceptions:

1. An *accessible route* is not required to *stories*, ~~and~~ *mezzanines* and occupiable roof that have an aggregate area of not more than 3,000 square feet (278.7 m^2) and are located above and below *accessible* levels.This exception shall not apply to:
   - 1.1. Multiple tenant facilities of Group M occupancies containing five or more tenant spaces used for the sales or rental of goods and where at least one such tenant space is located on a floor level above or below the *accessible* levels;
   - 1.2. *Stories* or *mezzanines* containing offices of health care providers (Group B or I);
   - 1.3. Passenger transportation facilities and airports (Group A-3 or B);or
   - 1.4. Government buildings.
2. *Stories*, ~~or~~ mezzanines or occupiable roofs that do not contain *accessible* elements or other spaces as determined by Section 1107 or 1108 are not required to be served by an *accessible route* from an *accessible* level.
3. In air traffic control towers, an *accessible route* is not required to serve the cab and the floor immediately below the cab.
4. Where a two-story building or facility has one *story* or *mezzanine* with an *occupant load* of five or fewer persons that does not contain *public use* space, that *story* or *mezzanine* shall not be required to be connected by an *accessible route* to the *story* above or below.

Reason: The added phrase "occupiable roof" is proposed. As written, the current text would exclude anything that is not a story or mezzanine. Becasue "story" is defined as the space between a floor and ceiling/roof above, an occupiable roof of a hotel with a large swimming pool or a roof garden for an apartment or office would not be included as requiring an accessible route. If these roof areas contain elements which must be acessible, they should be included in the requirement for access to those levels. Simply becasue a space does not have a roof but otherwise functions as a part of the buidling, it should not be excluded from access.
During the prior code cycle the term "floor" was changed to "story." consequently, the ability to easily address the occupiable roof was lost. This propsal will restore the original intent.

Cost Impact: Will not increase the cost of construction
This is a clarification. The revised language is only addressing what should alreay be the case.

E 151-15 : 1104.4-BOECKER5548

E 152-15

1104.4

Proponent: David Kulina, representing Engel Architects (david@engelarch.com)

2015 International Building Code

Revise as follows:

1104.4 Multistory buildings and facilities. At least one *accessible route* shall connect each *accessiblestory* and *mezzanine* in multilevel buildings and *facilities*.

Exceptions:

1. An *accessible route* is not required to *stories* and *mezzanines* that have an aggregate area of not more than 3,000 square feet (278.7 m^2) and are located above and below *accessible* levels. Such aggregate area shall not include spaces already exempted by Section 1103.2. This exception shall not apply to:
   - 1.1. Multiple tenant facilities of Group M occupancies containing five or more tenant spaces used for the sales or rental of goods and where at least one such tenant space is located on a floor level above or below the *accessible* levels;
   - 1.2. *Stories* or *mezzanines* containing offices of health care providers (Group B or I);
   - 1.3. Passenger transportation facilities and airports (Group A-3 or B);or
   - 1.4. Government buildings.
2. *Stories* or *mezzanines* that do not contain *accessible* elements or other spaces as determined by Section 1107 or 1108 are not required to be served by an *accessible route* from an *accessible* level.
3. In air traffic control towers, an *accessible route* is not required to serve the cab and the floor immediately below the cab.
4. Where a two-story building or facility has one *story* or *mezzanine* with an *occupant load* of five or fewer persons that does not contain *public use* space, that *story* or *mezzanine* shall not be required to be connected by an *accessible route* to the *story* above or below.

Reason: The intent of the 3000 square foot rule was to grant relief from accessibilitiy requirements for areas of limited size. Frequently, the 3000 square foot barrier is broken because a building may have 2000 square foot of mechanical space on top of a 1500 square foot mezzanine. In the case of large factories and warehouses, the total number of equipment areas may be greater than 3000 square feet by themselves, thus all other spaces would have to be made accessible.

Cost Impact: Will not increase the cost of construction
This change will result in cost savings by alleviating the need for lifts and elevators to access limited area floor levels.

E 152-15 : 1104.4-KULINA4556

E 153-15

1105.1, 1105.1.1 (New), TABLE 1105.1.1 (New)

Proponent: Joseph Hetzel, representing DASMA (Jhetzel@thomasamc.com)

2015 International Building Code

Revise as follows:

1105.1 Public entrances. In addition to *accessible* entrances required by Sections ~~1105.1.1~~1105.1.2 through ~~1105.1.7~~1105.1.8, at least 60 percent of all *public entrance*s shall be *accessible*.

Exceptions:

1. An *accessible* entrance is not required to areas not required to be *accessible*.
2. Loading and *service entrances* that are not the only entrance to a tenant space.

Add new text as follows:

1105.1.1 Automatic Doors. For buildings or facilities having occupant loads greater than or equal to that specified in Table 1105.1.8, at least one accessible public entrance shall be either a power-operated door or a low-energy power-operated door.

TABLE 1105.1.1
PUBLIC ENTRANCE WITH POWER-OPERATED DOOR

OCCUPANCY	MINIMUM OCCUPANT LOAD
I-1, I-2	50
A-1, A-2, A-3, A-4	300
R-1	300
B, E, M, R-2	500

(Renumber subsequent sections.)

Reason:

- The proposed language is conceptually based on code language currently in existence, and successfully used, in the province of Ontario, Canada.
- It is widely accepted that automatic doors in general enhance overall accessibility.
- The occupancies cited as requiring power-operated doors are associated with locations where either a high degree of public use would be anticipated, or a serious need exists among the population using a particular occupancy.
- The Table is needed in Section 1105, where accessible entrances are governed.
- Occupant loads have been determined as follows:
  - Groups A and I-2: From Table 1604.5, where these Groups are classified as Risk Category III described as "buildings and other structures that represent a substantial hazard to human life in the event of failure".
  - Other Groups in proposed Table 1105.1.8: From Table 1006.3.1, which states that three exits or exit access doorways shall be provided from any space with an occupant load of 501 to 1000, and four shall be provided with an occupant load greater than 1000.
- The thresholds have been chosen so as not to place a disproportional economic burden on smaller occupancies such as small assembly buildings or strip mall businesses.
- The thresholds also assume that a minimum of 0.4% of the population will be in need of accessibility at any given time for the specified occupancies. The anticipated accessibility need should exceed this estimate a large enough percentage of time to constitute a critical mass of facilities needing power-operated doors when meeting the established thresholds.
- The population requiring accessibility commonly needs accommodations to enter assembly, business, mercantile, hotel/motel, and institutional facilities as part of their everyday life.

Cost Impact: Will increase the cost of construction
The code change proposal will increase the cost of construction, which will be offset by the significant enhancement of accessibility and the side benefit of increased public convenience.

E 153-15 : 1105.1-HETZEL3472

E 154-15

1106.5

Proponent: Kathleen Petrie, representing City of Seattle, Department of Planning and Development (kathleen.petrie@seattle.gov)

2015 International Building Code

Revise as follows:

1106.5 Van spaces. For every six or fraction of six *accessible* parking spaces, at least one shall be a van-accessible parking space.

> **Exception:** In Group U *private garages* that serve Group R-2 and R-3 occupancies, van-accessible spaces ~~located within private garages~~ shall be permitted to have vehicular routes, entrances, parking spaces and access aisles with a minimum vertical clearance of 7 feet (2134 mm).

Reason: As currently written, this section provides governs van accessible spaces within garages of R-2 or R-3 occupancy spaces. Garages are U occupancies not R occupancies, so this exception is actually directed toward the U occupancy that is accessory to the residential occupancy.

Cost Impact: Will not increase the cost of construction
This modification does not impact how a structure is constructed, so costs are not increased or decreased

E 154-15 : 1106.5-PETRIE3480

E 155-15

1107.5.1, 1107.5.1.1, 1107.5.1.2, 1107.6.2.2, 1107.6.2.2.1, 1107.6.2.2.2, 1107.6.2.3, 1107.6.2.3.1, 1107.6.2.3.2

Proponent: Daniel Nichols, New York State Division of Building Standards and Codes, representing New York State Division of Building Standards and Codes (dnichols@dos.state.ny.us)

2015 International Building Code

Revise as follows:

1107.5.1 Group I-1. *Accessible units* and *Type B units* shall be provided in Group I-1 occupancies in accordance with Sections 1107.5.1.1 and 1107.5.1.2.

1107.5.1.1 Accessible units. In Group I-1 Condition 1, at least 4 percent, but not less than one, of the *dwelling units* and *sleeping units* shall be *Accessible units*.In Group I-1 Condition 2, at least 10 percent, but not less than one, of the *dwelling units* and *sleeping units* shall be *Accessible units*.

1107.5.1.2 Type B units. In structures with four or more *dwelling units* or *sleeping unit*s *intended to be occupied as a residence*, every *dwelling unit* and *sleeping unit intended to be occupied as a residence* shall be a *Type B unit*and shall meet the additional following requirements.

1. Door intended for user passage required to comply with ICC A117.1 Section 1004.5.2 shall also comply with the clear width and maneuvering clearances required by Sections 404.2.2 and 404.2.3 of ICC A117.1.
2. At least one toilet and bathing facility in the *dwelling* or *sleeping unit* shall be constructed in accordance with the toilet and bathing facilities requirements of Section 1003.11 of ICC A117.1.

~~Exception~~Exceptions:

1. The number of *Type B units* is permitted to be reduced in accordance with Section 1107.7.
2. Maneuvering clearances is not required on the toilet room or bathroom side of the door in toilet rooms and bathrooms not required to comply with Section 1003.11 of ICC A117.1.
3. Where exterior space dimensions of balconies are less than the required manuevering clearance, door manuevering clearances is not required on the exterior side of the door.
4. Where closets or pantries are 48 inches (1220 mm) maximum in depth, the maneuvering clearance is not required on the closet side of the door.

1107.6.2.2 Apartment houses, monasteries and convents. *Type A units* and *Type B units* shall be provided in apartment houses, monasteries and convents in accordance with Sections 1107.6.2.2.1 and 1107.6.2.2.2.

Delete without substitution:

~~**1107.6.2.2.1 Type A units.** In Group R-2 occupancies containing more than 20 *dwelling units* or *sleeping units*, at least 2 percent but not less than one of the units shall be a *Type A unit*.All Group R-2 units on a *site* shall be considered to determine the total number of units and the required number of *Type A units*.*Type A units* shall be dispersed among the various classes of units.Bedrooms in monasteries and convents shall be counted as *sleeping units* for the purpose of determining the number of units.Where the *sleeping units* are grouped into suites, only one *sleeping unit* in each suite shall count towards the number of required *Type A units*.~~

~~**Exceptions:**~~

1. ~~The number of *Type A units* is permitted to be reduced in accordance with Section 1107.7.~~
2. ~~*Existing structures* on a *site* shall not contribute to the total number of units on a *site*.~~

Revise as follows:

1107.6.2.2.2 Type B units. Where there are four or more *dwelling units* or *sleeping unit*s *intended to be occupied as a residence* in a single structure, every *dwelling unit* and *sleeping unitintended to be occupied as a residence* shall be a *Type B unit* and shall meet the additional following requirements.

1. Door intended for user passage required to comply with ICC A117.1 Section 1004.5.2 shall also comply with the clear width and maneuvering clearances required by Sections 404.2.2 and 404.2.3 of ICC A117.1.
2. At least one toilet and bathing facility in the dwelling or sleeping unit shall be constructed in accordance with the toilet and bathing facilities requirements of Section 1003.11 of ICC A117.1.

~~Exception~~Exceptions:

1. The number of *Type B units* is permitted to be reduced in accordance with Section 1107.7.
2. Maneuvering clearances is not required on the toilet room or bathroom side of the door in toilet rooms and bathrooms not required to comply with Section 1003.11 of ICC A117.1.
3. Where exterior space dimensions of balconies are less than the required manuevering clearance, door manuevering clearances is not required on the exterior side of the door.
4. Where closets or pantries are 48 inches (1220 mm) maximum in depth, the maneuvering clearance is not required on the closet side of the door.

1107.6.2.3 Group R-2 other than live/work units, apartment houses, monasteries and convents. In Group R-2 occupancies, other than *live/work units*, apartment houses, monasteries and convents falling within the scope of Sections 1107.6.2.1 and 1107.6.2.2, *Accessibleunits* and *Type B units* shall be provided in accordance with Sections 1107.6.2.3.1 and 1107.6.2.3.2. Bedrooms within congregate living facilities shall be counted as *sleeping units* for the purpose of determining the number of units. Where the *sleeping units* are grouped into suites, only one *sleeping unit* in each suite shall be permitted to count towards the number of required *Accessibleunits*.

1107.6.2.3.1 Accessible units. *Accessibledwelling units* and *sleeping unit*s shall be provided in accordance with Table 1107.6.1.1.

1107.6.2.3.2 Type B units. Where there are four or more *dwelling units* or *sleeping unit*s *intended to be occupied as a residence* in a single structure, every *dwelling unit* and every *sleeping unitintended to be occupied as a residence* shall be a *Type B unit*and shall meet the additional following requirements.

1. Door intended for user passage required to comply with ICC A117.1 Section 1004.5.2 shall also comply with the clear width and maneuvering clearances required by Sections 404.2.2 and 404.2.3 of ICC A117.1.
2. At least one toilet and bathing facility in the *dwelling* or *sleeping unit* shall be constructed in accordance with the toilet and bathing facilities requirements of Section 1003.11 of ICC A117.1.

~~Exception~~Exceptions:

1. The number of *Type B units* is permitted to be reduced in accordance with Section 1107.7.
2. Maneuvering clearances is not required on the toilet room or bathroom side of the door in toilet rooms and bathrooms not required to comply with Section 1003.11 of ICC A117.1.
3. Where exterior space dimensions of balconies are less than the required manuevering clearance, door manuevering clearances is not required on the exterior side of the door.
4. Where closets or pantries are 48 inches (1220 mm) maximum in depth, the maneuvering clearance is not required on the closet side of the door.

Reason: The purpose of this code change proposal is to modify the level of accessibility offered in Group I-1 and R-2. The collective use of these residential occupancies is generally for occupants that are planning a long-term residency in a dwelling or sleeping unit. With that, the availability of choice is important in selecting a residential unit compared to other residential occupancies.

The language of the proposal has been utilized in New York State for the past 12 years and was developed jointly by accessibility advocates and the building industry . For Group R-2 apartments, the baseline to the proposal is that the elimination of full Type A unit requirements is offset by the expansion of certain accessibility features in the remaining units that are being designed as Type B units. The reasoning for this proposal is to offer more choice in these residential buildings to those with different types of physical disabilities and their respective mobility needs. Further, the proposal will offer more choice of residential housing to a greater number of those with physical disabilities since the requirements for doorway widths and an accessible bathroom will start at four units, instead of 20 units that count units throughout a complex.

The proposal requires the initial design of all apartments to have doorways the width as required for a Type A unit as well as one bathroom to be of Type A design. This provides the additional choice within apartments for either initial use or adaptable changes to other building features (like cabinetry or appliance access) due to change of occupant or change of occupant's abilities.

Cost Impact: Will increase the cost of construction
The code change will increase the cost of construction since the floor area that is required for the additional Type B units is generally not offset by the ellimination of the Type A units.

E 155-15 : 1107.6.2.2-NICHOLS5453

E 156-15

1107.5.1.2

Proponent: Margaret Calkins, representing Rothschild Foundation ADA Task Force (mcalkins@ideasinstitute.org)

2015 International Building Code

1107.5.1 Group I-1. *Accessible units* and *Type B units* shall be provided in Group I-1 occupancies in accordance with Sections 1107.5.1.1 and 1107.5.1.2.

1107.5.1.1 Accessible units. In Group I-1 Condition 1, at least 4 percent, but not less than one, of the *dwelling units* and *sleeping units* shall be *Accessible units*.In Group I-1 Condition 2, at least 10 percent, but not less than one, of the *dwelling units* and *sleeping units* shall be *Accessible units*.

Revise as follows:

1107.5.1.2 Type B units. In structures with four or more *dwelling units* or *sleeping unit*s *intended to be occupied as a residence*, every *dwelling unit* and *sleeping unit intended to be occupied as a residence* shall be a *Type B unit*.

~~Exception~~Exceptions:

1. The number of *Type B units* is permitted to be reduced in accordance with Section 1107.7.
2. At the water closet, two installed swing-up grab bars shall be permitted as an alternative to reinforcements for rear and side grab bars.

Reason: It has long been recognized that most older adults do not have the upper body strength and mobility/range of motion to complete a sliding transfer onto a toilet. Even individuals who use a wheelchair for mobility needs, if they are capable of bearing weight (fully or partially) use a stand-turn-sit action to transfer onto and off of the toilet, either independently or with assistance. Recently completed research by Sanford and Calkins has shown that both elders and care partners prefer bilateral swing up grab bars over the typical side and rear wall grab bar congifuration. Three test conditions included the traditional ADA congifuration with the toilet 18" from the sidde wall and a wall mounted grab bar; bilateral grab bars located at the ADA specified distances (16-18" from the center line of the toilet, mounted 34" above the floor); and a user defined configuration that varied between individuals.
From the interum report for the research:

Configuration Preference: Regardless of level of assistance (independent, 1-person assist or 2-person assist) residents overwhelming preferred the individualized configuration to either the ADA side bar or the bilater fold down grab bars are ADA dimensions. The majority of residents (70% or greater) preferred the grabbars at 13" from the center line of the toilet. The mean preferred height was 32.8" above the floor. Finally,having the wall located 24" from the center line of the toilet was felt to be sufficient for caregiver maneuverability over 84% of the time. Among 30 resident who performed independent transfers 86.2% (n=25) preferred the individualized configuration over the ADA (n=2) or bilateral ADA (n=2) grab bar configuration (missing data on 1 resident). Among 22 residents who required a 1-person assist, 78.3% (n=18) preferred the individualized configuration over the ADA (n=0) or bilateral ADA (n=4). Finally, among 23 residents who required a 2-person assist, 82.6% (n=19)preferred the individualized configuration to the ADA (n=3) or bilateral ADA configuration (n=1). Similar findings were reported by staff for assisted transfers. For those assisting with 1-person assisted transfers, 76.2% (n=16) preferred the individualized configuration to the ADA (n=1) or the bilateral ADA (n=4). For those assisting with a 2-person assisted trasnfer, 58% (n=14) preferred the individualized configuration, although 33% preferred the biateral configuration, while only 8.3% (n=2) preferred the ADA side bar.

Mean Rating for Safety: Mean ratings for the location and style of grab bar to help with safe transfers and support staff to provide assistance were also calculated. On a 5 point scale where 1=strongly disagree and 5=strongly agree. both residents and staff gave consistently higher ratings to the individualized configuration (means ranged from 4.0 - 4.7) than to either the standard ADA configuration (means ranged from 3.2 - 3.8) or the bilateral ADA configuration (means ranged from 3.4 - 3.8).

The timing of this research was such that we were unable to make proposals for changes to ANSI on specifications for either Accessible or Type B units. Thus, at this time we are only looking to specifically alow bi-lateral fold-up grab bar as an alternative to providing side and back wall blocking in Type B units. We recognize that fold-up grab bars are not prohibited in Type B units, however, in some states because this option is not specifically defined, AHJs are relcutant to allow them to be installed during construction. Our goal is to make sure that bilateral fold up grab bars are an option in Group I1 buildings.

Bibliography: [Proposal for additional to accessibility standards for nursing home and assisted living residents in toileting and bathing] [Report/Document #] [Rothschild ADA Task Force] [2012] [1-58]
[www.IDEASInstitute.org/publications.asp]

[Preliminary final report for phases 1-3] [Report/Document #] [Sanford, Calkins] [unpublished] [Page #]
[Request a copy from info@TheRothschildFoundation.us]

Cost Impact: Will not increase the cost of construction
As an option, this will have no mandatory cost implications on projects. Owners who wish to better support their residents and caregivers may choose this as an option, but it is not required.

E 156-15 : 1107.5.1.2-CALKINS4780

E 157-15

1107.5.2.2

Proponent: Margaret Calkins, representing Rothschild Foundation ADA Task Force (mcalkins@ideasinstitute.org)

2015 International Building Code

1107.5.2 Group I-2 nursing homes. *Accessible units* and *Type B units* shall be provided in nursing homes of Group I-2 occupancies in accordance with Sections 1107.5.2.1 and 1107.5.2.2.

1107.5.2.1 Accessible units. At least 50 percent but not less than one of each type of the *dwelling units* and *sleeping unit*s shall be *Accessible units*.

Revise as follows:

1107.5.2.2 Type B units. In structures with four or more *dwelling units* or *sleeping unit*s *intended to be occupied as a residence*, every *dwelling unit* and *sleeping unit intended to be occupied as a residence* shall be a *Type B unit*.

~~Exception~~Exceptions:

1. The number of *Type B units* is permitted to be reduced in accordance with Section 1107.7.
2. At the water closet, two installed swing-up grab bars shall be permitted as an alternative to reinforcements for rear and side grab bars.

Reason: It has long been recognized that most older adults do not have the upper body strength and mobility/range of motion to complete a sliding transfer onto a toilet. Even individuals who use a wheelchair for mobility needs, if they are capable of bearing weight (fully or partially) use a stand-turn-sit action to transfer onto and off of the toilet, either independently or with assistance. Recently completed research by Sanford and Calkins has shown that both elders and care partners prefer bilateral swing up grab bars over the typical side and rear wall grab bar congifuration. Three test conditions included the traditional ADA congifuration with the toilet 18" from the sidde wall and a wall mounted grab bar; bilateral grab bars located at the ADA specified distances (16-18" from the center line of the toilet, mounted 34" above the floor); and a user defined configuration that varied between individuals.
From the interum report for the research:

Configuration Preference: Regardless of level of assistance (independent, 1-person assist or 2-person assist) residents overwhelming preferred the individualized configuration to either the ADA side bar or the bilater fold down grab bars are ADA dimensions. The majority of residents (70% or greater) preferred the grabbars at 13" from the center line of the toilet. The mean preferred height was 32.8" above the floor. Finally,having the wall located 24" from the center line of the toilet was felt to be sufficient for caregiver maneuverability over 84% of the time. Among 30 resident who performed independent transfers 86.2% (n=25) preferred the individualized configuration over the ADA (n=2) or bilateral ADA (n=2) grab bar configuration (missing data on 1 resident). Among 22 residents who required a 1-person assist, 78.3% (n=18) preferred the individualized configuration over the ADA (n=0) or bilateral ADA (n=4). Finally, among 23 residents who required a 2-person assist, 82.6% (n=19)preferred the individualized configuration to the ADA (n=3) or bilateral ADA configuration (n=1). Similar findings were reported by staff for assisted transfers. For those assisting with 1-person assisted transfers, 76.2% (n=16) preferred the individualized configuration to the ADA (n=1) or the bilateral ADA (n=4). For those assisting with a 2-person assisted trasnfer, 58% (n=14) preferred the individualized configuration, although 33% preferred the biateral configuration, while only 8.3% (n=2) preferred the ADA side bar.

Mean Rating for Safety: Mean ratings for the location and style of grab bar to help with safe transfers and support staff to provide assistance were also calculated. On a 5 point scale where 1=strongly disagree and 5=strongly agree. both residents and staff gave consistently higher ratings to the individualized configuration (means ranged from 4.0 - 4.7) than to either the standard ADA configuration (means ranged from 3.2 - 3.8) or the bilateral ADA configuration (means ranged from 3.4 - 3.8).

The timing of this research was such that we were unable to make proposals for changes to ANSI on specifications for either Accessible or Type B units. Thus, at this time we are only looking to specifically alow bi-lateral fold-up grab bar as an alternative to providing side and back wall blocking in Type B units. We recognize that fold-up grab bars are not prohibited in Type B units, however, in some states because this option is not specifically defined, AHJs are relcutant to allow them to be installed during construction. Our goal is to make sure that bilateral fold up grab bars are an option in Group I2 buildings.

Bibliography: [Proposal for additions to accessibility guidelines for bursing home and assisted living residents in toileting and bathing] [Report/Document #] [Rothschild Foundation ASA Task Force] [2012] [1-58]
[www.IDEASInstitute.org.publications.asp]

Cost Impact: Will not increase the cost of construction
As an option, this will not have any mandatory cost increase. Owners may choose to install bilater grab bars if they want to better suppport their residents and caregivers.

E 157-15 : 1107.5.2.2-CALKINS5440

E 158-15

1107.5.3.2

Proponent: Margaret Calkins, representing Rothschild Foundation ADA Task Force (mcalkins@ideasinstitute.org)

2015 International Building Code

1107.5.3 Group I-2 hospitals. *Accessible units* and *Type B units* shall be provided in general-purpose hospitals, psychiatric facilities and detoxification facilities of Group I-2 occupancies in accordance with Sections 1107.5.3.1 and 1107.5.3.2.

1107.5.3.1 Accessible units. At least 10 percent, but not less than one, of the *dwelling units* and *sleeping units* shall be *Accessibleunits*.

> **Exception:** Entry doors to *Accessibledwelling units* or *sleeping units* shall not be required to provide the maneuvering clearance beyond the latch side of the door.

Revise as follows:

1107.5.3.2 Type B units. In structures with four or more *dwelling units* or *sleeping unit*s *intended to be occupied as a residence*, every *dwelling unit* and *sleeping unitintended to be occupied as a residence* shall be a *Type B unit*.

> **~~Exception~~<u>Exceptions</u>:**
>
> 1. The number of *Type B units* is permitted to be reduced in accordance with Section 1107.7.
> 2. <u>At the water closet, two installed swing-up grab bars shall be permitted as an alternative to reinforcements for rear and side grab bars.</u>

Reason: This same proposal is being included for hospitals for 2 reasons. First, the majority of patient days (roughly 65%) are used by people over the age of 65. Second, having bilateral grabbars provides better support for anyone who is frail or might have balance issues. The rest of this justification is the same.
Recently completed research by Sanford and Calkins has shown that both elders and care partners prefer bilateral swing up grab bars over the typical side and rear wall grab bar congifuration. Three test conditions included the traditional ADA congifuration with the toilet 18" from the sidde wall and a wall mounted grab bar; bilateral grab bars located at the ADA specified distances (16-18" from the center line of the toilet, mounted 34" above the floor); and a user defined configuration that varied between individuals.

From the interum report for the research:

Configuration Preference: Regardless of level of assistance (independent, 1-person assist or 2-person assist) residents overwhelming preferred the individualized configuration to either the ADA side bar or the bilater fold down grab bars are ADA dimensions. The majority of residents (70% or greater) preferred the grabbars at 13" from the center line of the toilet. The mean preferred height was 32.8" above the floor. Finally,having the wall located 24" from the center line of the toilet was felt to be sufficient for caregiver maneuverability over 84% of the time. Among 30 resident who performed independent transfers 86.2% (n=25) preferred the individualized configuration over the ADA (n=2) or bilateral ADA (n=2) grab bar configuration (missing data on 1 resident). Among 22 residents who required a 1-person assist, 78.3% (n=18) preferred the individualized configuration over the ADA (n=0) or bilateral ADA (n=4). Finally, among 23 residents who required a 2-person assist, 82.6% (n=19)preferred the individualized configuration to the ADA (n=3) or bilateral ADA configuration (n=1). Similar findings were reported by staff for assisted transfers. For those assisting with 1-person assisted transfers, 76.2% (n=16) preferred the individualized configuration to the ADA (n=1) or the bilateral ADA (n=4). For those assisting with a 2-person assisted trasnfer, 58% (n=14) preferred the individualized configuration, although 33% preferred the biateral configuration, while only 8.3% (n=2) preferred the ADA side bar.

Mean Rating for Safety: Mean ratings for the location and style of grab bar to help with safe transfers and support staff to provide assistance were also calculated. On a 5 point scale where 1=strongly disagree and 5=strongly agree. both residents and staff gave consistently higher ratings to the individualized configuration (means ranged from 4.0 - 4.7) than to either the standard ADA configuration (means ranged from 3.2 - 3.8) or the bilateral ADA configuration (means ranged from 3.4 - 3.8).

The timing of this research was such that we were unable to make proposals for changes to ANSI on specifications for either Accessible or Type B units. Thus, at this time we are only looking to specifically alow bi-lateral fold-up grab bar as an alternative to providing side and back wall blocking in Type B units. We recognize that fold-up grab bars are not prohibited in Type B units, however, in some states because this option is not specifically defined, AHJs are relcutant to allow them to be installed during construction. Our goal is to make sure that bilateral fold up grab bars are an option in Group I3 buildings.

Cost Impact: Will not increase the cost of construction
As an alterantive, this will not automatically increase construction costs. It is an option that owners can decide to install in type B units.

E 158-15 : 1107.5.3.2-CALKINS5439

E 159-15

1107.6.1, 1107.6.1.1

Proponent: Dominic Marinelli, representing United Spinal Association (nroether@accessibility-services.com)

2015 International Building Code

Revise as follows:

1107.6.1 Group R-1. *Accessible units* and *Type B units* shall be provided in Group R-1 occupancies in accordance with Sections 1107.6.1.1 and 1107.6.1.2.

1107.6.1.1 Accessible units. *Accessibledwelling units* and *sleeping units* shall be provided in accordance with Table 1107.6.1.1. ~~Where buildings~~On a multi-building site, where structures contain more than 50 *dwelling units* or *sleeping units*, the number of *Accessibleunits* shall be determined per ~~building.Where buildings~~structure. On a multi-building site, where structures contain 50 or fewer *dwelling units* or *sleeping units*, all *dwelling units* and *sleeping units* on a *site* shall be considered to determine the total number of *Accessibleunits.Accessibleunits* shall be dispersed among the various classes of units.

Reason: The purpose of this proposal is to be consitent with the language used for accessible housing, and to coordinate better with the DOJ intent.
The DOJ regulations read as follows:

Places of lodging. Places of lodging subject to this part [of the title III regulation] shall comply with the provisions of the 2010 Standards applicable to transient lodging, including, but not limited to, the requirements for transient lodging guest rooms in sections 224 and 806.
(1) Guest rooms. Guest rooms with mobility features in places of lodging subject to the transient lodging requirements of 2010 Standards shall be provided as follows--
(i) Facilities that are subject to the same permit application on a common site that each have 50 or fewer guest rooms may be combined for the purposes of determining the required number of accessible rooms and type of accessible bathing facility in accordance with table 224.2 to section 224.2 of the 2010 Standards.
(ii) Facilities with more than 50 guest rooms shall be treated separately for the purposes of determining the required number of accessible rooms and type of accessible bathing facility in accordance with table 224.2 to section 224.2 of the 2010 Standards.

It is always difficult to match ADA intent with IBC language. IBC defines 'building area' as what is defined by fire walls and exterior walls. 'Facility' is defined in the IBC as everything on a site. It seems like the intent here is to be consistent with the FHA language for Type B units - that regarless of fire walls, this is a structure that operates together as a unit, but it is not all the detached buildings on a site.

Cost Impact: Will not increase the cost of construction
No additional cost. Attempting to clarify language.

E 159-15 : 1107.6.1.1-ROETHER5822

E 160-15

1107.6.2.2, 1107.6.2.2.1, 1107.6.2.3, 1107.6.3, 1107.6.4

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org); Adolf Zubia, Chair, Fire Code Action Committee (fcac@iccsafe.org); Edward Kulik, Chair, Building Code Action Committee (bcac@iccsafe.org)

Revise as follows:

1107.6.2 Group R-2. *Accessibleunits*, *Type A units* and *Type B units* shall be provided in Group R-2 occupancies in accordance with Sections 1107.6.2.1 through 1107.6.2.3.

1107.6.2.1 Live/work units. In *live/work units* constructed in accordance with Section 419, the nonresidential portion is required to be *accessible*.In a structure where there are four or more *live/work unitsintended to be occupied as a residence*, the residential portion of the *live/work unit* shall be a *Type B unit*.

Exception: The number of *Type B units* is permitted to be reduced in accordance with Section 1107.7.

1107.6.2.2 Apartment houses, monasteries and convents. *Type A units* and *Type B units* shall be provided in apartment houses, monasteries and convents in accordance with Sections 1107.6.2.2.1 and 1107.6.2.2.2.
Bedrooms in monasteries and convents shall be counted as units for the purpose of determining the number of units. Where the bedrooms are grouped in sleeping units, only one bedroom in each sleeping unit shall count towards the number of required Type A units.

1107.6.2.2.1 Type A units. In Group R-2 occupancies containing more than 20 *dwelling units* or *sleeping unit*s, at least 2 percent but not less than one of the units shall be a *Type A unit*.All Group R-2 units on a *site* shall be considered to determine the total number of units and the required number of *Type A units*.*Type A units* shall be dispersed among the various classes of units. ~~Bedrooms in monasteries and convents shall be counted as *sleeping units* for the purpose of determining the number of units.Where the *sleeping units* are grouped into suites, only one *sleeping unit* in each suite shall count towards the number of required *Type A units*~~.

Exceptions:

1. The number of *Type A units* is permitted to be reduced in accordance with Section 1107.7.
2. *Existing structures* on a *site* shall not contribute to the total number of units on a *site*.

1107.6.2.2.2 Type B units. Where there are four or more *dwelling units* or *sleeping unit*s *intended to be occupied as a residence* in a single structure, every *dwelling unit* and *sleeping unitintended to be occupied as a residence* shall be a *Type B unit*.

Exception: The number of *Type B units* is permitted to be reduced in accordance with Section 1107.7.

1107.6.2.3 Group R-2 other than live/work units, apartment houses, monasteries and convents.
In Group R-2 occupancies, other than *live/work units*, apartment houses, monasteries and convents falling within the scope of Sections 1107.6.2.1 and 1107.6.2.2, *Accessibleunits* and *Type B units* shall be provided in accordance with Sections 1107.6.2.3.1 and 1107.6.2.3.2. Bedrooms within congregate living facilities, dormitories, sororities, fraternities, and boarding houses shall be counted as *sleeping units* for the purpose of determining the number of units. Where the ~~*sleeping units*~~*bedrooms* are grouped into ~~suites~~dwelling or sleeping units, only one ~~*sleeping unit*~~*bedroom* in each ~~suite~~dwelling or sleeping units shall be permitted to count towards the number of required *Accessibleunits*.

1107.6.2.3.1 Accessible units. *Accessibledwelling units* and *sleeping unit*s shall be provided in accordance with Table 1107.6.1.1.

1107.6.2.3.2 Type B units. Where there are four or more *dwelling units* or *sleeping unit*s *intended to be occupied as a residence* in a single structure, every *dwelling unit* and every *sleeping unitintended to be occupied as a residence* shall be a *Type B unit*.

Exception: The number of *Type B units* is permitted to be reduced in accordance with Section 1107.7.

1107.6.3 Group R-3. In Group R-3 occupancies where there are four or more *dwelling units* or *sleeping units intended to be occupied as a residence* in a single structure, every *dwelling unit* and *sleeping unit intended to be occupied as a residence* shall be a *Type B unit*.
Bedrooms within congregate living facilities, dormitories, sororities, fraternities, and boarding houses shall be counted as ~~*sleeping*~~ *units* for the purpose of determining the number of units.

Exception: The number of *Type B units* is permitted to be reduced in accordance with Section 1107.7.

1107.6.4 Group R-4. *Accessible units* and *Type B units* shall be provided in Group R-4 occupancies in accordance with Sections 1107.6.4.1 and 1107.6.4.2. Bedrooms in Group R-4 facilities shall be counted as ~~sleeping~~ units for the purpose of determining the number of units.

1107.6.4.1 Accessible units. In Group R-4 Condition 1, at least one of the *sleeping units* shall be an *Accessible unit*. In Group R-4 Condition 2, at least two of the *sleeping units* shall be an *Accessible unit*.

1107.6.4.2 Type B units. In structures with four or more *sleeping unit*s *intended to be occupied as a residence*, every *sleeping unitintended to be occupied as a residence* shall be a *Type B unit*.

Exception: The number of *Type B units* is permitted to be reduced in accordance with Section 1107.7.

Reason: ADA and FHA count bedrooms in dormitories and congregate residences when determining the number of units for accessibility requirements. With the recognition that suite designs can include more than one bedroom in a sleeping unit, the requirements here need to be tweaked to align with these federal regulations.

This is part of a group of proposals to address this style of design and group homes within single family residences. Changes are proposed for the definition for sleeping units, the Group classifications in Section 310.4 and 310.5, separation requirements in Section 420, and coordination with accessibility requirements in Section 1107. Proposals will be put forward as part of Group B for fire and smoke alarm systems. The proposals could work separately.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.http://www.iccsafe.org/cs/CTC/Pages/default.aspx

This proposal is submitted by the ICC Fire Code Action Committee (FCAC). This ICC committee was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the Fire-CAC has held 10 open meetings and numerous Regional Work Group and Task Group meetings and conference calls which included members of the committees as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the FAC website at: http://www.iccsafe.org/cs/CAC/Pages/default.aspx?usertoken={token}&Site=icc

The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This is a clarification, not a change in requirements.

Staff note: There is published errata for Section 1107.6.4, 1107.6.4.1 and 1107.6.4.2. The errata in incorporated into this proposal as existing text.

E 160-15 : 1107.6.2.2-BALDASSARRA4296

E 161-15

1107.6.3, 1107.6.4, 1107.6.4.1, 1107.6.4.2

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Building Code

Revise as follows:

1107.6.3 ~~Group~~Groups R-3 and R-4. In Group R-3 and R-4 occupancies where there are four or more *dwelling units* or *sleeping unitsintended to be occupied as a residence* in a single structure, every *dwelling unit* and *sleeping unit intended to be occupied as a residence* shall be a *Type B unit*. Bedrooms within congregate living facilities shall be counted as *sleeping units* for the purpose of determining the number of units.

> **Exception:** The number of *Type B units* is permitted to be reduced in accordance with Section 1107.7.

Delete without substitution:

~~**1107.6.4 Group R-4.** *Accessible units* and *Type B units* shall be provided in Group R-4 occupancies in accordance with Sections 1107.6.4.1 and 1107.6.4.2. Bedrooms in Group R-4 facilities shall be counted as sleeping units for the purpose of determining the number of units.~~

~~**1107.6.4.1 Accessible units.** In Group R-4 Condition 1, at least one of the *sleeping units* shall be an *Accessible unit*.In Group R-4 Condition 2, at least two of the *sleeping units* shall be an *Accessible unit*. Bedrooms in Group R-4 facilities shall be counted as *sleeping units* for the purpose of determining the number of units.~~

~~**1107.6.4.2 Type B units.** In structures with four or more *sleeping units intended to be occupied as a residence*, every *sleeping unitintended to be occupied as a residence* shall be a *Type B unit*.~~

> ~~**Exception:** The number of *Type B units* is permitted to be reduced in accordance with Section 1107.7.~~

Reason:
Historically the Accessible unit was required because this was a small Group I-1. The Accessible unit is not required by federal regulations. The larger impact on these facilities is not the sleeping room itself but the impact on the shared facilities, such as the kitchen, the maneuvering clearances at doors and at least one bathroom. How many Accessible bedrooms are required should be a funding or operational issue. This proposed change is consistent with the Fair Housing Act.
The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This is a reduction in requirements, especially in a change of occupancy.

Staff note: There is a published errata to Sections 1107.6.4, 1107.6.4.1 and 1107.6.4.2. The errata is incorporated into this proposal as existing text.

E 161-15 : 1107.6.3-BALDASSARRA4280

E 162-15

1107.6.4.2

Proponent: Margaret Calkins, representing Rothschild Foundation ADA Task Force (mcalkins@ideasinstitute.org)

2015 International Building Code

1107.6.4 Group R-4. *Accessible units* and *Type B units* shall be provided in Group R-4 occupancies in accordance with Sections 1107.6.4.1 and 1107.6.4.2. Bedrooms in Group R-4 facilities shall be counted as sleeping units for the purpose of determining the number of units.

1107.6.4.1 Accessible units. In Group R-4 Condition 1, at least one of the *dwelling units* or *sleeping units* shall be an *Accessible unit.*In Group R-4 Condition 2, at least two of the *dwelling units* or *sleeping units* shall be an *Accessible unit.* Bedrooms in Group R-4 facilities shall be counted as *sleeping units* for the purpose of determining the number of units.

Revise as follows:

1107.6.4.2 Type B units. In structures with four or more *dwelling units* or *sleeping unit*s *intended to be occupied as a residence*, every *dwelling unit* and *sleeping unitintended to be occupied as a residence* shall be a *Type B unit.*

~~Exception~~Exceptions:

1. The number of *Type B units* is permitted to be reduced in accordance with Section 1107.7.
2. At the water closet, two installed swing up grab bars shall be permitted as an alternative to reinforcement for rear and side grab bars.

Reason: As with the previous proposals, this proposal just makes to cler to group home operators that if they want to install bilateral grab bars in place of reinforcement for rear and side grab bars, it is acceptable.
It has long been recognized that most older adults do not have the upper body strength and mobility/range of motion to complete a sliding transfer onto a toilet. Even individuals who use a wheelchair for mobility needs, if they are capable of bearing weight (fully or partially) use a stand-turn-sit action to transfer onto and off of the toilet, either independently or with assistance. Recently completed research by Sanford and Calkins has shown that both elders and care partners prefer bilateral swing up grab bars over the typical side and rear wall grab bar congifuration. Three test conditions included the traditional ADA congifuration with the toilet 18" from the sidde wall and a wall mounted grab bar; bilateral grab bars located at the ADA specified distances (16-18" from the center line of the toilet, mounted 34" above the floor); and a user defined configuration that varied between individuals.

From the interum report for the research:

Configuration Preference: Regardless of level of assistance (independent, 1-person assist or 2-person assist) residents overwhelming preferred the individualized configuration to either the ADA side bar or the bilater fold down grab bars are ADA dimensions. The majority of residents (70% or greater) preferred the grabbars at 13" from the center line of the toilet. The mean preferred height was 32.8" above the floor. Finally,having the wall located 24" from the center line of the toilet was felt to be sufficient for caregiver maneuverability over 84% of the time. Among 30 resident who performed independent transfers 86.2% (n=25) preferred the individualized configuration over the ADA (n=2) or bilateral ADA (n=2) grab bar configuration (missing data on 1 resident). Among 22 residents who required a 1-person assist, 78.3% (n=18) preferred the individualized configuration over the ADA (n=0) or bilateral ADA (n=4). Finally, among 23 residents who required a 2-person assist, 82.6% (n=19)preferred the individualized configuration to the ADA (n=3) or bilateral ADA configuration (n=1). Similar findings were reported by staff for assisted transfers. For those assisting with 1-person assisted transfers, 76.2% (n=16) preferred the individualized configuration to the ADA (n=1) or the bilateral ADA (n=4). For those assisting with a 2-person assisted trasnfer, 58% (n=14) preferred the individualized configuration, although 33% preferred the biateral configuration, while only 8.3% (n=2) preferred the ADA side bar.

Mean Rating for Safety: Mean ratings for the location and style of grab bar to help with safe transfers and support staff to provide assistance were also calculated. On a 5 point scale where 1=strongly disagree and 5=strongly agree. both residents and staff gave consistently higher ratings to the individualized configuration (means ranged from 4.0 - 4.7) than to either the standard ADA configuration (means ranged from 3.2 - 3.8) or the bilateral ADA configuration (means ranged from 3.4 - 3.8).

The timing of this research was such that we were unable to make proposals for changes to ANSI on specifications for either Accessible or Type B units. Thus, at this time we are only looking to specifically alow bi-lateral fold-up grab bar as an alternative to providing side and back wall blocking in Type B units. We recognize that fold-up grab bars are not prohibited in Type B units, however, in some states because this option is not specifically defined, AHJs are relcutant to allow them to be installed during construction. Our goal is to make sure that bilateral fold up grab bars are an option in Group R4 buildings.

Cost Impact: Will not increase the cost of construction
As an option, owners may choose whether to install bilateral grab bars or reinforcement for rear and side grab bars, so there is no mandatory cost implication.

E 162-15 : 1107.6.4.2-CALKINS5450

E 163-15

1107.7.1.2

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Building Code

Revise as follows:

1107.7.1.2 Additional stories with Type B units. On ~~all other~~ stories ~~that have a building entrance~~with entrances not included in ~~proximity~~ determining compliance with Section 1107.7.1.1, that are proximate to arrival points intended to serve units on that *story*, as indicated in Items 1 and 2 below, all *dwelling units* and *sleeping units intended to be occupied as a residence* served by that entrance on that *story* shall be *Type B units*.

1. Where the slopes of the undisturbed *site* measured between the planned entrance and all vehicular or pedestrian arrival points within 50 feet (15 240 mm) of the planned entrance are 10 percent or less, and
2. Where the slopes of the planned finished grade measured between the entrance and all vehicular or pedestrian arrival points within 50 feet (15 240 mm) of the planned entrance are 10 percent or less.

Where ~~no such~~ arrival points are not within 50 feet (15 240 mm) of the entrance, the closest arrival point shall be used to determine access unless that arrival point serves the *story* required by Section 1107.7.1.1.

Reason: The contorted language in this section is difficult to follow and should be clarified. The code is trying to make it clear that more than one entrance may provide access, and each of those entrances may serve other stories. The criteria are then used to determine if the units that are on those other floors must have Type B units.

Cost Impact: Will not increase the cost of construction
The intent of the code change is to clarify how the various routes into a building are to be considered and does not change the technical requirements, and has not impact on the cost of construction.

E 163-15 : 1107.7.1.2-COLLINS4476

E 164-15

1109.2

Proponent: David Kulina, representing Engel Architects (david@engelarch.com)

2015 International Building Code

Revise as follows:

1109.2 Toilet and bathing facilities. Each toilet room and bathing room shall be *accessible*. Where a floor level is not required to be connected by an *accessible route*, the only toilet rooms or bathing rooms provided within the facility shall not be located on the inaccessible floor. Except as provided for in Sections 1109.2.2 and 1109.2.3, at least one of each type of fixture, element, control or dispenser in each accessible toilet room and bathing room shall be *accessible*.

Exceptions:

1. Toilet rooms or bathing rooms accessed only through a private office, not for *common* or *public use* and intended for use by a single occupant, shall be permitted to comply with the specific exceptions in ICC A117.1.
2. This section is not applicable to toilet and bathing rooms that serve *dwelling units* or *sleeping units* that are not required to be *accessible* by Section 1107.
3. Where multiple single-user toilet rooms or bathing rooms are clustered at a single location, at least 50 percent but not less than one room for each use at each cluster shall be *accessible*.
4. Where no more than one urinal is provided in a toilet room or bathing room, the urinal is not required to be *accessible*.
5. Toilet rooms or bathing rooms that are part of critical care or intensive care patient sleeping rooms serving *Accessible units* are not required to be *accessible*.
6. Toilet rooms or bathing rooms designed for bariatrics patients are not required to comply with the toilet room and bathing room requirement in ICC A117.1.The *sleeping units* served by bariatrics toilet or bathing rooms shall not count toward the required number of *Accessible sleeping units*.
7. Where toilet facilities are primarily for children's use, required *accessible* water closets, toilet compartments and lavatories shall be permitted to comply with children's provision of ICC A117.1.
8. <u>Toilet rooms or bathing rooms that serve only areas exempted by Section 1103.2 are not required to be accessible.</u>

Reason: Seciton 1103.2 has a list of areas that are exempted from accessibility requirements. Sometimes there are bathrooms provided for those spaces. For example, a toilet room in farm building (1103.2.4) or a guard tower or fire watch tower (1103.2.6). If the area or building is exempted from accessibility, then it is not logical to required these bathrooms have accessible features.

Cost Impact: Will not increase the cost of construction
There are no additional construction requirements.

E 164-15 : 1109.2-KULINA4559

E 165-15

1109.2.1.2

Proponent: Yafeng Cao, KTA Group, Peer Review Studio, representing self; Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com)

2015 International Building Code

Revise as follows:

1109.2.1.2 Family or assisted-use toilet rooms. Family or assisted-use toilet rooms shall include only one water closet and only one lavatory. A family or assisted-use bathing room in accordance with Section 1109.2.1.3 shall be considered a family or assisted-use toilet room.

~~**Exception**~~**Exceptions:** Additional fixtures shall be permitted by one of the following:

1. A urinal is permitted to be provided in addition to the water closet in a family or assisted-use toilet room.
2. An additional child height water closet and child height lavatory is permittted in a family/assisted use toilet room.

Reason: CAO: ADAAG has envoled to include the building elements to cover children's dimensions. Some architects propose providing one adult water close and one children water closet in the same family or assited-use toilet room for private use but current IBC 1109.2.1.2 does not recognize it as "family or assisted-use toilet room" by limiting to only one water closet and only one lavatory.
Providing two types of water closets and lavatories, one type for adults and one type for children, in the same family/assisted-use toilet room is a higher level of accommodation and should be allowed and recognized.

In regard to the private use nature of the family or assited-use toilet rooms, the multiple water closets and lavatories should be counted as one in calculting the minimum number of plumbing fixture counting as stipulated in IBC 2902.1.

BOECKER: While the family or assisted-use toilet room is required because of the benefits to persons with disabilities and caregivers, the nature of "family" is that smaller children will also be present. The purpose of the "family" toilet room is to allow the parent the ability to use the facilty as well as the child. It is quite common to provide child sized fixtures in these rooms for mercantile and assembly occupancies as a benefit for patrons of the facility. The added langauge to the exception line makes it clear that the intent is to use only one of the two exceptions. Either a urinal can be added or the two child height fixtures can be added; but, not both.

Cost Impact: Will not increase the cost of construction
CAO: This is a design option.

BOECKER: The exception allows for an option which does not increase cost.

E 165-15 : 1109.2.1.2-CAO5431

E 166-15

1109.13

Proponent: Lawrence Lincoln, representing Utah Chapter of ICC (larry.lincoln@slcgov.com)

2015 International Building Code

Revise as follows:

1109.13 Controls, operating mechanisms and hardware. Controls, operating mechanisms and hardware intended for operation by the occupant, including switches that control lighting and ventilation and electrical convenience outlets, in *accessible* spaces, along *accessible routes* or as parts of *accessible* elements shall be *accessible*.

Exceptions:

1. Operable parts that are intended for use only by service or maintenance personnel shall not be required to be *accessible*.
2. Electrical or communication receptacles serving a dedicated use shall not be required to be *accessible*.
3. Where two or more outlets are provided in a kitchen above a length of counter top that is uninterrupted by a sink or appliance, only one outlet shall ~~not~~ be required to be *accessible*.
4. Floor electrical receptacles shall not be required to be *accessible*.
5. HVAC diffusers shall not be required to be *accessible*.
6. Except for light switches, where redundant controls are provided for a single element, one control in each space shall not be required to be *accessible*.
7. Access doors or gates in barrier walls and fences protecting pools, spas and hot tubs shall be permitted to comply with Section 1010.1.9.2.

Reason: The change is to provide clarity and positive code language.

Cost Impact: Will not increase the cost of construction
Will not increase the cost of construction.

E 166-15 : 1109.13-LINCOLN4784

E 167-15

202(New), 1109.15

Proponent: Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Building Code

Revise as follows:

1109.15 Gaming machines and gaming tables. ~~Two~~ A minimum of two percent, but not less than one, of each gaming machine type ~~of~~and gaming table ~~provided~~type shall be *accessible* ~~and provided with a front approach.Two percent of~~. Where multiple gaming areas occur, accessible gaming machines ~~provided shall be *accessible*~~and ~~provided with a front approach. *Accessible*~~ gaming ~~machines~~tables shall be distributed throughout ~~the different types of gaming machines provided.~~.

Add new definitions as follows:

SECTION 202 DEFINITIONS

GAMING To deal, operate, carry on, conduct, maintain or expose for play any game played with cards, dice, equipment or any mechanical, electromechanical or electronic device or machine for money, property, checks, credit or any representative of value except wherein occurring at private home or as operated by a charitable or educational organization.

GAMING AREA. Single or multiple areas of a building or facility where gaming machines or tables are present and gaming occurs, including but not limited to: primary casino gaming areas, VIP gaming areas, high-roller gaming areas, bar-tops, lobbies, dedicated rooms or spaces such as in retail or restaurant establishments, sports books, tournament areas.

GAMING MACHINE TYPE. Categorization of gaming machines per type of game played on them, including, but not limited to; slot machines, video poker, video keno.

GAMING TABLE TYPE. Categorization of gaming tables per the type of gamw played on them, including, but are not limited to; baccarat, bingo, blackjack/21, craps, pai-gow, poker, roulette.

Reason: Similar language, having the effect of requiring a number of gaming machines and tables to be made accessible, was added to the 2015 IBC. That language is somewhat vague, and does not take into consideration the various gaming locations, designations, and needs of the local gaming industry. Therefore, it could be interpreted as broadly or narrowly as each plan-review agency deems necessary. The result could be a vast over-application of these provisions to every differing gaming machine type (ex: monopoly vs. wheel of fortune), which was never the original intent.
This proposed amendment is designed to narrow the requirements by noting additional factors, and not penalizing casinos having numerous styles of the same gaming machine type. Although most gaming throughout the United States occurs in larger casinos, there are some States where gaming occurs at smaller "non-casino" locations. These include, but are not limited to; bars, grocery stores, convenience stores and restaurants to name a few. This verbiage allows it to be scaled for both large and small venues, and be applied regardless of the type of venue where machines are present.

Additionally, the separation of a single large casino into multiple special use/access gaming areas is also considered. This proposed amendment takes into consideration these factors and requires distribution among gaming types and gaming areas to assure a reasonable level of access to a significant variety of gaming activities for all people.

The proposed amendment also considers the unique anthropometric design of most existing gaming machines, and provides a reasonable level of access that does not require a wholesale re-design of the machine itself. Essentially, by removing the requirement for "Front Approach" at these machines, the proposed considerations allow nearly all "upright-type" gaming machines to be considered accessible so long as they do not have a fixed chair or other obstruction in front of them. Conversely, gaming tables are pretty much standard throughout the country. Thus, no special consideration was needed with respect to their approach and clearance requirements.

As a practical matter, side approach access for the disabled is neither a dignified nor comfortable way to operate gaming machines for any length of playing time. By providing a front approach or front reach requirement to them, the player is now given the same integration as given all other players. This should allow for equal play time and comfort for a wider array of gaming patrons. When gaming tables are provided (i.e., black-jack, roulette, craps, poker), at least one of each type should be accessible to allow disable players access to each unique game type. This too should increase play time and provide increased comfort for all patrons.

The proposed definitions are added to better define & clarify the terms used within Section 1109.15. They are primarily taken from Nevada Revised Statutes Chapter 463 (Sections NRS 463.0152 through NRS 463.01595) which are viewed to be the pre-eminent model for gaming control and management systems used throughout the world.

Cost Impact: Will not increase the cost of construction
This proposal will make the accessibility requirements of gaming machines and tables easier to achieve, and therefore will not increase construction costs.

E 167-15 : 1109.15-DIGIOVANNI3850

E 168-15

1110.4.13 (New)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Building Code

Add new text as follows:

1110.4.13 Play Areas. Play areas containing play components designed and constructed for children shall be located on an accessible route.

Reason: This proposal only requires an accessible route to play areas. A similar proposal (E251-12) was submitted last cycle as part of the coordination between the ADA recreational requirements and the IBC. Part of the reason that this proposal was disapproved last cycle was that the code officials felt that they did not want to review the requirements for play components, thus this revised proposal addresses that issue by only requiring an accessible route to the play area.
In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.http://www.iccsafe.org/cs/CTC/Pages/default.aspx

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
Playgrounds are recreational facilities; therefore an accessible route to a playground is already required by code. An accessible route to playgrounds is a federal requirement under ADA. Therefore, there is no impact on the cost of construction.

E 168-15 : 1110.4.13 (New)-KULIK3341

E 169-15

1111.1

Proponent: Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com)

2015 International Building Code

Revise as follows:

1111.1 Signs. Required *accessible* elements shall be identified by the International Symbol of Accessibility at the following locations.

1. *Accessible* parking spaces required by Section 1106.1.
   Exception: Where the total number of parking spaces provided is four or less, identification of *accessible* parking spaces is not required.
2. *Accessible* parking spaces required by Section 1106.2.
   Exception: In Group I-1, R-2, R-3 and R-4 facilities, where parking spaces are assigned to specific *dwelling units* or *sleeping units*, identification of *accessible* parking spaces is not required.
3. *Accessible* passenger loading zones.
4. *Accessible* rooms where multiple single-user toilet or bathing rooms are clustered at a single location.
5. *Accessible* entrances where not all entrances are *accessible*.
6. *Accessible* check-out aisles where not all aisles are *accessible*. The sign, where provided, shall be above the check-out aisle in the same location as the checkout aisle number or type of check-out identification.
7. Family or assisted-use toilet and bathing rooms.
8. *Accessible* dressing, fitting and locker rooms where not all such rooms are *accessible*.
9. *Accessible* areas of refuge in accordance with Section 1009.9.
10. Exterior areas for assisted rescue in accordance with Section 1009.9.
11. In recreational facilities, lockers that are required to be *accessible* in accordance with Section 1109.9.
12. <u>Accessible lavatories and sinks where lavatories or sinks are provided in clusters and not all are accessible.</u>

Reason: The code only requires a single lavatory in a group toilet room to be accessible and only five percent (5%) of sinks to be acessible. This means that one lavatory could be mounted at the proper height with proper toe and knee clearances and compliant pipe protection while the rest might be mounted at the proper height but without toe and knee clearances; or, more critically, without pipe protection. In some cases, due to the nature of the design, it may not be possible to know which of these are fully accessible without crawling under the counter to look; an action which is not likely for individuals who use wheelchairs. This could pose a risk to the unaware individual using the lavatory that does not fully comply. The proposal would provide adeqaute notification for those who need to know which lavatories and/or sinks are fully compliant.

Cost Impact: Will increase the cost of construction
The additional cost is the minimal cost of a sticker or sign with the International Symbol of Accessibility.

E 169-15 : 1111.1-BOECKER5536

IBC Structural Code Change Proposals

The following code change proposals are labeled as structural code change proposals because they are proposals for changes to sections in chapters of the International Building Code that are designated as the responsibility of the IBC-Structural Code Development Committee (see page xvi of the Introductory pages of this monograph), which meets in the Group B cycle in 2016. However the changes included in this Group A code development cycle are to sections of the code that have been prefaced with a [BF] or [BG], meaning that they are the responsibility of a different IBC Code Development Committee—either the IBC-Fire Safety Committee [BF] or the IBC-General Committee [BG].

The committee assigned for each code change proposal is indicated in a banner statement near the beginning of the proposal. Both the IBC-Fire Safety and the IBC-General hearing orders are include here for your reference.

TENTATIVE ORDER OF DISCUSSION
2015 PROPOSED CHANGES TO THE INTERNATIONAL BUILDING CODE (FIRE SAFETY)

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

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

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TENTATIVE ORDER OF DISCUSSION
2015 PROPOSED CHANGES TO THE INTERNATIONAL BUILDING CODE (GENERAL)

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

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

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[BF] 1505.10

Proponent: Jason Wilen, National Roofing Contractors Association (NRCA), representing National Roofing Contractors Association (NRCA) (jwilen@nrca.net)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-FIRE SAFETY COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

2015 International Building Code

Revise as follows:

[BF] 1505.10 Roof gardens and landscaped roofs. Roof gardens and landscaped roofs shall comply with Section 1505.1, Section 1507.16 and shall be installed in accordance with ANSI/SPRI VF-1.

Reason: The purpose of this code change is to clarify the intent of the code. As written, Section 1505.10 could be interpreted as an exception to the other parts of Section 1505. The proposed change clarifies the fire classification requirements in Section 1505 apply to roof gardens and landscaped roofs.

Cost Impact: Will not increase the cost of construction
The proposed change is a clarification and does not change the stringency of existing code requirements so the cost of construction will be unchanged.

S 1-15 : [BF] 1505.10-WILEN4791

S 2-15

[BF] 1505.9, Chapter 35

Proponent: Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-FIRE SAFETY COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

2015 International Building Code

Revise as follows:

[BF] 1505.9 **~~Photovoltaic panels and modules.~~**<u>**Rooftop mounted photovoltaic panel systems**</u> Rooftop-mounted *photovoltaic panel systems* shall be tested, *listed* and identified with a fire classification in accordance with UL 1703 <u>or UL 2703</u>. The fire classification shall comply with Table 1505.1 based on the type of construction of the building.

Add new standard(s) as follows:

<u>UL 2703-14, Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels</u>

Reason: The position of the photovoltaic panels, as well as the slope of the roof, are critical factors in determining the fire classification of a photovoltaic panel system. The position of the photovoltaic panels is established by the racking system. Thus, the testing for photovoltaic panel systems are covered in both UL 1703 and UL 2703. The new UL 2703 standard, which is an ANSI consensus standard, provides the test method for testing multiple panels for each racking system. Either standard can be used to establish a fire classification of the photovoltaic panel system.

Cost Impact: Will not increase the cost of construction
This will provide another method to test photovoltaic systems for fire classification.

Analysis: A review of the standard proposed for inclusion in the code, UL 2703, with regard to the ICC criteria for refrenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

S 2-15 : [BF] 1505.9-ROBERTS4109

S 3-15

[BF] 1508.1.1, Table [BF] 1508.2

Proponent: Jason Wilen, National Roofing Contractors Association (NRCA), representing National Roofing Contractors Association (NRCA) (jwilen@nrca.net)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-FIRE SAFETY COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

2015 International Building Code

Delete without substitution:

~~**[BF] 1508.1.1 Cellulosic fiberboard.** Cellulosic fiberboard roof insulation shall conform to the material and installation requirements of Chapter 23.~~

Revise as follows:

TABLE [BF] 1508.2
MATERIAL STANDARDS FOR ROOF INSULATION

Cellular glass board	ASTM C 552
Composite boards	ASTM C 1289, Type III, IV, V or VI
Expanded polystyrene	ASTM C 578
Extruded polystyrene	ASTM C 578
Fiber-reinforced gypsum board	ASTM C 1278
Glass-faced gypsum board	ASTM C 1177
Mineral fiber insulation board	ASTM C 726
Perlite board	ASTM C 728
Polyisocyanurate board	ASTM C 1289, Type I or II
Wood fiberboard	ASTM C 208, Type II

Reason: The purpose of this code change is to clarify the intent of the code and to remove redundancy. As written, Section 1508.1.1 is a pointer to Chapter 23. Information in Chapter 23 related to wood fiberboard roof insulation is redundant to information already in Chapter 15 so the pointer does not serve a useful purpose.
Further, the title of section 1508.1.1 is potentially confusing because the term "cellulosic fiberboard" is used while the term "wood fiberboard" is used in Table 1508.2. This change eliminates the lesser used of the two terms to describe the same material.

Lastly, "Type II" is added to the ASTM C208 reference for wood fiberboard in Table 1508.2. Of the six types of wood fiberboard addressed in ASTM C208, only Type II is used for roof insulation.

Cost Impact: Will not increase the cost of construction
The proposed change is a clarification and does not change the stringency of existing code requirements so the cost of construction will be unchanged.

S 3-15 : [BF] 1508.1.1-WILEN4862

S 4-15

Table [BF] 1508.2

Proponent: Jason Wilen, National Roofing Contractors Association (NRCA), representing National Roofing Contractors Association (NRCA) (jwilen@nrca.net)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-FIRE SAFETY COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

2015 International Building Code

Revise as follows:

TABLE [BF] 1508.2
MATERIAL STANDARDS FOR ROOF INSULATION

Cellular glass board	ASTM C 552
Composite boards	ASTM C 1289, Type III, IV, V or ~~VI~~VII
Expanded polystyrene	ASTM C 578
Extruded polystyrene	ASTM C 578
Fiber-reinforced gypsum board	ASTM C 1278
Glass-faced gypsum board	ASTM C 1177
Mineral fiber insulation board	ASTM C 726
Perlite board	ASTM C 728
Polyisocyanurate board	ASTM C 1289, Type I or II
Wood fiberboard	ASTM C 208

Reason: The purpose of this change is to update the type designations listed for the ASTM standard currently referenced in the code for composite board roof insulation. ASTM C1289-13E1 is referenced. As part of the 13E1 edition, Type VI was removed and Type VII was added. The proposed change strikes the outdated "Type VI" and adds the new "Type VII".

Cost Impact: Will not increase the cost of construction
The proposed change is a clarification and does not change the stringency of existing code requirements so the cost of construction will be unchanged.

S 4-15 : TABLE [BF] 1508.2-WILEN4793

S 5-15

Table [BF] 1508.2

Proponent: Jason Wilen, National Roofing Contractors Association (NRCA), representing National Roofing Contractors Association (NRCA) (jwilen@nrca.net)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-FIRE SAFETY COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

2015 International Building Code

Revise as follows:

TABLE [BF] 1508.2
MATERIAL STANDARDS FOR ROOF INSULATION

Cellular glass board	ASTM C 552
Composite boards	ASTM C 1289, Type III, IV, V or VI
Expanded polystyrene	ASTM C 578
Extruded polystyrene	ASTM C 578
Fiber-reinforced gypsum board	ASTM C 1278
Glass-faced gypsum board	ASTM C 1177
Mineral fiber insulation board	ASTM C 726
Perlite board	ASTM C 728
Polyisocyanurate board	ASTM C 1289, Type ~~I or~~ II
Wood fiberboard	ASTM C 208

Reason: The purpose of this change is to update the type designations listed for the ASTM standard currently referenced in the code for polyisocyanurate board roof insulation. ASTM C1289 is referenced and Types I and II are currently listed in Table 1508.2. The proposal removes the Type I (aluminum foil-faced) reference from Table 1508.2 because Type I is not used for roofing applications.

Cost Impact: Will not increase the cost of construction
The proposed change is a clarification and does not change the stringency of existing code requirements so the cost of construction will be unchanged.

S 5-15 : TABLE [BF] 1508.2-WILEN4870

S 6-15

Table [BF] 1508.2

Proponent: Jason Wilen, National Roofing Contractors Association (NRCA), representing National Roofing Contractors Association (NRCA) (jwilen@nrca.net)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-FIRE SAFETY COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

2015 International Building Code

Revise as follows:

TABLE [BF] 1508.2
MATERIAL STANDARDS FOR ROOF INSULATION

Cellular glass board	ASTM C 552
Composite boards	ASTM C 1289, Type III, IV, V or VI
Expanded polystyrene	ASTM C 578
Extruded polystyrene	ASTM C 578
Fiber-reinforced gypsum board	ASTM C 1278
Glass-faced gypsum board	ASTM C 1177
<u>High-density polyisocyanurate board</u>	<u>ASTM C1289, Type II, Class 4</u>
Mineral fiber insulation board	ASTM C 726
Perlite board	ASTM C 728
Polyisocyanurate board	ASTM C 1289, Type I or II
Wood fiberboard	ASTM C 208

Reason: The purpose of this change is to add a listing for high-density polyisocyanurate board roof insulation in Table 1508.2. As part of the 13E1 edition of ASTM C1289 (already included in IBC), Type II, Class 4 was added to the standard to address high-density polyisocyanurate board roof insulation.

Cost Impact: Will not increase the cost of construction
The proposed change is a clarification and does not change the stringency of existing code requirements so the cost of construction will be unchanged.

S 6-15 : TABLE [BF] 1508.2-WILEN4874

S 7-15

1510.1.1 (New), [BG] 1510.2.1, [BG] 1510.2.2, [BG] 1510.2.3

Proponent: Maureen Traxler, representing Washington Association of Building Officials Technical Code Development Committee (maureen.traxler@seattle.gov)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-GENERAL COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

2015 International Building Code

Add new text as follows:

1510.1.1 Area limitation. The aggregate area of penthouses and other enclosed rooftop structures shall not exceed one-third the area of the supporting roof deck. Such penthouses and other enclosed rooftop structures shall not be required to be included in determining the building area or number of stories as regulated by Section 503.1. The area of such penthouses shall not be included in determining the fire area specified in Section 901.7.

Revise as follows:

[BG] 1510.2.1 Height above roof deck. Penthouses constructed on buildings of other than Type I construction shall not exceed 18 feet (5486 mm) in height above the roof deck as measured to the average height of the roof of the penthouse. Penthouses located on the roof of buildings of Type I construction shall not be limited in height.

~~Exceptions~~Exception:

1. Where used to enclose tanks or elevators that travel to the roof level, penthouses shall be permitted to have a maximum height of 28 feet (8534 mm) above the roof deck.

~~2. Penthouses located on the roof of buildings of Type I construction shall not be limited in height.~~

Delete without substitution:

~~**[BG] 1510.2.2 Area limitation.** The aggregate area of penthouses and other enclosed rooftop structures shall not exceed one-third the area of the supporting roof deck. Such penthouses and other enclosed rooftop structures shall not be required to be included in determining the building area or number of stories as regulated by Section 503.1. The area of such penthouses shall not be included in determining the fire area specified in Section 901.7.~~

Revise as follows:

[BG] 1510.2.3 Use limitations. Penthouses shall not be used for purposes other than the shelter of mechanical or electrical equipment, tanks, elevators and related machinery, or vertical shaft openings in the roof assembly.

Reason: This proposal reorganizes the provisions for penthouses. Section 1510.2.2 is relocated to 1510.1 because it applies to all enclosed rooftop structures, and shouldn't be located in the subsection that applies only to penthouses. In Section 1510.2.1, exception 2 is relocated to the charging paragraph because it is actually a separate technical requirement and not an exception to the charging paragraph. The phrase "elevators and related machinery" is added in Section 1510.2.3 because it is part of the definition of "penthouse." Penthouses are commonly used to shelter rooftop elevator equipment and shouldn't be prohibited by Section 1510.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction.

S 7-15 : [BG] 1510.1-TRAXLER4259

S 8-15

[BG] 1510.6.2

Proponent: Christopher Born, Clark Nexsen, Inc., representing Self (cborn@clarknexsen.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-GENERAL COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

2015 International Building Code

Revise as follows:

[BG] 1510.6.2 Type I, II, III and IV construction. Regardless of the requirements in Section 1510.6, *mechanical equipment screens* that are located on the roof decks of buildings of Type I, II, III or IV construction shall be permitted to be constructed of combustible materials in accordance with any one of the following limitations:

1. The fire separation distance shall be not less than 20 feet (6096 mm) and the height of the *mechanical equipment screen* above the roof deck shall not exceed 4 feet (1219 mm) as measured to the highest point on the *mechanical equipment screen*.
2. The fire separation distance shall be not less than 20 feet (6096 mm) and the *mechanical equipment screen* is used for concealment of telecommunications equipment above the building roofline.
3. The fire separation distance shall be not less than 20 feet (6096 mm) and the *mechanical equipment screen* shall be constructed of fire-retardant-treated wood complying with Section 2303.2 for exterior installation.
4. Where exterior wall covering panels are used, the panels shall have a flame spread index of 25 or less when tested in the minimum and maximum thicknesses intended for use, with each face tested independently in accordance with ASTM E 84 or UL 723. The panels shall be tested in the minimum and maximum thicknesses intended for use in accordance with, and shall comply with the acceptance criteria of, NFPA 285 and shall be installed as tested. Where the panels are tested as part of an exterior wall assembly in accordance with NFPA 285, the panels shall be installed on the face of the *mechanical equipment screen* supporting structure in the same manner as they were installed on the tested exterior wall assembly.

Reason: Screen walls have been used in numerous instances in recent years to conceal telecommunications equipment such as antennas. In order to allow transmission of the appropriate frequencies, currently available concealments or screens are of combustible material. Typically these screens consist of a foam plastic core such as polystyrene with a hard plastic skin surrounding the core. These are also often of a custom graphic design to mimic the appearance of the building they are installed on, e.g., replicate brick patterns, colors, etc.
No known noncombustible material exists that provides sufficient transmissibility of an acceptable signal strength. Although some manufacturers offer a "fire resistive" product, these materials have not been tested to NFPA 285 as indicated by the current item 3 under this section. Additionally these products do not meet the "letter" of the requirements of Chapter 26 for installation of plastic materials, even if considered to be light transmittiung plastics (these panels are specifically designed to transmission a portion of the electromagnetic spectrum) because they have not been tested as an assembly.

The author is aware of no documented loss history from these products. As these products are above the roof of the building, even if they do ignite they pose minimal risk to the structure or occupants. Additionally, by requiring a minimum fire separation distance identical to that called for under several related provisions, protection from radiant fire exposure is afforded to adjacent properties.

Cost Impact: Will not increase the cost of construction
Installation of these products is generally of a voluntary nature, although some zoning boards or similar bodies may not allow telecommunications installations without some means of visually screening the equipment. Note that this provision is not intended to mandate the installation of these screens, but rather to create a code option that allows their use.

S 8-15 : [BG] 1510.6.2-BORN4795

S 9-15

[BG] 1510.7.3

Proponent: Maureen Traxler, City of Seattle, representing Seattle Dept of Planning & Development (maureen.traxler@seattle.gov)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-GENERAL COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

2015 International Building Code

Delete without substitution:

~~**[BG] 1510.7.3 Installation.** Rooftop-mounted *photovoltaic panels* and *modules* shall be installed in accordance with the manufacturer's instructions.~~

Reason: Section 1510.7.3 is redundant with Section 1510.7.4.

Cost Impact: Will not increase the cost of construction
Deleting redundant text will have no impact on the cost of construction.

S 9-15 : [BG] 1510.7.3-TRAXLER3414

S 10-15

[BF] 1705.17

Proponent: Anthony Apfelbeck, City of Altamonte Springs, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-FIRE SAFETY COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

2015 International Building Code

Revise as follows:

[BF] 1705.17 Fire-resistant penetrations and joints. In *high-rise buildings*, buildings greater than 2 stories that are not protected by an automatic sprinkler system or in buildings assigned to *Risk Category* III or IV, *special inspections* for *through-penetrations*, membrane penetration firestops, *fire-resistant joint systems* and perimeter fire barrier systems that are tested and *listed* in accordance with Sections 714.3.1.2, 714.4.2, 715.3_ and 715.4 shall be in accordance with Section 1705.17.1 or 1705.17.2.

Reason: In buildings that are not protected by an automatic fire sprinkler system, there is 100% reliance on the passive fire protection elements to contain a fire to the compartment of origin and to ensure it does not impede the means of egress. Penetration and joint systems are critical elements in order to maintain the fire resistive integrity of a building. They take on an even greater importance when balanced fire protection is not provided and sole reliance is placed on the passive systems. The code already recognizes high-rise buildings as high risk which mandates this level of special inspection. On a risk basic, a low rise (3-7 story) non-fire sprinkler protected building poses a much greater risk to the occupants, firefighters and contents than a high-rise building which is mandated to be protected with fire sprinklers.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction for low-rise non-fire sprinkler protected buildings due to the application 1705.16 requiring special inspections of penetrations and joints.

S 10-15 : [BF] 1705.17-APFELBECK4120

2015 GROUP A – PROPOSED CHANGES TO THE INTERNATIONAL EXISTING BUILDING CODE

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TENTATIVE ORDER OF DISCUSSION 2015 PROPOSED CHANGES TO THE INTERNATIONAL EXISTING BUILDING CODE

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

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

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- EB91-15
- EB92-15

EB 1-15

[A] 101.4.2, 301.1.1, 301.1.3, 301.1.2, 1301.2, 1401.3.2

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

[A] 101.4.2 Buildings previously occupied. The legal occupancy of any building existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the retroactive and maintenance provisions of the *International Fire Code*, or the *International Property Maintenance Code*, or as is deemed necessary by the *code official* for the general safety and welfare of the occupants and the public.

301.1.1 Prescriptive compliance method. *Repairs*, *alterations*, *additions* and *changes of occupancy* complying with Chapter 4 of this code ~~in buildings~~, and complying with the retroactive and maintenance provisions of the *International Fire Code* shall be considered in compliance with the provisions of this code.

301.1.3 Performance compliance method. *Repairs*, *alterations*, *additions*, changes in occupancy and relocated buildings complying with Chapter 14 of this code, and complying with the retroactive and maintenance provisions of the *International Fire Code* shall be considered in compliance with the provisions of this code.

301.1.2 Work area compliance method. *Repairs*, *alterations, additions*, changes in occupancy and relocated buildings complying with the applicable requirements of Chapters 5 through 13 of this code, and complying with the retroactive and maintenance provisions of the *International Fire Code* shall be considered in compliance with the provisions of this code.

1301.2 Conformance. The building shall be safe for human occupancy as determined by the retroactive and maintenance provisions of the *International Fire Code* and the *International Property Maintenance Code*. Any *repair*, *alteration*, or *change of occupancy* undertaken within the moved structure shall comply with the requirements of this code applicable to the work being performed. Any field-fabricated elements shall comply with the requirements of the *International Building Code* or the *International Residential Code* as applicable.

1401.3.2 Compliance with other codes. Buildings that are evaluated in accordance with this section shall comply with the retroactive and maintenance provisions of the *International Fire Code* and *International Property Maintenance Code*.

Reason: This proposal is intended to clarify the intended scope of the reference to the IFC. The IFC has many roles that address new construction, retroactive construction requirements, maintenance and operational requirements. The sections addressed in this proposal are believed to focus primarily on provisions related to maintenance and retroactive provisions minimally. The IEBC itself will address what is intended to be addressed as far as further construction provisions. This is really meant as a clarification. A reference to the IFC in general should lead users to Chapter 1 which would, in Section 102 should explain how the reference is intended to be applied but this is sometimes misinterpreted.
Currently, the general reference to the IFC as in Section 1401.3.2 is sometimes interpreted as meaning the entire fire code thus negating the scoring methods benefits. Compliance in full with the new construction requirements of IFC Chapters 9 and 10 would require most aspects of fire protection and egress to be upgraded regardless of the score the current building would obtain. This was not the intent of the reference to the IFC.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction as these revisions will simply clarify that the IEBC was only intended to reference the IFC for retroactive and maintenance provisions. Therefore the level of applicability of the IFC will not change.

EB 1-15 : [A] 101.4.2-KULIK4744

EB 2-15

[A] 104.2.1, 302.3, 401.2.1, 401.3, [BS] 404.2.1, 407.1, 407.1.1, 408.2, [BS] A106.2, [BS] A107.1, [BS] A108.1, [BS] A113.7, [BS] A206.2, [BS] A505.1

Proponent: Maureen Traxler, City of Seattle, representing City of Seattle Dept of Planning & Development (maureen.traxler@seattle.gov)

2015 International Existing Building Code

Revise as follows:

[A] 104.2.1 Determination of substantially improved or substantially damaged existing buildings and structures in flood hazard areas. For applications for reconstruction, rehabilitation, repair, alteration, addition or other improvement of existing buildings or structures located in flood hazard areas, the building official shall determine where the proposed work constitutes substantial improvement or repair of substantial damage. Where the building official determines that the proposed work constitutes substantial improvement or repair of substantial damage, and where required by this code, the ~~building~~code official shall require the building to meet the requirements of Section 1612 of the *International Building Code*.

302.3 Existing materials. Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the ~~building~~code official to be unsafe.

401.2.1 Existing materials. Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the ~~building~~code official to be unsafe per Section 115.

401.3 Dangerous conditions. The ~~building~~code official shall have the authority to require the elimination of conditions deemed *dangerous*.

[BS] 404.2.1 Evaluation. The building shall be evaluated by a *registered design professional*, and the evaluation findings shall be submitted to the ~~*building official*~~code *official*. The evaluation shall establish whether the damaged building, if repaired to its predamage state, would comply with the provisions of the *International Building Code* for wind and earthquake loads.

Wind loads for this evaluation shall be those prescribed in Section 1609 of the *International Building Code*. Earthquake loads for this evaluation, if required, shall be permitted to be 75 percent of those prescribed in Section 1613 of the *International Building Code*. Alternatively, compliance with ASCE 41, using the performance objective in Table 301.1.4.2 for the applicable risk category, shall be deemed to meet the earthquake evaluation requirement.

407.1 Conformance. No change shall be made in the use or occupancy of any building unless such building is made to comply with the requirements of the *International Building Code* for the use or occupancy. Changes in use or occupancy in a building or portion thereof shall be such that the existing building is no less complying with the provisions of this code than the existing building or structure was prior to the change. Subject to the approval of the ~~building~~code official, the use or occupancy of *existing buildings* shall be permitted to be changed and the building is allowed to be occupied for purposes in other groups without conforming to all of the requirements of this code for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use.

Exception: The building need not be made to comply with the seismic requirements for a new structure unless required by Section 407.4.

407.1.1 Change in the character of use. A change in occupancy with no change of occupancy classification shall not be made to any structure that will subject the structure to any special provisions of the applicable *International Codes*, without approval of the ~~*building official*~~code *official*. Compliance shall be only as necessary to meet the specific provisions and is not intended to require the entire building be brought into compliance.

408.2 Life safety hazards. The provisions of this code shall apply to historic buildings judged by the ~~building~~code official to constitute a distinct life safety hazard.

[BS] A106.2 Existing materials. Existing materials used as part of the required vertical load-carrying or lateral forceresisting system shall be in sound condition, or shall be repaired or removed and replaced with new materials. All other unreinforced masonry materials shall comply with the following requirements:

1. The lay-up of the masonry units shall comply with Section A106.3.2, and the quality of bond between the units has been verified to the satisfaction of the building official;
2. Concrete masonry units are verified to be load-bearing units complying with ASTM C 90 or such other standard as is acceptable to the ~~building~~ code official; and
3. The compressive strength of plain concrete walls shall be determined based on cores taken from each class of concrete wall. The location and number of tests shall be the same as those prescribed for tensile-splitting strength tests in Sections A106.3.3.3 and A106.3.3.4, or in Section A108.1.

The use of materials not specified herein or in Section A108.1 shall be based on substantiating research data or engineering judgment, with the approval of the ~~building~~ code official.

[BS] A107.1 Pointing. Preparation and mortar pointing shall be performed with special inspection.

Exception: At the discretion of the ~~building~~ code official, incidental pointing may be performed without special inspection.

[BS] A108.1 Values.

1. Strength values for existing materials are given in Table A1-D and for new materials in Table A1-E.
2. Capacity reduction factors need not be used.
3. The use of new materials not specified herein shall be based on substantiating research data or engineering judgment, with the approval of the ~~building~~ code official.

[BS] A113.7 Veneer.

1. Veneer shall be anchored with approved anchor ties conforming to the required design capacity specified in the building code and shall be placed at a maximum spacing of 24 inches (610 mm) with a maximum supported area of 4 square feet (0.372 m^2).

   Exception: Existing anchor ties for attaching brick veneer to brick backing may be acceptable, provided the ties are in good condition and conform to the following minimum size and material requirements.

   Existing veneer anchor ties may be considered adequate if they are of corrugated galvanized iron strips not less than 1 inch (25 mm) in width, 8 inches (203 mm) in length and $^1/_{16}$ inch (1.6 mm) in thickness, or the equivalent.
2. The location and condition of existing veneer anchor ties shall be verified as follows:
   2.1. An approved testing laboratory shall verify the location and spacing of the ties and shall submit a report to the ~~building~~ code official for approval as part of the structural analysis.
   2.2. The veneer in a selected area shall be removed to expose a representative sample of ties (not less than four) for inspection by the ~~building~~ code official.

[BS] A206.2 Special requirements for wall anchorage systems. The steel elements of the wall anchorage system shall be designed in accordance with the building code without the use of the 1.33 short duration allowable stress increase when using allowable stress design.

Wall anchors shall be provided to resist out-of-plane forces, independent of existing shear anchors.

Exception: Existing cast-in-place shear anchors are allowed to be used as wall anchors if the tie element can be readily attached to the anchors, and if the engineer or architect can establish tension values for the existing anchors through the use of approved as-built plans or testing and through analysis showing that the bolts are capable of resisting the total shear load (including dead load) while being acted upon by the maximum tension force due to an earthquake. Criteria for analysis and testing shall be determined by the ~~building~~ code official.

Expansion anchors are only allowed with special inspection and approved testing for seismic loading.

Attaching the edge of plywood sheathing to steel ledgers is not considered compliant with the positive anchoring requirements of this chapter. Attaching the edge of steel decks to steel ledgers is not considered as providing the positive anchorage of this chapter unless testing and/or analysis are performed to establish shear values for the attachment perpendicular to the edge of the deck. Where steel decking is used as a wall anchor system, the existing connections shall be subject to field verification and the new connections shall be subject to special inspection.

[BS] A505.1 General. Structures conforming to the requirements of the ASCE 41 Chapter 4, Screening Phase, are permitted to be shown to be in conformance to this chapter by submission of a report to the ~~building~~ code official, as described in this section.

Reason: The IEBC defines the term "code official" but it then uses both "building official" and "code official." Both terms are used in other International codes, but none of the codes uses both. "Code official" is more appropriate for the IEBC because the IEBC addresses more than Building Code issues. It includes mechanical sections—the IMC uses the term "code official." It includes plumbing sections—the IPC uses the term "code official." The term "code official" is defined in Chapter 2, and is the more general term.
Note that Figure A3-1 and A3-2 also contain the term "building official" and should also be revised to "code official." The figures could not be added to the proposal.

Cost Impact: Will not increase the cost of construction
This is an editorial change that will not affect the cost of construction.

Staff Note: Figures A3-1 and A3-2 will be revised to use the term "code official" in place of "building official" if this code change is approved based upon the intent of this proposal as noted in the proponents reason statement.

EB 2-15 : 302.3-TRAXLER3299

EB 3-15

202 (New), 501.2.1 (New)

Proponent: Aaron Wilson, representing Associated Design Partners (awilson@adpengineering.com)

2015 International Existing Building Code

Add new definition as follows:

SECTION 202 DEFINITIONS

DAMAGE. Physical distortion or deterioration to any building element, component, or system due to sudden and accidental events or progressive wear and tear, such that the element, component, or system requires either removal and replacement or repair.

Add new text as follows:

501.2.1 Reconfiguration of space. Where determining what portions of the building are part of the work area, the reconfigured space shall include the rearrangement or relocation of interior and exterior; walls, floors, ceilings, and roofs, where the spacial volume of any habitable spaces is changed by more the 5%.

Exceptions:

1. The alteration or expansion of electrical and mechanical systems incidental to, and within the renovation work scope, required for compliance to this code, provided that the expansion serves the same purpose as the previous system without inclusion of new equipment and fixtures not required for compliance to this code.
2. Changing the size of existing windows and doors for purposes of improving means of egress and compliance with this code.

Reason: For improved clarity of what is considered damage and what is considered a reconfiguration of space.

Cost Impact: Will not increase the cost of construction
This proposed code change (added definition) will not increase the cost of construction. It will add clarity, avoid confusion and not make incidental code upgrades push a repair project into an alteration Level 2 classification. The 5% volume alteration clause will allow minor code mandated alterations without triggering a reconfiguration of space. Example, replacing 1/2" GWB with one or even two layers of 5/8" fire rated GWB over a 1" layer of rigid foam insulation needed for improved fire rating and improved insulation performance, should be allowed without being construed by some Architects and CEO as a reconfiguration and thus an alteration level 2 or 3.

EB 3-15 : 202-DAMAGE (New)-WILSON5704

EB 4-15

202 (New)

Proponent: Maureen Traxler, representing Seattle Dept of Planning & Development (maureen.traxler@seattle.gov)

2015 International Existing Building Code

Revise as follows:

SECTION 202 DEFINITIONS

[A] EXISTING BUILDING. A building erected prior to the date of adoption of the appropriate code, or one for which a legal building permit has been issued.

Add new text as follows:

[A] EXISTING STRUCTURE A structure erected prior to the date of adoption of the appropriate code, or one for which a legal building permit has been issued. For application of provisions in flood hazard areas, an existing structure is any building or structure for which the start of construction commenced before the effective date of the community's first flood plain management code, ordinance or standard.

Reason: Reason: The IEBC uses both the terms "existing building" and "existing structure" but only defines "existing building." Some code sections use "existing building"; some use "existing structure"; other sections use "existing building or structure." Section 501.1 is an example. "501.1 Scope. The provisions of this chapter shall ... apply to the alteration, repair, addition and change of occupancy of existing structures.... The work performed on an existing building shall be classified in accordance with this chapter."
After reviewing the use of the terms "existing building" and "existing structure" in the IBC and IEBC, we concluded that the terms are used interchangeably, and that including both definitions is the most reasonable way to coordinate the use of these terms. This proposal adds the IBC definition of "existing structure" to the IEBC. The definition for "existing building" will be modified to include a sentence about flood hazard areas that is copied from the definition of "existing structure" in Group B. The definition for "existing building" is controlled by the Admin committee.

The IBC defines "existing structure" but not "existing building." This proposal is the first step in correlating the two definitions in the IEBC and IBC. Changes to the IBC will be considered in Group B; if this proposal is successful, we will propose similar changes to the IBC.

Cost Impact: Will not increase the cost of construction
This will not increase the cost of construction.

Staff note: The term existing building is maintained by the Administrative Committee. This is an errata to the IEBC.

EB 4-15 : 202-EXISTING BUILDING-TRAXLER4261

EB 5-15

301.1

Proponent: David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Subcommittee, National Council of Structural Engineers Associations (dbonowitz@att.net)

2015 International Existing Building Code

Revise as follows:

301.1 General. The *repair*, *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with one of the methods listed in Sections 301.1.1 through 301.1.3 as selected by the applicant. Sections 301.1.1 through 301.1.3 shall not be applied in combination with each other. Where this code requires consideration of the seismic forceresisting system of an *existing building* subject to *repair*, *alteration*, *change of occupancy*, *addition* or relocation of *existing buildings,* the seismic evaluation and design shall be based on Section 301.1.4 regardless of which compliance method is used.

> **Exception:**Other than in flood hazard areas or regarding structural provisions, and Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code ~~unless the building is undergoing more than a limited structural *alteration* as defined in Section 907.4.4. New structural members added as part of the *alteration* shall comply with the *International BuildingCode. Alteration*s of *existing buildings* in *flood hazardareas* shall comply with Section 701.3~~.

Reason: This proposal retains the exception that allows the code official to waive certain architectural and other requirements that the IEBC would normally trigger in alteration projects. It removes that exception, however, regarding structural provisions that would have been triggered by alterations.
The current exception already does not apply to alterations in flood hazard areas (which sometimes trigger structural improvements) or to substantial structural alterations. So the proposal does not change those cases at all.

The proposal eliminates the potential that the IEBC's basic structural requirements might be undermined by a code official's discretion, or, more likely, by a permit applicant who reads this exception as a way to demand a discretionary waiver. Since very few code officials would be comfortable waiving these structural safety provisions, the proposal actually helps them enforce the code as intended.

Further, the existing exception is unclear. It refers to "laws in existence at the time the building ... was built." But if the intent is to waive requirements triggered by alterations, this language ignores, or forgets, the fact that older codes for a long time had alteration provisions that triggered structural upgrade -- often with requirements more onerous than those in the current IEBC. So does a permit applicant claiming compliance with the "laws in existence" a generation ago also intend to comply with those outdated triggers? Thie proposal removes that potential confusion.

Since the existing structural provisions for alterations are already measured, already allow reduced loads and alternative criteria in many cases, and already trigger structural improvements only in rare and severe cases, the proposed change to this exception should have little impact except to affirm that structural safety is fundamental to the code's intent.

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Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction, but it could, hypothetically, limit the cases in which the code official could effectively reduce the cost of construction by waiving structural safety requirements. In practice, no increase in the cost of construction should be expected, however, since the proposal does not change any of the code's provisions, but only changes what was a discretionary waiver.

EB 5-15 : 301.1 -BONOWITZ5196

EB 6-15

301.1

Proponent: Maureen Traxler, Seattle Dept of Planning & Development, representing Seattle Dept of Planning & Development (maureen.traxler@seattle.gov)

2015 International Existing Building Code

Revise as follows:

301.1 General. The *repair*, *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with one of the methods listed in Sections 301.1.1 through 301.1.3 as selected by the applicant. Sections 301.1.1 through 301.1.3 shall not be applied in combination with each other. Where this code requires consideration of the seismic forceresisting system of an *existing building* subject to *repair*, *alteration*, *change of occupancy*, *addition* or relocation of *existing buildings,* the seismic evaluation and design shall be based on Section 301.1.4 regardless of which compliance method is used.

> **Exception:** Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code unless the building is undergoing more than a limited structural *alteration* as defined in Section 907.4.4. New structural members added as part of the *alteration* shall comply with the *International BuildingCode*. *Alteration*s of *existing buildings* in *flood hazardareas* shall comply with Section <u>403.2,</u> 701.3<u> or 1401.3.3</u>.

Reason: This exception refers only the work area method for alterations in flood hazard areas. The prescriptive and performance methods have provisions similar to Section 701.3, so this exception should also refer to them.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction.

EB 6-15 : 301.1-TRAXLER3457

EB 7-15

301.1, 301.2 (New)

Proponent: David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Subcommittee, National Council of Structural Engineers Associations (dbonowitz@att.net)

2015 International Existing Building Code

Revise as follows:

301.1 General. The *repair*, *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with one of the methods listed in Sections 301.1.1 through 301.1.3 as selected by the applicant. Sections 301.1.1 through 301.1.3 shall not be applied in combination with each other. ~~Where this code requires consideration of the seismic forceresisting system of an *existing building* subject to *repair*, *alteration*, *change of occupancy*, *addition* or relocation of *existing buildings*, the seismic evaluation and design shall be based on Section 301.1.4 regardless of which compliance method is used.~~

> **Exception:** Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code unless the building is undergoing more than a limited structural *alteration* as defined in Section 907.4.4. New structural members added as part of the *alteration* shall comply with the *International BuildingCode*. *Alteration*s of *existing buildings* in *flood hazardareas* shall comply with Section 701.3.

Add new text as follows:

<u>**301.2** **Seismic evaluation and design criteria** Where required, seismic evaluation or design shall be based on the criteria given in this section, regardless of which compliance method is used.</u>

Renumber as follows:

[BS] ~~301.1.4.1~~<u>301.2.1</u> Compliance with International Building Code-level seismic forces. *(No change to text)*

TABLE [BS] ~~301.1.4.1~~<u>301.2.1</u>
PERFORMANCE OBJECTIVES FOR USE IN ASCE 41 FOR COMPLIANCE WITH INTERNATIONAL BUILDING CODE-LEVEL SEISMIC FORCES

(No change to table)

[BS] ~~301.1.4~~<u>301.2.1</u> Seismic evaluation and design procedures. *(No change to text)*

[BS] ~~301.1.4.2~~<u>301.2.2</u> Compliance with reduced International Building Code-level seismic forces. *(No change to text)*

TABLE [BS] ~~301.1.4.2~~<u>301.2.2</u>
PERFORMANCE OBJECTIVES FOR USE IN ASCE 41 FOR COMPLIANCE WITH REDUCED INTERNATIONAL BUILDING CODE-LEVEL SEISMIC FORCES

(No change to table)

Reason: The last sentence of Section 301.1 does not belong with the first two. In fact, its presence makes the Exception to Section 301.1 confusing -- does the exception apply to the first two sentences or to the third?
The easy solution is to pull out this sentence and put it with the seismic criteria currently in Section 301.1.4. Ideally, all the seismic provisions here should be in their own section within Chapter 3 -- either new section 301.2, or better still, new section 303 -- but the rest of 301.1.4 cannot be touched in Group A. If this proposal is approved, a coordinating proposal will be submitted in Group B (or, this entirely editorial reorganization can be left to staff).

Cost Impact: Will not increase the cost of construction
The proposal is entirely editorial.

EB 7-15 : 301.1 -BONOWITZ5197

EB 8-15

301.1, [BS] 301.1.4, [BS] 301.1.4.1, [BS] Table 301.1.1.4.1, [BS] 301.1.4.2, [BS] Table 301.1.1.4.2, 303 (New)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee(bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

SECTION 301 ADMINISTRATION

301.1 General. The *repair*, *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with one of the methods listed in Sections 301.1.1 through 301.1.3 as selected by the applicant. Sections 301.1.1 through 301.1.3 shall not be applied in combination with each other. Where this code requires consideration of the seismic forceresisting system of an *existing building* subject to *repair*, *alteration*, *change of occupancy*, *addition* or relocation of *existing buildings,* the seismic evaluation and design shall be based on Section ~~301.1.4~~303.1 regardless of which compliance method is used.

> **Exception:** Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code unless the building is undergoing more than a limited structural *alteration* as defined in Section 907.4.4. New structural members added as part of the *alteration* shall comply with the *International BuildingCode*. *Alteration*s of *existing buildings* in *flood hazardareas* shall comply with Section 701.3.

301.1.1 Prescriptive compliance method. *Repairs*, *alterations*, *additions* and *changes of occupancy* complying with Chapter 4 of this code in buildings complying with the *International Fire Code* shall be considered in compliance with the provisions of this code.

301.1.2 Work area compliance method. *Repairs*, *alterations, additions, changes in occupancy and relocated buildings complying with the applicable requirements of Chapters 5 through 13 of this code shall be considered in compliance with the provisions of this code.*

301.1.3 Performance compliance method. *Repairs*, *alterations*, *additions*, changes in occupancy and relocated buildings complying with Chapter 14 of this code shall be considered in compliance with the provisions of this code.

Add new section as follows:

SECTION303 SEISMIC EVALUATION AND DESIGN PROCEDURES

Renumber subsequent sections:

[BS] ~~301.1.4~~ 303.1 ~~Seismic evaluation and design procedures~~ General. *(No change to text)*

[BS] ~~301.1.4.1~~ 303.1.1 Compliance with International Building Code-level seismic forces. *(No change to text)*

TABLE [BS] 3~~301.1.4.1~~303.1.1
PERFORMANCE OBJECTIVES FOR USE IN ASCE 41 FOR COMPLIANCE WITH INTERNATIONAL BUILDING CODE-LEVEL SEISMIC FORCES
(No change to Table)

[BS] ~~301.1.4.2~~ 303.1.2 Compliance with reduced International Building Code-level seismic forces. *(No change to text)*

TABLE [BS] ~~301.1.4.2~~303.1.2
PERFORMANCE OBJECTIVES FOR USE IN ASCE 41 FOR COMPLIANCE WITH REDUCED INTERNATIONAL BUILDING CODE-LEVEL SEISMIC FORCES
(No change to Table)

Reason: The code change proposal is to move the seismic evaluation and design procedures out of the same section and code hierarchy as the three compliance methods and places it in its own section. With the location of the seismic evaluation and design procedure reference in 301.1, it can potentially confuse the code user since two items need to happen in the current 301; choose a method and do a seismic evaluation.
Since the topic is separate and distinct, the proposal moves it to a separate section to ensure it is independent of the compliance method choice by the applicant.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
Cost impact: Code proposal is only to clarify the existing code requirements through a relocation (reorganization) of code sections, so there is no intended increase or decrease expected by approving this proposal.

EB 8-15 : 301.1-KULIK4888

EB 9-15

301.1, 301.1.1, Chapter 4, 1401.2.5, [BS] B101.3, [BS] B101.4

Proponent: David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Subcommittee, National Council of Structural Engineers Associations (dbonowitz@att.net)

2015 International Existing Building Code

Delete without substitution:

~~**CHAPTER 4 PRESCRIPTIVE COMPLIANCE METHOD**~~

(Delete entire chapter)
(Renumber subsequent chapters)

Revise as follows:

301.1 General. The *repair*, *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with one of the methods listed in Sections 301.1.1~~ through 301.1.3~~ or 301.1.2 as selected by the applicant. Sections 301.1.1 ~~through 301.1.3~~ and 301.1.2 shall not be applied in combination with each other. Where this code requires consideration of the seismic forceresisting system of an *existing building* subject to *repair*, *alteration*, *change of occupancy*, *addition* or relocation of *existing buildings,* the seismic evaluation and design shall be based on Section 301.1.4 regardless of which compliance method is used.

> **Exception:** Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code unless the building is undergoing more than a limited structural *alteration* as defined in Section 907.4.4. New structural members added as part of the *alteration* shall comply with the *International BuildingCode*. *Alteration*s of *existing buildings* in *flood hazardareas* shall comply with Section 701.3.

Delete without substitution:

~~**301.1.1 Prescriptive compliance method.** *Repairs*, *alterations*, *additions* and *changes of occupancy* complying with Chapter 4 of this code in buildings complying with the *International Fire Code* shall be considered in compliance with the provisions of this code.~~

Revise as follows:

~~301.1.2~~301.1.1 Work area compliance method. *Repairs*, *alterations, additions, changes in occupancy and relocated buildings complying with the applicable requirements of Chapters 5 through 13 of this code shall be considered in compliance with the provisions of this code.*

~~301.1.3~~301.1.2 Performance compliance method. *Repairs*, *alterations*, *additions*, changes in occupancy and relocated buildings complying with Chapter 14 of this code shall be considered in compliance with the provisions of this code.

(Renumber subsequent sections)

1401.2.5 Accessibility requirements. Accessibility shall be provided in accordance with Section ~~410 or 605~~705.

[BS] B101.3 Qualified historic buildings and facilities subject to Section 106 of the National Historic Preservation Act. Where an *alteration* or *change of occupancy* is undertaken to a qualified *historic building* or facility that is subject to Section 106 of the National Historic Preservation Act, the federal agency with jurisdiction over the undertaking shall follow the Section 106 process. Where the state historic preservation officer or Advisory Council on Historic Preservation determines that compliance with the requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, the alternative requirements of Section ~~410.9~~ 1204.1 for that element are permitted.

[BS] B101.4 Qualified historic buildings and facilities not subject to Section 106 of the National Historic Preservation Act. Where an *alteration* or *change of occupancy* is undertaken to a qualified *historic building* or facility that is not subject to Section 106 of the National Historic Preservation Act, and the entity undertaking the alterations believes that compliance with the requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, the entity shall consult with the state historic preservation officer. Where the state historic preservation officer determines that compliance with the accessibility requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historical significance of the building or facility, the alternative requirements of Section ~~410.9~~ 1204.1 for that element are permitted.

Reason: The intent of this proposal is to consider removing the Prescriptive compliance method from the IEBC, leaving the Work Area compliance method and the Performance compliance method in place.
Note: For purposes of brevity, the balance of Chapter 4 is not shown, but the intent is that Chapter 4 would be removed in its entirety, with corresponding changes to chapter and section numbers and related cross-referencing throughout the code.

The IEBC was created to implement the Work Area method. For continuity purposes, the two methods already in IBC Chapter 34 -- the Prescriptive and Performance methods -- were added to the IEBC upon its initial publication over a decade ago. The idea was that having three broad options would aid transition to the new code. Since then, the IEBC has enjoyed wide adoption, the Work Area method has become known and used, and revisions have been made to all three methods to reconcile many of the differences among them. Indeed, over the last three cycles, the structural provisions of the Prescriptive and Work Area methods have been made nearly identical.

Meanwhile, and especially because the IBC now refers to the IEBC in lieu of its own Chapter 34, many are questioning why the IEBC still needs multiple methods. It makes implementation confusing, and it puts a burden on jurisdiction adoption committees, code officials, design professionals, and permit applicants to weigh the advantages and disadvantages of each method. In some cases it leads to gaming. Some jurisdictions have simply not adopted one or another method, to facilitate consistent enforcement. Unfortunately, some proposals to solve the problem of multiple methods would link or cross-reference them, just to minimize duplication of text. While well-intentioned, this will only make using the IEBC more confusing and difficult (and will violate the intent of Section 301.1 that the methods should remain distinct and not used in a mix-and-match fashion). The better approach is to reconcile differences between the methods, and then eliminate the older, less accommodating Prescriptive method.

Perhaps the time for that is now. Perhaps it is time, after four code cycles, to reconsider the initial intent of the IEBC: To regulate work on existing buildings by project type, with nuances and considerations that require more than a single code chapter.

If the code's users, writers, and stakeholders agree that the Prescriptive and Work Area methods are by now sufficiently similar, we can eliminate the older Prescriptive method with little or no impact, using the public comment period and the time between now and 2018 to iron out the necessary editorial, administrative and coordination changes. If not -- that is, if there is even a significant minority in rational opposition -- then we can approve the proposal at the hearings, use the public comment period to identify irreconcilable differences, disapprove or withdraw the proposal if necessary as a final action, and work on reconciliation for the 2021 IEBC. At the very least, however, this proposal represents an opportunity to hear from the IEBC committee and the code's users about whether and when the Prescriptive method ought to be retired.

Cost Impact: Will not increase the cost of construction
If the Prescriptive Method and the Work Area Method are similar enough to justify approval of this proposal, then removal of the Prescriptive method cannot result in a significant cost increase.

EB 9-15 : 301.1-BONOWITZ5264

EB 10-15

301.1 (New), 301.2 (New), 301.1, 301.1.1, 301.1.2, 301.1.3, 401.1, 401.1.1, 401.2.2, 404, 501.1, 501.1.1, 502, 1401.1, 1401.1.1, 1401.2.4

Proponent: Edward Kulik, Chair, representing Building Code Action Committee(bcac@iccsafe.org)

2015 International Existing Building Code

Relocate Chapter 6 as follows:

~~6~~4 REPAIRS
(Runumber Subsequent sections in this Chapter)
(Renumber Chapters 4 and 5)

Revise as follows:

SECTION 301 ADMINISTRATION

301.1 General. The *repair, alteration, change of occupancy, addition* or relocation of all *existing buildings* shall comply with Section 301.2 or 301.3, as applicable.

301.2 Repairs Repairs shall comply with the requirements of Chapter 4.

~~301.1~~301.3 ~~General.~~Alteration, change of occupancy, addition or relocation The~~*repair*, ~~ *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with one of the methods listed in Sections ~~301.1.1~~301.3.1 through ~~301.1.3~~301.3.3 as selected by the applicant. Sections ~~301.1.1~~301.3.1 through ~~301.1.3~~301.3.3 shall not be applied in combination with each other. Where this code requires consideration of the seismic forceresisting system of an *existing building* subject to~~*repair*, ~~ *alteration*, *change of occupancy*, *addition* or relocation of *existing buildings,* the seismic evaluation and design shall be based on Section ~~301.1.4~~301.3.4 regardless of which compliance method is used.

> **Exception:** Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code unless the building is undergoing more than a limited structural *alteration* as defined in Section 907.4.4. New structural members added as part of the *alteration* shall comply with the *International BuildingCode*. *Alteration*s of *existing buildings* in *flood hazardareas* shall comply with Section 701.3.

~~301.1.1~~301.3.1 Prescriptive compliance method. ~~*Repairs*, *alterations*~~*Alterations*, *additions* and *changes of occupancy* complying with Chapter ~~4~~5 of this code in buildings complying with the *International Fire Code* shall be considered in compliance with the provisions of this code.

~~301.1.2~~301.3.2 Work area compliance method. ~~*Repairs, alterations*~~*Alterations, additions, changes in occupancy and relocated buildings complying with the applicable requirements of Chapters ~~5~~ 6 through 13 of this code shall be considered in compliance with the provisions of this code.*

~~301.1.3~~301.3.3 Performance compliance method. ~~*Repairs, alterations*~~*Alterations*, *additions*, changes in occupancy and relocated buildings complying with Chapter 14 of this code shall be considered in compliance with the provisions of this code.

(Renumber subsequent sections)

401.1 Scope. The provisions of this chapter shall control the *alteration~~, repair~~, addition* and *change of occupancy* or relocation of *existing buildings* and structures, including *historic buildings* and structures as referenced in Section ~~301.1.1~~301.3.1.

> **Exception:** Existing bleachers, grandstands and folding and telescopic seating shall comply with ICC 300.

401.1.1 Compliance with other methods. *Alterations*~~, repairs~~, *additions* and *changes of occupancy* to or relocation of, *existing buildings* and structures shall comply with the provisions of this chapter or with one of the methods provided in Section ~~301.1~~301.3.

401.2.2 New and replacement materials. Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for~~*repairs* and~~*alterations*, provided no hazard to life, health or property is created. Hazardous materials shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

Delete without substitution:

~~SECTION 404 REPAIRS~~

~~**404.1 General.** Buildings and structures, and parts thereof, shall be repaired in compliance with Sections 401.2 and 404. Work on nondamaged components that is necessary for the required *repair* of damaged components shall be considered part of the *repair* and shall not be subject to the requirements for *alterations* in this chapter. Routine maintenance required by Section 401.2, ordinary repairs exempt from permit in accordance with Section 105.2, and abatement of wear due to normal service conditions shall not be subject to the requirements for repairs in this section.~~

~~**[BS] 404.2 Substantial structural damage to vertical elements of the lateral force-resisting system.** A building that has sustained *substantial structural damage* to the vertical elements of its lateral force-resisting system shall be evaluated and repaired in accordance with the applicable provisions of Sections 404.2.1 through 404.2.3.~~

> ~~**Exceptions:**~~
> 1. ~~Buildings assigned to Seismic Design Category A, B or C whose substantial structural damage was not caused by earthquake need not be evaluated or rehabilitated for load combinations that include earthquake effects.~~
> 2. ~~One- and two-family dwellings need not be evaluated or rehabilitated for load combinations that include earthquake effects.~~

~~**[BS] 404.2.1 Evaluation.** The building shall be evaluated by a *registered design professional*, and the evaluation findings shall be submitted to the *building official.* The evaluation shall establish whether the damaged building, if repaired to its predamage state, would comply with the provisions of the *International Building Code* for wind and earthquake loads.~~

~~Wind loads for this evaluation shall be those prescribed in Section 1609 of the *International Building Code.* Earthquake loads for this evaluation, if required, shall be permitted to be 75 percent of those prescribed in Section 1613 of the *International Building Code.* Alternatively, compliance with ASCE 41, using the performance objective in Table 301.1.4.2 for the applicable risk category, shall be deemed to meet the earthquake evaluation requirement.~~

~~**[BS] 404.2.2 Extent of repair for compliant buildings.** If the evaluation establishes compliance of the predamage building in accordance with Section 404.2.1, then repairs shall be permitted that restore the building to its predamage state.~~

~~**[BS] 404.2.3 Extent of repair for noncompliant buildings.** If the evaluation does not establish compliance of the predamage building in accordance with Section 404.2.1, then the building shall be rehabilitated to comply with applicable provisions of the *International Building Code* for load combinations that include wind or seismic loads. The wind loads for the repair shall be as required by the building code in effect at the time of original construction, unless the damage was caused by wind, in which case the wind loads shall be as required by the *International Building Code.* Earthquake loads for this rehabilitation design shall be those required for the design of the predamage building, but not less than 75 percent of those prescribed in Section 1613 of the *International Building Code.* New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of the *International Building Code* for new buildings of similar~~

~~structure, purpose and location. Alternatively, compliance with ASCE 41, using the performance objective in Table 301.1.4.2 for the applicable risk category, shall be deemed to meet the earthquake rehabilitation requirement.~~

~~**[BS] 404.3 Substantial structural damage to gravity loadcarrying components.** Gravity load-carrying components that have sustained *substantial structural damage* shall be rehabilitated to comply with the applicable provisions of the *International Building Code* for dead and live loads. Snow loads shall be considered if the substantial structural damage was caused by or related to snow load effects. Existing gravity load-carrying structural elements shall be permitted to be designed for live loads approved prior to the damage. If the approved live load is less than that required by Section 1607 of the *International Building Code*, the area designed for the nonconforming live load shall be posted with placards of *approved* design indicating the *approved* live load. Nondamaged gravity load-carrying components that receive dead, live or snow loads from rehabilitated components shall also be rehabilitated or shown to have the capacity to carry the design loads of the *rehabilitation* design. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of the *International Building Code* for new buildings of similar structure, purpose and location.~~

~~**[BS] 404.3.1 Lateral force-resisting elements.** Regardless of the level of damage to vertical elements of the lateral force-resisting system, if *substantial structural damage* to gravity load-carrying components was caused primarily by wind or earthquake effects, then the building shall be evaluated in accordance with Section 404.2.1 and, if noncompliant, rehabilitated in accordance with Section 404.2.3.~~

~~**Exceptions:**~~

1. ~~One- and two-family dwellings need not be evaluated or rehabilitated for load combinations that include earthquake effects.~~
2. ~~Buildings assigned to Seismic Design Category A, B or C whose substantial structural damage was not caused by earthquake need not be evaluated or rehabilitated for load combinations that include earthquake effects.~~

~~**[BS] 404.4 Less than substantial structural damage.** For damage less than *substantial structural damage*, repairs shall be allowed that restore the building to its predamage state. New structural members and connections used for this *repair* shall comply with the detailing provisions of the *International Building Code* for new buildings of similar structure, purpose and location.~~

~~**[BS] 404.5 Flood hazard areas.** For buildings and structures in *flood hazard areas* established in Section 1612.3 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable, any repair that constitutes *substantial improvement* or repair of *substantial damage* of the existing structure shall comply with the flood design requirements for new construction, and all aspects of the existing structure shall be brought into compliance with the requirements for new construction for flood design.~~

~~For buildings and structures in flood hazard areas established in Section 1612.3 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable, any repairs that do not constitute *substantial improvement or* repair of *substantial damage* of the existing structure are not required to comply with the flood design requirements for new construction.~~

Revise as follows:

501.1 Scope. The provisions of this chapter shall be used in conjunction with Chapters ~~6~~ 7 through 13 and shall apply to the *alteration*~~, *repair*~~, *addition* and *change of occupancy* of existing structures, including historic and moved structures, as referenced in Section 301.1.2. The work performed on an *existing building* shall be classified in accordance with this chapter.

501.1.1 Compliance with other alternatives. *Alterations*~~, *repairs*~~, *additions* and *changes of occupancy* to existing structures shall comply with the provisions of Chapters ~~6~~ 7 through 13 or with one of the alternatives provided in Section 301.1.

Delete without substitution:

~~**SECTION 502 REPAIRS**~~

~~**502.1 Scope.** *Repairs,* as defined in Chapter 2, include the patching or restoration or replacement of damaged materials, elements, *equipment or fixtures* for the purpose of maintaining such components in good or sound condition with respect to existing loads or performance requirements.~~

~~**502.2 Application.** *Repairs* shall comply with the provisions of Chapter 6.~~

~~**502.3 Related work.** Work on nondamaged components that is necessary for the required *repair* of damaged components shall be considered part of the *repair* and shall not be subject to the provisions of Chapter 7, 8, 9, 10 or 11.~~

Revise as follows:

1401.1 Scope. The provisions of this chapter shall apply to the *alteration*~~, *repair*~~, *addition* and *change of occupancy* of existing structures, including historic and moved structures, as referenced in Section ~~301.1.3~~ 301.3.3. The provisions of this chapter are intended to maintain or increase the current degree of public safety, health and general welfare in *existing buildings* while permitting ~~*repair*~~, *alteration*, *addition* and *change of occupancy* without requiring full compliance with Chapters ~~5~~ 6 through 13, except where compliance with other provisions of this code is specifically required in this chapter.

1401.1.1 Compliance with other methods. *Alterations*~~, *repairs*~~, *additions* and *changes of occupancy* to existing structures shall comply with the provisions of this chapter or with one of the methods provided in Section ~~301.1~~ 301.3.

1401.2.4 Alterations and repairs. An *existing building* or portion thereof that does not comply with the requirements of this code for new construction shall not be altered or repaired in such a manner that results in the building being less safe or sanitary than such building is currently. If, in the *alteration* or *repair*, the current level of safety or sanitation is to be reduced, the portion altered or ~~repaired~~ shall conform to the requirements of Chapters 2 through 12 and Chapters 14 through 33 of the *International Building Code*.

Reason: The purpose of this code change is to remove the topic of repair from the three compliance methods and to move repair into one standalone chapter.
The topic of repairs is fairly simple but the way the three methods handle the topic very differently:

• Prescriptive method- Specific requirements on structural repairs only, general statement on other topics with code official discretion on 'dangerous' situations

• Work area method- Specific requirements for structural (identical to prescriptive method), building materials, fire protection, accessibility, mechanical, plumbing, and electrical.

• Performance method- General requirements only and reference to the IBC for thresholds.

The IEBC has three different methods to give choices in the design of existing buildings. The reason for the choice to the applicant is to give options since every existing building is different, using legacy materials and having legacy code requirements. This is not the case for repairs.

As an example, the prescriptive method would allow items like glazing in hazardous locations non-NEMA electrical receptacles in hospitals to be replaced in kind whereas the work area method sets a baseline on these items. Since repair items don't usually get a permit or inspection, there is really little need for options in replacing something for the sole purpose of it's maintenance.

The proposal moves this topic to right before the prescriptive method and the chapters would be:

1-Admin
2-Definitions
3-General Requirements for all compliance methods
4-Repairs
5-Prescriptive
6-Work Area Classification of Work
7-Alt. 1
8- Alt. 2
9- Alt. 3
10- Change of Occupancy
11-Additions

12- Historic Buildings
13- Relocated Buildings
14- Performance Method
15- Safeguards
16- Referenced Standards

One item that would generally require a building permit would be damaged buildings. However, damaged buildings only specifically address structural items of which are currently identical in the prescriptive and work area methods. Therefore, no technical change is created by this change.

The alternative to this change would be to correlate repairs in the three methods and copy them into the three applicable chapters. However, a single chapter does not remove any options currently available, is correlated for the code user, and will minimize different requirements on the same topic in future code cycles.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
Cost impact: Code proposal is only to clarify the existing code requirements through a relocation (reorganization) of code sections, so there is no intended increase or decrease expected by approving this proposal.

EB 10-15 : 301.1 (New)-KULIK4786

EB 11-15

301.1, 301.2 (New), 301.1.2, 301.1.3, 301.3 (New), 401.1, 401.1.1, 409, Chapter 13, 1401.1

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Relocate Chapter 13 as follows:

~~13~~14 RELOCATED OR MOVED BUILDINGS
(Renumber all subsequent sections in this chapter)
(Renumber Chapter 14 Prescriptive Method to be Chapter 13)

SECTION 301 ADMINISTRATION

301.1 General. The *repair*, *alteration*, *change of occupancy*, *addition* or relocation of all *existing buildings* shall comply with ~~one~~301.2 or 301.3 of ~~the methods listed in Sections 301.1.1 through 301.1.3 as selected by the applicant. Sections 301.1.1 through 301.1.3 shall not be applied in combination with each other~~this section. Where this code requires consideration of the seismic ~~forceresisting~~force resisting system of an *existing building* subject to *repair*, *alteration*, *change of occupancy*, *addition* or relocation of *existing buildings,* the seismic evaluation and design shall be based on Section ~~301.1.4~~301.2.4 regardless of which compliance method is used.

> **Exception:** Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code unless the building is undergoing more than a limited structural *alteration* as defined in Section 907.4.4. New structural members added as part of the *alteration* shall comply with the *International BuildingCode*. *Alteration*s of *existing buildings* in *flood hazardareas* shall comply with Section 701.3.

Add new text as follows:

301.2 Repairs, alterations, change of occupancy, and additions. The *repair*, *alteration*, *change of occupancy*, or *addition* of all *existing buildings* shall comply with one of the methods listed in Sections 301.1.1 through 301.1.3 as selected by the applicant. Sections 301.2.1 through 301.2.3 shall not be applied in combination with each other.

Revise as follows:

~~301.1.1~~301.2.1 Prescriptive compliance method. *Repairs*, *alterations*, *additions* and *changes of occupancy* complying with Chapter 4 of this code in buildings complying with the *International Fire Code* shall be considered in compliance with the provisions of this code.

~~301.1.2~~301.2.2 Work area compliance method. *Repairs*, *alterations, additions,* and *changes in occupancy* ~~and relocated buildings~~ *complying with the applicable requirements of Chapters 5 through ~~13~~12 of this code shall be considered in compliance with the provisions of this code.*

~~301.1.3~~301.2.3 Performance compliance method. *Repairs*, *alterations*, *additions*, and changes in occupancy and ~~relocated buildings~~ complying with Chapter ~~14~~13 of this code shall be considered in compliance with the provisions of this code.

(Renumber subsequent sections)

Add new text as follows:

301.3 Relocated Buildings Relocated buildings shall comply with the requirements of Chapter 14.

Revise as follows:

401.1 Scope. The provisions of this chapter shall control the *alteration, repair, addition* and *change of occupancy* ~~or relocation~~ of *existing buildings* and structures, including *historic buildings* and structures as referenced in Section ~~301.1.1~~ 301.2.1.

> **Exception:** Existing bleachers, grandstands and folding and telescopic seating shall comply with ICC 300.

401.1.1 Compliance with other methods. *Alterations*, repairs, *additions* and *changes of occupancy* to ~~or relocation of,~~ *existing buildings* and structures shall comply with the provisions of this chapter or with one of the methods provided in Section ~~301.1~~301.2.

~~SECTION409 MOVED STRUCTURES~~

~~**409.1 Conformance.** Structures moved into or within the jurisdiction shall comply with the provisions of this code for new structures.~~

(Renumber subsequent sections)

1401.1 Scope. The provisions of this chapter shall apply to the *alteration*, *repair*, *addition* and *change of occupancy* of existing structures, including historic ~~and moved~~ structures, as referenced in Section ~~301.1.3~~301.2.3. The provisions of this chapter are intended to maintain or increase the current degree of public safety, health and general welfare in *existing buildings* while permitting *repair*, *alteration*, *addition* and *change of occupancy* without requiring full compliance with Chapters 5 through ~~13~~12, except where compliance with other provisions of this code is specifically required in this chapter.

(Renumber subsequent sections)

Reason: The purpose of this code change is to adequately address relocated or moved buildings in the IEBC. Currently, the three compliance methods address relocated/moved buildings in their respective scopes. This change will relocate Chapter 13, Relocated or Moved Buildings, and make it generally applicable for all three methods.
The topic is currently handled the following way:

Prescriptive Method- "Meet this code for new structures" [IEBC doesn't deal with new structures]
Work Area Method- Specific chapter that is not based upon the hierarchy of the work area method
Performance Method- No requirements provided

In short, the only method that has technical requirements is Chapter 13. Since the IBC covers relocated buildings in its scope, the use of new structure requirements for relocated or moved buildings is always an option anyway.

The IEBC has three different methods to give choices in the design of existing buildings. The reason for the choice to the applicant is to give options since every existing building is different, using legacy materials and having legacy code requirements. This is not the case for relocated buildings as the intent is to reuse an existing building in a different location rather than complete other rehabilitation work.

The Chapter layout would look like this:

1-Admin
2-Definitions
3-Prescriptive

4-General Requirements for all compliance methods

5-Work Area Classification of Work
6-Repairs
7-Alt. 1
8- Alt. 2
9- Alt. 3
10- Change of Occupancy
11-Additions
12- Historic Buildings
13- Performance Method
14- Relocated Buildings
15- Safeguards
16- Referenced Standards

In the alternative, a code change could be to modify the prescriptive method to have an appropriate reference to the IBC as well as the performance method to have some direction on the issue within it.

As a correlation note; if this proposal is denied by either the BCAC or the code development committee, a proposal has to go forward to repair IEBC 409.1 to reference the IBC.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
Code proposal is only to clarify the existing code requirements through a relocation (reorganization) of code sections, so there is no intended increase or decrease expected by approving this proposal.

EB 11-15 : 301.1-KULIK4755

EB 12-15

301.1.1, 301.1.2, 301.1.3

Proponent: Homer Maiel, PE, CBO, representing ICC Tri-Chapter (Peninsula, East Bay, Monterey Bay) (hmaiel@gmail.com)

2015 International Existing Building Code

Revise as follows:

301.1.1 Prescriptive compliance method. *Repairs*, *alterations*, *additions*, ~~and~~ *changes of occupancy* and relocation of *existing buildings* and structures, including historical buildings complying with Chapter 4 of this code in buildings complying with the *International Fire Code* shall be considered in compliance with the provisions of this code.

301.1.2 Work area compliance method. *Repairs*, *alterations, additions, changes* ~~in~~*of occupancy* of existing structures, including historic and ~~relocated buildings~~moved structures complying with the applicable requirements of Chapters 5 through 13 of this code shall be considered in compliance with the provisions of this code.

301.1.3 Performance compliance method. *Repairs*, *alterations*, *additions*, changes ~~in~~ of occupancy of existing structures, including historic and ~~relocated buildings~~moved structures complying with Chapter 14 of this code shall be considered in compliance with the provisions of this code.

Reason: This change brings these sections in line with Sections 401.1, 501.1 and 1401.1, respectively.

Cost Impact: Will not increase the cost of construction
This proposal is editorial.

EB 12-15 : 301.1.1-MAIEL4689

EB 13-15

301.1.5 (New)

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com); Ronald Nickson (rnickson@nmhc.org), representing National Multi-housing Council; Kevin Fry, BOMA International (Kfry@BOMA.org), representing BOMA International; Dan Buuck (dbuuck@nahb.org), representing NAHB

2015 International Existing Building Code

Add new text as follows:

301.1.5 Compliance with accessibility Accessible requirements for existing buildings shall comply with the 2009 edition of ICC A117.1.

Reason: Dramatic changes are being proposed in the next edition of the ICC A117.1 standard that will accommodate a higher number of individuals. For example, the turning radius is being changed from 60" diameter to a 67" diameter, and clear floor space from 30"x48" to 30"x52" and related access to features. While these changes are able to be incorporated into new construction relatively easily, existing buildings that have been designed to conform with earlier standards or were modified to meet those earlier standards are likely to find that full compliance will create problems. Even using provisions based on the technical infeasibility for compliance will still require compliance in some circumstances that aren't justifiable financially and physically.
The Department of Justice in development of the 2010 ADA Standard allows for "grandfathering" of elements in an existing building that have already been made to conform and are found to comply with the earlier ADA standard. The 2009 edition of A117.1 provides the most comprehensively structured provisions for compliance with the original ADA and HUD standard, which is why a specific reference to that edition of the Standard for determining whether areas outside the specific alterations or change of occupancy must be modified.

Cost Impact: Will not increase the cost of construction
This change will reduce the cost of construction where changes have already been made to features of a building to conform to older accessibility standards. Under the proposed changes to A117.1 significant cost would be required to conform to these requirements often in areas where upgrades have already been performed in areas such as toilet rooms to meet the barrier removal requirements of the ADA or because of alterations and change of occupancy under the I-Codes when that work had been done prior to the adoption of this new standard.

Staff Note: If this code change is successful, the edition referenced for ICC A117.1 in Chapter 16 will remain the 2009 edition.

EB 13-15 : 301.1.5 (New)-COLLINS4462

EB 14-15

401.2, 401.2.1, 401.2.2, 401.2.3, 403.1, 404.1, 602.1, 602.2

Proponent: David Bonowitz, representing Existing Buildings Subcommittee, National Counci of Structural Engineers Associations (dbonowitz@att.net)

2015 International Existing Building Code

Delete without substitution:

~~**401.2 Building materials and systems.** Building materials and systems shall comply with the requirements of this section.~~

~~**401.2.1 Existing materials.** Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the building official to be unsafe per Section 115.~~

~~**401.2.2 New and replacement materials.** Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for *repairs* and *alterations*, provided no hazard to life, health or property is created. Hazardous materials shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.~~

~~**401.2.3 Existing seismic force-resisting systems.** Where the existing seismic force-resisting system is a type that can be designated ordinary, values of R, Ω_0 and C_d for the existing seismic force-resisting system shall be those specified by the *International Building Code* for an ordinary system unless it is demonstrated that the existing system will provide performance equivalent to that of a detailed, intermediate or special system.~~

Revise as follows:

403.1 General. Except as provided by ~~Section 401.2~~Sections 302.3, 302.4, or this section, *alterations* to any building or structure shall comply with the requirements of the *International Building Code* for new construction. *Alterations* shall be such that the *existing building* or structure is no less conforming to the provisions of the *International Building Code* than the *existing building* or structure was prior to the *alteration*.

Exceptions:

1. An existing stairway shall not be required to comply with the requirements of Section 1011 of the *International Building Code* where the existing space and construction does not allow a reduction in pitch or slope.
2. Handrails otherwise required to comply with Section 1011.11 of the *International Building Code* shall not be required to comply with the requirements of Section 1014.6 of the *International Building Code* regarding full extension of the handrails where such extensions would be hazardous due to plan configuration.

404.1 General. Buildings and structures, and parts thereof, shall be repaired in compliance with ~~Sections 401.2 and 404~~this section. Work on nondamaged components that is necessary for the required *repair* of damaged components shall be considered part of the *repair* and shall not be subject to the requirements for *alterations* in this chapter. ~~Routine maintenance required by Section 401.2~~Maintenance, ordinary repairs exempt from permit in accordance with Section 105.2, and abatement of wear due to normal service conditions shall not be subject to the requirements for repairs in this section.

Delete without substitution:

~~**602.1 Existing building materials.** Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the *code official* to render the building or structure unsafe or *dangerous* as defined in Chapter 2.~~

~~**602.2 New and replacement materials.** Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for *repairs* and *alterations*, provided no *dangerous* or *unsafe* condition, as defined in Chapter 2, is created. Hazardous materials, such as asbestos and lead-based paint, shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.~~

Reason: The proposal removes provisions that were already moved to Chapter 3 in the last cycle. When they were moved, however, the remaining duplicate provisions addressed by this proposal could not be deleted because of Group assignments.
Sections 401.2.1, 401.2.2, 602.1, and 602.2 are now in Sections 302.3 and 302.4. Section 401.2.3 is now in Sections 301.1.4.1 and 301.1.4.2.

If 401.2.1 - 401.2.3 are deleted as proposed, the balance of 401.2 can be deleted as well.

Section 403.1 is revised accordingly to cite the existing sections that cover new and existing materials.

In Section 404.1, the two references to Section 401.2 are removed and not replaced because they are actually erroneous references that should have been removed in a previous cycle. Their removal here is at most editorial, but could even be construed as errata. The reference to 401.2 used to match a provision in IBC Chapter 34 that referred to Section 3401.2 Maintenance, but that section no longer exists in the IEBC in any of its compliance methods. The first instance could be revised to refer instead to 302.4, but it is frankly not needed, as 302.4 applies even without a direct reference. The second instance is clearly a mistaken reference to the old maintenance provision, not a reference to the current provisions about new and existing materials.

Cost Impact: Will not increase the cost of construction
The proposal is entirely editorial.

EB 14-15 : 401.2-BONOWITZ5169

EB 15-15

401.2.1, 401.2.2, 602.1, 602.2

Proponent: Kathleen Petrie, representing City of Seattle, Department of Planning and Development (kathleen.petrie@seattle.gov)

2015 International Existing Building Code

Delete without substitution:

~~**401.2.1 Existing materials.** Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the building official to be unsafe per Section 115.~~

~~**401.2.2 New and replacement materials.** Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for *repairs* and *alterations*, provided no hazard to life, health or property is created. Hazardous materials shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.~~

~~**602.1 Existing building materials.** Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the *code official* to render the building or structure unsafe or *dangerous* as defined in Chapter 2.~~

~~**602.2 New and replacement materials.** Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for *repairs* and *alterations*, provided no *dangerous* or *unsafe* condition, as defined in Chapter 2, is created. Hazardous materials, such as asbestos and lead-based paint, shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.~~

Reason: This proposal deletes the "Existing [Building] Materials" and "New and Replacement Materials" sections from Chapters 4 and 6 because they are already inserted in chapter 3. The content in Chapter 3 applies to all methods in the IEBC so deleting these sections in the other method chapters reduces redundancy.

Cost Impact: Will not increase the cost of construction
This modification does not change the requirement. It removes unnecessary redundancy from other chapters, so costs are not increased or decreased

EB 15-15 : 401.2.1-PETRIE3587

EB 16-15

401.2.4 (New)

Proponent: Maureen Traxler, Seattle Dept of Planning & Development, representing Seattle Dept of Planning & Development (maureen.traxler@seattle.gov)

2015 International Existing Building Code

Add new text as follows:

401.2.4 Fire resistance ratings Where approved by the code official, buildings where an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 of the International Building Code has been added, and the building is now sprinklered throughout, the required fire-resistance ratings of building elements and materials shall be permitted to meet the requirements of the current building code. The building is required to meet the other applicable requirements of the International Building Code.

Plans, investigation and evaluation reports, and other data shall be submitted indicating which building elements and materials the applicant is requesting the code official to review and approve for determination of applying the current building code fire-resistance ratings. Any special construction features, including fire-resistance-rated assemblies and smoke-resistive assemblies, conditions of occupancy, means-of-egress conditions, fire code deficiencies, approved modifications or approved alternative materials, design and methods of construction, and equipment applying to the building that impact required fire-resistance ratings shall be identified in the evaluation reports submitted.

Reason: The proposed language is identical to Section 803.6. The language was added to the 2015 IEBC by EB 26-13. The reason offered for EB26-13 was:

> "The topic of allowing the ability to apply sprinkler protection trade-offs that exist in the current code has been a matter of discussion in the code development arena for some time. How to apply the allowance for a potential reduction in fire-resistance ratings and in what code they belong have been discussed without a consensus.
>
> "The concept is that once a building without sprinkler protection has been sprinklered throughout, whether due to renovations or retroactive code application, the designer should be permitted to allow the same fire resistance rating provisions for new construction in an existing sprinklered building. The issue is how to provide for that application of code and ensure a proper review by the building code official is performed to ensure there are no impediments to granting an approval that may result in the reduction of existing levels of protection.
>
> "This proposal attempts to provide for that process by adding a new section to the IEBC under Section 806 Building Elements and Materials. The suggested language provides that once an existing building is sprinklered throughout and meets the other fire protection requirements of Chapter 9 of the IBC, plans, investigation and evaluation reports, and other data can be submitted seeking approval of the code official for the assignment of the new fire-resistance ratings which might me a reduction, or potentially an increase.
>
> "The suggested language also requires that any special construction features, conditions of occupancy, approved modifications or approved alternative materials, design and methods of construction, and equipment applying to the building that impact required fire-resistance ratings shall be identified in the evaluation reports submitted. This is to ensure special conditions are identified that may prevent a reduction in fire-resistance ratings."

In the 2015 IEBC, the new section applies only to the work area method of compliance, but the reasoning applies equally well to the prescriptive method. The proposed language doesn't work well with the performance method because that method relies heavily on consideration of individual building features.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction.

EB 16-15 : 401.2.4 (New)-TRAXLER3416

EB 17-15

401.3, 1401.3.1

Proponent: Maureen Traxler, representing Seattle Dept of Planning & Development (maureen.traxler@seattle.gov)

2015 International Existing Building Code

Delete without substitution:

~~**401.3 Dangerous conditions.** The building official shall have the authority to require the elimination of conditions deemed *dangerous*.~~

~~**1401.3.1 Hazards.** Where the *code official* determines that an unsafe condition exists as provided for in Section 115, such unsafe condition shall be abated in accordance with Section 115.~~

Reason: These two sections are unnecessary. Section 115 covers unsafe buildings more comprehensively than Section 401 and Section 1401.3. The subject of unsafe buildings is also addressed in two other sections, but those sections serve different purposes. Section 1202.2 states that historic buildings are not required to have more work than is necessary to correct the unsafe condition. Section 1008.2 serves a similar purpose with regard to electrical systems and change of occupancy.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction.

EB 17-15 : 401.3-TRAXLER3300

EB 18-15

401.4 (New), 804.2.4.1 (New)

Proponent: Richard Wood, University of Massachusetts-Lowell, representing University of Massachusetts-Lowell (richard_wood@uml.edu)

2015 International Existing Building Code

Add new text as follows:

401.4 Pyrophoric materials. Pyrophoric materials shall be permitted to be stored or used in existing buildings in accordance with any one of the following conditions.

1. One hundred percent of the maximum allowable quantity in accordance with IBC Table 307.1(1) in buildings equipped throughout with an approved automatic sprinkler system.
2. Fifty percent of the maximum allowable quantity in accordance with IBC Table 307.1(1) for storage or use in buildings on floors equipped throughout with an approved automatic sprinkler system.
3. Twenty five percent of the maximum allowable quantity in accordance with IBC Table 307.1(1) in buildings where all locations of storage and use are protected with an approved special hazards point suppression system.

804.2.4.1 Pyrophoric materials. Pyrophoric materials shall be permitted to be stored or used in existing buildings in accordance with any one of the following conditions.

1. One hundred percent of the maximum allowable quantity in accordance with IBC Table 307.1(1) in buildings equipped throughout with an approved automatic sprinkler system, or
2. Fifty percent of the maximum allowable quantity in accordance with IBC Table 307.1(1) for storage or use in buildings on floors equipped throughout with an approved automatic sprinkler system, or
3. Twenty five percent of the maximum allowable quantity in accordance with IBC Table 307.1(1)in buildings where all locations of storage and use are protected with an approved special hazards point suppression system.

Reason: The stated intent of the IEBC is to provide alternative approaches for remodel, repair, and alterations in existing buildings. This proposal recognizes the challenges associated with renovations in existing buildings and offers reasonable levels of safety as indicated in the "Effective Use of the International Existing Building Code" section of the IEBC.

Pyrophoric product usage in laboratories, located in other than the high hazard use groups, are generally in very small quantities, usually measured in grams. The presences of these quantities do not significantly elevate the risk.
Currently, compliance with the requirement for an automatic sprinkler system throughout an entire building may be implicated once a building permittable activity is sought. Full compliance would in some cases be so cost prohibitive, the owner might choose to make no improvements to the existing building. This decision may reduce the overall level of safety as time goes on. This proposal would allow for an alternate, more focused approach to risk mitigation for a specific hazard.

Cost Impact: Will not increase the cost of construction
This proposal will not increase, but rather decrease cost by allowing alernative, less costly, compliance methods in existing buildings utilizing these materials.

EB 18-15 : 401.2.4 (New)-WOOD5068

EB 19-15

402.1, 403.1, [BS] 403.9, 407.1, 601.2, 608.1, 805.2, [BS] 807.6

Proponent: David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Subcommittee, National Council of Structural Engineers Associations (dbonowitz@att.net)

2015 International Existing Building Code

Revise as follows:

402.1 General. *Additions* to any building or structure shall comply with the requirements of the *International Building Code* for new construction. Alterations to the *existing building* or structure shall be made to ensure that the *existing building* or structure together with the *addition* are no less ~~conforming to~~complying with the provisions of the *International BuildingCode* than the *existing building* or structure was prior to the *addition*. An *existing building* together with its *additions* shall comply with the height and area provisions of Chapter 5 of the *International Building Code*.

403.1 General. Except as provided by Section 401.2 or this section, *alterations* to any building or structure shall comply with the requirements of the *International Building Code* for new construction. *Alterations* shall be such that the *existing building* or structure is no less ~~conforming to~~complying with the provisions of the *International Building Code* than the *existing building* or structure was prior to the *alteration*.

Exceptions:

1. An existing stairway shall not be required to comply with the requirements of Section 1011 of the *International Building Code* where the existing space and construction does not allow a reduction in pitch or slope.
2. Handrails otherwise required to comply with Section 1011.11 of the *International Building Code* shall not be required to comply with the requirements of Section 1014.6 of the *International Building Code* regarding full extension of the handrails where such extensions would be hazardous due to plan configuration.

[BS] 403.9 Voluntary seismic improvements. *Alterations* to existing structural elements or *additions* of new structural elements that are not otherwise required by this chapter and are initiated for the purpose of improving the performance of the seismic force-resisting system of an existing structure or the performance of seismic bracing or anchorage of existing nonstructural elements shall be permitted, provided that an engineering analysis is submitted demonstrating the following:

1. The altered structure and the altered nonstructural elements are no less ~~conforming to~~complying with the provisions of the *International Building Code* with respect to earthquake design than they were prior to the *alteration*.
2. New structural elements are detailed as required for new construction.
3. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required for new construction.
4. The *alterations* do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

407.1 ~~Conformance~~Compliance. No change shall be made in the use or occupancy of any building unless such building is made to comply with the requirements of the *International Building Code* for the use or occupancy. Changes in use or occupancy in a building or portion thereof shall be such that the existing building is no less complying with the provisions of this code than the existing building or structure was prior to the change. Subject to the approval of the building official, the use or occupancy of *existing buildings* shall be permitted to be changed and the building is allowed to be occupied for purposes in other groups without ~~conforming to~~complying with all of the requirements of this code for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use.

Exception: The building need not be made to comply with the seismic requirements for a new structure unless required by Section 407.4.

601.2 ~~Conformance~~Compliance. The work shall not make the building less ~~conforming~~complying than it was before the *repair* was undertaken.

608.1 General. Existing mechanical systems undergoing *repair* shall not make the building less ~~conforming~~complying than it was before the *repair* was undertaken.

805.2 General. The means of egress shall comply with the requirements of this section.

Exceptions:

1. Where the *work area* and the means of egress serving it complies with NFPA 101.
2. Means of egress ~~conforming to~~complying with the requirements of the building code under which the building was constructed shall be considered compliant means of egress if, in the opinion of the *code official*, they do not constitute a distinct hazard to life.

[BS] 807.6 Voluntary lateral force-resisting system alterations. *Alterations* of existing structural elements and additions of new structural elements that are initiated for the purpose of increasing the lateral force-resisting strength or stiffness of an existing structure and that are not required by other sections of this code shall not be required to be designed for forces ~~conforming to~~complying with the *International Building Code*, provided that an engineering analysis is submitted to show that:

1. The capacity of existing structural elements required to resist forces is not reduced;
2. The lateral loading to existing structural elements is not increased either beyond its capacity or more than 10 percent;
3. New structural elements are detailed and connected to the existing structural elements as required by the *International Building Code*;
4. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by the *International Building Code*; and
5. A *dangerous* condition as defined in this code is not created. Voluntary *alterations* to lateral force-resisting systems conducted in accordance with Appendix A and the referenced standards of this code shall be permitted.

Reason: This is an editorial proposal that adds clarity and consistency. The appropriate phrase is "no less complying," not "no less conforming." "Complying" is also the term with greater precedent and preference, as seen in sections 301.1, 406.2, 407.1, 410, 702, 705, 803, 805, 903, 1012, 1203, and 1204.

Cost Impact: Will not increase the cost of construction
The proposal is entirely editorial.

EB 19-15 : 402.1-BONOWITZ5181

EB 20-15

402.1.1 (New), 410.6, 705.1, 1105.2 (New)

Proponent: Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com)

2015 International Existing Building Code

Add new text as follows:

402.1.1 Accessible Means of Egress Additions shall provide accessible means of egress in accordance with Section 1009 of the *International BuildingCode.* Where the accessible means of egress from the addition leads through the existing building, the associated accessible means of egress path in the existing building shall be altered to be in accordance with Section 1009 of the *International Building Code.* Means of egress in the addition and existing building that are not accessible shall be provided with directional signage in accordance with Section 1009 of the *International Building Code* at the non-accessible portion of the means of egress.

Revise as follows:

410.6 Alterations. A *facility* that is altered shall comply with the applicable provisions in Chapter 11 of the *International Building Code*, unless *technically infeasible*. Where compliance with this section is *technically infeasible*, the *alteration* shall provide access to the maximum extent technically feasible.

Exceptions:

1. The altered element or space is not required to be on an accessible route, unless required by Section 410.7.
2. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing facilities except as required by Section 402.1.1.
3. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall be permitted to meet the provision for a Type B dwelling unit.
4. Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in *existing buildings* and facilities undergoing a *change of occupancy* in conjunction with *alterations* where the *work area* is 50 percent or less of the aggregate area of the building.

705.1 General. A *facility* that is altered shall comply with the applicable provisions in Sections 705.1.1 through 705.1.14, and Chapter 11 of the *International Building Code* unless it is *technically infeasible*. Where compliance with this section is *technically infeasible*, the alteration shall provide access to the maximum extent that is technically feasible.

A *facility* that is constructed or altered to be accessible shall be maintained accessible during occupancy.

Exceptions:

1. The altered element or space is not required to be on an accessible route unless required by Section 705.2.
2. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing *facilities* except as required by Section 1101.1.1.
3. Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in existing *facilities* undergoing less than a Level 3 *alteration*.
4. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall meet the provisions for Type B dwelling units.

Add new text as follows:

1105.2 Accessible means of egress Additions shall provide accessible means of egress in accordance with Section 1009 of the International Building Code. Where the accessible means of egress from the addition leads through the existing building, the associated accessible means of egress path in the existing building shall be altered to be in accordance with Section 1009 of the International Building Code. Means of egress in the addition and existing building that are not accessible shall be provided with directional signage in accordance with Section 1009 of the International Building Code at the non-accessible portion of the means of egress.

Reason: The proposal clarifies the application of the requirement for accessible means of egress (AMOE) in additions. The concept is the same for both the Prescriptive Compliance Method and Work Area Compliance Method. No proposal is made for Chapter 14 because Section 1401.2.5 already refers back to Sections 410 and 705 for accessibility complaince when using the Performance Compliance Method.

402.1.1 and 1101.1.1 - Because Section 410.6 of the IEBC (and Section 1009.1 of the IBC) contains an exception that states that the AMOE is not requried in existing buidlings, it creates confusion regarding what needs to be done when the AMOE from the addition leads through the existing buidling; whether it must continue through the existing buidling and require modification to the existing buidling as is implied in Section 402.1 or whether it can stop at the existing building due the explicit language in exception 2 of Section 410.6.

The proposed langage makes it clear that if the path of egress within the existing building cannot be made to comply with the requirements for an accessible means of egress, then the addition will need to provide all the AMOE requirements for the addition. This is the only option.

Finally, signage is required at the means of egress for both the addition and the existing buidling where those egress elements do not comply with the AMOE provisions of the IBC. If the means of egress in either the addition or existing building cannot meet the requirements as an AMOE then the directinoal signage must be provided so that the occupants can find the AMOE.

410.6 and 705.1 - It is clear that the blanket exception that the existing buidling is not required to have any acessible means of egress is not completely true. The requriements for the addition may force that upon the existing buidling. The text of these two sections should recognize and reflect that.

Cost Impact: Will not increase the cost of construction
The text is a clarification of the current interpretation.

EB 20-15 : 402.1.1 (New)-BOECKER5786

EB 21-15

402.6 (New), 403.11 (New), 804.4.4 (New), 1105 (New), 1105.1 (New)

Proponent: Adolf Zubia, representing IAFC Fire & Life Safety Section

2015 International Existing Building Code

Add new text as follows:

402.6 Carbon monoxide alarms in existing portions of a building. Where an addition is made to a building or structure of a Group I-1, I-2, I-4 or R occupancy, the existing building shall be provided with carbon monoxide alarms in accordance with Section 1103.9 of the *International Fire Code* or Section R315of the *International Residential Code*, as applicable.

403.11 Carbon monoxide alarms. Carbon monoxide alarms shall be provided to protect sleeping units and dwelling units in Group I-1, I-2, I-4 and R occupancies in accordance with Section 1103.9 of the *International Fire Code.*

804.4.4 Carbon monoxide alarms. Sleeping units and dwelling units in any work area in Group I-1, I-2, I-4 and R occupancies shall be equipped with carbon monoxide alarms in accordance with Section 1103.9 of the International Fire Code.

SECTION1105 CARBON MONOXIDE ALARMS IN GROUPS I-1, I-2, I-4 AND R

1105.1 Carbon monoxide alarms in existing portions of a building Where an addition is made to a building or structure of a Group I-1, I-2, I-4 or R occupancy, the existing building shall be equipped with carbon monoxide alarms in accordance with Section 1103.9 of the *International Fire Code* or Section R315 of the *International Residential Code*, as applicable.

Reason: This proposal is submitted by the Fire and Life Safety Section of the International Association of Fire Chiefs.
IFC Section 1103.8 contains requirements for installing smoke alarms in existing occupancies. Those requirements are reflected in the IEBC Sections 402.5. 403.10, 804.4.3 and 1104.1. IFC Section 1103.9 contains requirements for installing carbon monoxide alarms in existing occupancies; however, those requirements are currently not reflected in the IEBC.

This proposal corrects this oversight with the new proposed code sections.

This proposal will provide consistency between the IFC, IRC and the IEBC with regard to the installation and requirements of carbon monoxide alarms.

Cost Impact: Will not increase the cost of construction
The cost of construction will not increase since the existing buildings should already be in compliance with the requirements in IFC Section 1103.9. This proposal simply provides correlation between the I-Codes.

EB 21-15 : 402.6 (New)-ZUBIA4683

EB 22-15

403.1, 801.3, 1401.2.6 (New)

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Existing Building Code

Revise as follows:

403.1 General. Except as provided by Section 401.2 or this section, *alterations* to any building or structure shall comply with the requirements of the *International Building Code* for new construction. *Alterations* shall be such that the *existing building* or structure is no less conforming to the provisions of the *International Building Code* than the *existing building* or structure was prior to the *alteration*.

Exceptions:

1. An existing stairway shall not be required to comply with the requirements of Section 1011 of the *International Building Code* where the existing space and construction does not allow a reduction in pitch or slope.
2. Handrails otherwise required to comply with Section 1011.11 of the *International Building Code* shall not be required to comply with the requirements of Section 1014.6 of the *International Building Code* regarding full extension of the handrails where such extensions would be hazardous due to plan configuration.
3. Where provided in below grade transportation stations, existing and new escalators shall be permitted to have a clear width of less than 32 inches (815 mm).

801.3 Compliance. All new construction elements, components, systems, and spaces shall comply with the requirements of the *International Building Code*.

Exceptions:

1. Windows may be added without requiring compliance with the light and ventilation requirements of the *International Building Code*.
2. Newly installed electrical equipment shall comply with the requirements of Section 808.
3. The length of dead-end corridors in newly constructed spaces shall only be required to comply with the provisions of Section 805.6.
4. The minimum ceiling height of the newly created habitable and occupiable spaces and corridors shall be 7 feet (2134 mm).
5. Where provided in below grade transportation stations, existing and new escalators shall be permitted to have a clear withd of less than 32 inches (815 mm).

Add new text as follows:

1401.2.6 Escalators Where escalators are provided in below grade transportation stations, existing and new escalators shall be permitted to have a clear width of less than 32 inches (815 mm).

Reason: Section 3004.2.2 of the IBC includes an exception for escalators serving below-grade transportation systems allowing their minimum width to be less than 32". Since the criteria for existing buildings is in the IEBC this change is to bring that exception into the appropriate code.

Cost Impact: Will not increase the cost of construction
This is simply putting the provisions found in the IBC into the IEBC for work involving an alteration and will not increase the cost of construction.

EB 22-15 : 403.1-COLLINS5113

EB 23-15

403.2 (New), 704.1, 704.2 (New)

Proponent: Adolf Zubia, representing IAFC Fire & Life Safety Section

2015 International Existing Building Code

Add new text as follows:

403.2 Locking arrangements in Group E occupancies. Where approved by the code official, egress doors from classrooms, offices and other occupied rooms in Group E occupancies shall be allowed to be provided with locking arrangements designed to keep intruders from entering the room that require a key, special knowledge or effort when all of the following conditions are met:

1. The door shall be capable of being unlocked from outside the room with a key or other approved means.
2. Modifications shall not be made to existing listed panic hardware, fire door hardware or door closers.
3. Modifications to fire door assemblies shall be in accordance with NFPA 80.
4. The unlatching of the door or leaf shall be allowed to require two operations.

Revise as follows:

704.1 General. *Alterations* shall be done in a manner that maintains the level of protection provided for the means of egress, except as allowed in Section 704.2.

Add new text as follows:

704.2 Locking arrangements in Group E occupancies. Where approved by the code official, egress doors from classrooms, offices and other occupied rooms in Group E occupancies shall be allowed to be provided with locking arrangements designed to keep intruders from entering the room that require a key, special knowledge or effort when all of the following conditions are met:

1. The door shall be capable of being unlocked from outside the room with a key or other approved means.
2. Modifications shall not be made to existing listed panic hardware, fire door hardware or door closers.
3. Modifications to fire door assemblies shall be in accordance with NFPA 80.
4. The unlatching of the door or leaf shall be allowed to require two operations.

Reason: This proposal is submitted by Fire and Life Safety Section of the International Association of Fire Chiefs.
Unfortunately active shooter incidents in schools are a threat in modern society that have resulted in the need to quickly secure classrooms and other occupied areas to keep unwanted intruders from entering.

Many unlisted devices are being used to secure the doors from being opened. Many of these devices have not been evaluated to insure they operate properly and do not impair door operation. These devices are being deployed in periodic lockdown drills, and present the potential to for students or unauthorized personnel to secure the doors so the rooms cannot be entered.

This proposal allows key actuated deadbolts or other locks to be provided on classroom doors, where the teacher can choose to lock the door and provide shelter-in-place in the classroom. The proposed change also requires the door to be able to be unlocked from the opposite side in cases where the school administrator or responders wish to enter the room without having to make a forcible entry.

Door hardware is currently available that allows classroom to be provided with lockdown capabilities that comply with applicable IBC Chapter 10 requirements. However the costs of retrofitting doors with that hardware far exceed the cost of retrofitting with a simple deadbolt lock. This is a significant issue for school systems who are continually facing budget restrictions.

This code change limits this optional locking method only when the building is undergoing alternations. This allowance is intentionally not provided for buildings undergoing additions or a change of occupancy.

It is not necessary to add new language to the Chapter 9 alteration provisions since Section 905.1 references Section 805 means of egress requirements.

Cost Impact: Will not increase the cost of construction
This proposal allows an option that may result in lower costs than retrofitting egress doors with locking hardware that complies with IBC Chapter 10 requirements.

EB 23-15 : 704.1-ZUBIA4731

EB 24-15

403.10

Proponent: Anthony Apfelbeck, City of Altamonte Springs, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Existing Building Code

Revise as follows:

403.10 Smoke alarms. ~~Individual sleeping units and individual dwelling units in~~
Where an *alteration* is made to a building or structure of a Group R ~~and~~or I-1 ~~occupancies~~ occupancy, the *existing building* shall be provided with smoke alarms in accordance with Section 1103.8 of the *International Fire Code*.

Reason: This proposal makes the language in 403.10 consistent with the reading of 402.5. The commentary indicates that both of these sections are intended to be consistent as to application. The current different language appears to infer a differing intent of the two sections. If the two sections have the same intent as to application, they should read the same.

Cost Impact: Will not increase the cost of construction
Editorial revision to impove consistency between similar code language.

EB 24-15 : 403.10-APFELBECK4258

EB 25-15

403.11 (New), 703.2 (New)

Proponent: Jonathan Wilson, National Center for Healthy Housing, representing National Center for Healthy Housing (jwilson@nchh.org)

2015 International Existing Building Code

Add new text as follows:

403.11 Carbon monoxide alarms. Carbon monoxide alarms shall be installed in accordance with Section 1103.9 of the *International Fire Code* in Groups I-1, I-2, I-4 and R occupancies.

703.2 Carbon monoxide alarms Carbon monoxide alarms shall be installed in accordance with Section 1103.9 of the *International Fire Code* in Groups I-1, I-2, I-4 and R occupancies.

Reason: In 2011, 49 million homes had carbon monoxide alarms.[1] Almost 4.5 million more homes had an alarm in 2011, compared to 2009.[2] These alarms protect residents and their guests from carbon monoxide poisoning which kills more than 300 people annually and hurts thousands more.[3] The carbon monoxide typically results from incomplete combustion of a fuel, usually when a vehicle, furnace, water heater, or fireplace is either functioning poorly or is warming up and has not yet reached optimum performance.[4] The risk is greatest where there are older appliances or where the garage is not properly isolated from the occupied area.
When carbon monoxide exposes residents to dangerous levels of this odorless, tasteless, invisible gas, the alarm warns them to get to safety before their brains are so starved of oxygen that they become sleepy or disoriented and unable to escape.[3] The alarm complements the many educational and code-related efforts to reduce carbon monoxide generation and exposure and serves to prevent death and serious harm much as a smoke alarm does.

According to health and safety experts at the Centers for Disease Control and Prevention (CDC),[3] the Consumer Product Safety Commission (CDC)[5] and the National Fire Protection Association (NFPA),[6] all dwellings with either an attached garage or a fuel-burning appliance should have a functioning carbon monoxide alarm. Recognizing the gaps in the existing codes, elected officials in the many states have adopted laws requiring the alarms, often in response to a tragedy.[7] The National Electric Manufacturers Association (NEMA)[8] also agrees. A decade ago, a five-year Underwriters Laboratory study confirmed the reliability of the alarms and concluded the alarms are not susceptible to nuisance activations.[9]

The ICC's International Fire Code (IFC) section 1103.9 and International Residential Code (IRC) section R315.3 now require carbon monoxide alarms in almost all dwellings with an attached garage or fuel-burning appliance. The IRC requirement is triggered by new construction or work requiring any permit without regard to whether the work affected a fuel-burning appliance. The IFC requirement applies to Group I and R occupancies (with a limited exception) and, therefore, not to homes covered by the IRC. Because the IFC alarm requirement is in a maintenance provision in Chapter 11, it applies to existing conditions and operations pursuant to section 102.2 and not only construction. While the maintenance provisions of section 1103 may result in the need for a permit pursuant to section 1103.1 to correct deficiencies, they are not triggered solely by a permit.

This proposal adds two new sections to the IEBC. New section 403.11 would require alarms in homes in accordance with the IFC as part of the prescriptive compliance methods covered by Chapter 4. New section 703.2 would do the same as part of work area compliance methods for Level 1 alterations.

In those jurisdictions that have both the IFC and the IEBC, this proposal is designed to improve compliance in those communities. In those jurisdictions with the IEBC but not the IFC, a more protective state law may apply. If no state law applies, this proposal would require an installation of a carbon monoxide alarm when a permit is triggered by the IEBC. Owners of these units will incur costs of about $42 each, but these costs will be far outweighed by the many millions saved on emergency hospitalizations and victim rehabilitation. See the cost-benefit analysis below for details.

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Cost Impact: Will increase the cost of construction
COSTS
Carbon monoxide (CO) alarms listed as complying with ANSI/UL 2034 typically costs approximately $25 per unit and are relatively simple to install. We estimate the total installed cost to be $42 per dwelling.

According to the 2011 American Housing Survey (AHS),[1] an estimated 49 of 115 million occupied homes (41.6% of all homes) had working carbon monoxide detectors. About half of these detectors were powered only by batteries. Overall, 46% of owner-occupied homes and 33% of renters had detectors. The rates varied by region of the country with the Northeast at 65%, the Midwest at 54%, the West at 30%, and the South at 27%. The AHS does not track garages that are attached separately from those that are not attached.

The IFC has been adopted statewide in 28 states and locally in 11 more.[10] Unless the state or locality opted not to adopt Section 1103.9 of the IFC or a limited exception applies, a CO alarm is required all dwelling units in Group I or R occupancies containing a fuel-burning appliance or that has an attached garage (other than an open parking garage or ventilated enclosed parking garage). The units must be equipped with a single station CO alarm list as complying with UL 2034 installed and maintained in accordance with NFPA 720 and the manufacturer's instructions. In these jurisdictions, the proposal will only improve compliance with IFC and not increase construction cost.

In states without a statewide IFC, 17 have adopted the IEBC statewide or locally.[10]

- For the seven with no state or local IFC, Illinois and Massachusetts have state laws requiring CO alarms in all dwellings, West Virginia requires it in most dwellings covered by the IEBC, and Maine requires alarms when the property is sold.[7] Therefore, only Florida, Michigan, and Maryland would be impacted by the proposal. Michigan legislature has already given the Code Commission authority to require CO alarms.[7]
- Of the remaining ten with local IFCs, Colorado requires CO alarms in all dwellings, Montana requires alarms in rental property, Wisconsin requires them in multifamily housing, and New Hampshire on substantial rehabilitation.[7] Therefore, Louisiana, Nevada, Delaware, Missouri, Nebraska, North Dakota, and Texas would be impacted by the proposal in Group I and R occupancies.

BENEFITS:
The benefits of a CO alarm in fewer deaths, emergency room visits, hospitalizations, treatment, and rehabilitation far outweigh the $42 per home cost. The U.S. Consumer Product Safety Commission (CPSC) estimated the societal costs of unintentional non-fire CO poisoning deaths associated with consumer products at $705 million annually from 1999 to 2002.[9]

A 2012 study[10] estimated that the hospitalization cost for confirmed carbon monoxide poisonings was more than $26 million in 2007, based on 21,304 emergency room visits and 2,302 hospitalizations. This estimate only includes the cost of confirmed hospitalizations and not (1) the rehabilitation and long-term treatment costs, and (2) the thousands of cases where the poisoning occurred but was not confirmed, usually because the person was unaware of the exposure. In 2007, for every confirmed case there were an estimated five probable or suspected cases.[11] More recent numbers are not available though they should have decreased due to the actions by state and local legislatures, as well as implementation of the 2012 editions of the IRC and IFC.

Beyond victim hospitalization and treatment costs, carbon monoxide costs communities whose emergency responders respond to non-fire-related incidents. In 2012, the National Fire Protection Association estimated that municipal fire departments responded to an annual average of 72,000 of these incidents between 2006 and 2010, with 94% of the incidents occurring in residential properties and 73% in one- or two-family homes.[12] The alarms are likely to increase the number of responses, but, based on the UL study, few will be the result of nuisance alarms.[9]

EB 25-15 : 403.11 (New)-WILSON5120

EB 26-15

404.1, 502.1

Proponent: David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Subcommittee, National Council of Structural Engineers Associations (dbonowitz@att.net)

2015 International Existing Building Code

Revise as follows:

404.1 General. Buildings and structures, and parts thereof, shall be repaired in compliance with ~~Sections 401.2 and 404~~this section. Work on nondamaged components that is necessary for the required *repair* of damaged components shall be considered part of the *repair* and shall not be subject to the requirements for *alterations* in this chapter. ~~Routine maintenance required by Section 401.2~~Maintenance, ~~ordinary repairs~~ work exempt from permit in accordance with Section 105.2, and abatement of wear due to normal service conditions shall not be subject to the requirements for repairs in this section.

502.1 Scope. *Repairs,* as defined in Chapter 2, include the patching or restoration or replacement of damaged materials, elements, *equipment or fixtures* for the purpose of ~~maintaining such components in good or sound~~restoring the predamage condition with respect to existing loads or performance requirements.

Reason: This proposal clarifies a distinction between the scopes of the IEBC and the IPMC. The distinction between maintenance and repair is already implied by the two codes, but some of the codes' wording has led to confusion. In particular, use of the words "maintenance" or "maintain" in various provisions for repairs has led some users and code officials to think that repair provisions either apply to maintenance work or may be used in lieu of maintenance provisions (in the IPMC or elsewhere).
The key conceptual distinction, as the current IEBC infers, is that "maintenance" preserves an acceptable condition, while "repair" corrects an unacceptable condition. Thus, maintenance applies even to an element in good condition and working order, while repair applies only after some damage has occurred.

The evidence is clear that the IEBC and IPMC intend to distinguish maintenance from repair: Maintenance is not defined in the IEBC. The IEBC makes an explicit distinction between the two types of work in Sections 404.1, 1301.2, and 1501.6.6. Sections 410.1, 410.2, and 1505.2 use the term "maintenance" to refer to preservation of an acceptable condition, not remedy of an unacceptable one. Section 105 makes the same distinction indirectly by acknowledging that some repairs, even though they correct damage, are as "ordinary" and commonplace as maintenance and thus also do not require a permit.

IPMC Section 101.3 distinguishes maintenance from repair, and Section 102.3 says repair is to be done in accordance with the IEBC. IEBC Section 101.7 acknowledges the same thing, namely that the IPMC may mandate repairs to correct violations and may refer to the IEBC as the basis for compliance.

The evidence is also clear that the IEBC intends its repair provisions to correct damage: Chapters 4 and 6 refer repeatedly to the "predamage" condition. Section 502.1, though it uses the verb "maintain" in its plain English sense, is explicit that repair means "restoration or replacement of damaged materials, elements, equipment or fixtures." Section 502.3 addresses the "repair of damaged components" and specifically distinguishes them from the undamaged components that do not need repair but might be affected by a repair procedure. Section 1302.7 speaks of repair specifically in the context of damage to a relocated building.

To clarify these distinctions, this proposal makes the following revisions:

In Section 404.1, it makes three edits:

- It deletes the unnecessary word "routine." There are not multiple types of maintenance, routine and non-routine.
- It replaces"ordinary repairs" with a more proper and generic term. The important point is to refer to Section 105.2 for work that does not require permits.
- It removes the incorrect reference to Section 401.2 in two places. The first instance could refer instead to Section 302.4 but is not needed. The second instance is clearly a mistake, as Section 401.2 is not about maintenance at all. This used to be a matching reference to IBC Section 3401.2, which addressed maintenance, but that provision no longer exists anywhere in the IEBC.

In Section 502.1, it makes two edits:

- It replaces the word "maintaining" with "restoring," to avoid confusion between maintenance and repair.
- It replaces the phrase "good or sound" (removed elsewhere in past cycles) with "predamage," as used elsewhere in Chapters 4 and 6.

If approved, coordinating proposals will be made in Group B as follows:

- Revise the definition of Repair to remove the confusing word "maintenance" and to clarify that repair addresses damage.
- Revise the definition of Roof Repair similarly.
- Revise Section 105.2 as needed for consistency

Cost Impact: Will not increase the cost of construction
The proposal is editorial, for purposes of clarifying an existing distinction in scope between the IEBC and IPMC.

EB 26-15 : 404.1-BONOWITZ5251

EB 27-15

405.1.3, 805.3.1.2.1

Proponent: John Coleman, representing JOMY Fire Escape Ladder and Fire Escape Systems

2015 International Existing Building Code

Revise as follows:

405.1.3 New fire escapes. New fire escapes for *existing buildings* shall be permitted only where exterior stairways cannot be utilized due to lot lines limiting stairway size or due to the sidewalks, alleys or roads at grade level. ~~New~~

Exception: Where approved by the code official fire ~~escapes~~escape ladders shall ~~not incorporate ladders or access by windows.~~be permitted.

805.3.1.2.1 Fire escape access and details. Fire escapes shall comply with all of the following requirements:

1. Occupants shall have unobstructed access to the fire escape without having to pass through a room subject to locking.
2. Access to a new fire escape shall be through a door, except that windows shall be permitted to provide access from single dwelling units or sleeping units in Group R-1, R-2 and I-1 occupancies or to provide access from spaces having a maximum occupant load of 10 in other occupancy classifications.
   - 2.1. The window shall have a minimum net clear opening of 5.7 square feet (0.53 m^2) or 5 square feet (0.46 m^2) where located at grade.
   - 2.2. The minimum net clear opening height shall be 24 inches (610 mm) and net clear opening width shall be 20 inches (508 mm).
   - 2.3. The bottom of the clear opening shall not be greater than 44 inches (1118 mm) above the floor.
   - 2.4. The operation of the window shall comply with the operational constraints of the *International Building Code*.
3. Newly constructed fire escapes shall be permitted only where exterior stairways cannot be utilized because of lot lines limiting the stairway size or because of the sidewalks, alleys, or roads at grade level.
   Exception: Where approved by the code official fire escape ladders shall be permitted.
4. Openings within 10 feet (3048 mm) of fire escape stairways shall be protected by fire assemblies having minimum $^3/_4$ -hour fire-resistance ratings.
   Exception: Opening protection shall not be required in buildings equipped throughout with an approved automatic sprinkler system.
5. In all buildings of Group E occupancy, up to and including the 12th grade, buildings of Group I occupancy, rooming houses and childcare centers, ladders of any type are prohibited on fire escapes used as a required means of egress.

Reason: Permenently affixed retractable fire escape ladders and counterbalanced ladders now exist and are avaiable. These are used in major cities in Europe. They serve where individuals or companies want alternate means of egress in the event of fire that are not currently in the existing building.
In major cities, some existing buildings have limited space for new fire escapes due to lot lines which limit stairs or due to sidewalks, alleys and or roads. These permenently affixed retractable fire escape ladders and counterbalanced ladders now allow a building owner a safe means of secondary egress in the event of fire.

Systems are approved currently in NFPA 101. NFPA 101 2015 edition p.75 section 101.7.2.9 Fire Escape Ladders (5)

http://www.nfpa.org/codes-and-standards/document-information-pages?mode=code&code=101

Images of fire escape ladders.

Below are two examples. The first is a "permanently affixed collapsible fire escape system" and the second is a "permanently affixed counter-balanced fire escape system."

FIXED-ESCAPE™

Previous System Next Systen

Permanent Collapsible Fire Escape Ladder! by Jomy.
The escape ladder that's always there!

The Fixed-Escape™ permanent collapsible fire escape ladder is mounted to the outside of any structure and provides a ready method of emergency escape. It folds up to look like a drainpipe when not in use. It is constructed of durable extruded anodized aluminum alloy and will support 650 pounds per rung and a total weight of 5,500 pounds. This system offers the maximum degree of confidence before and during an emergency situation. The perfect solution, for homes with first or second story roof over hangs underneath windows.

- Extruded 6063-T6 Aluminum Alloy and 18/8 Stainless Steel Construction.
- 22 inch rungs each have 650 pound load capacity per rung-5,500 pound load per ladder.
- Collapses into an architecturally discreet 3 ¼" by 3 ¾" aluminum case.
- Latch and spring operation makes use extremely easy-can be security locked at top of ladder.
- Meets all OSHA and local code specifications.
- Underwriters Laboratory listed.

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COUNTER-BALANCED FIXED-ESCAPE™

Previous System Next System

Counter Balanced Fixed-Escape™ by JOMY ladders are all aluminum construction and have nylon bushings and stainless steel cables and fasteners to provide a life-time of rust-free and maintenance free service. Counter-balanced lead weights are concealed inside the patented side rails of the ladder to provide trouble-free use regardless of weather conditions.

The ladder can be released from top or bottom (you select). When from the top, it provides safe egress from roof, window or door. When from the bottom, it provides lockable access to mezzanines and roofs. Caged ladders for lengths over 20 feet to be OSHA compliant.Also can be equipped with Fixed Escape Fall Restraint Systems. **Available in stock standard lengths and custom lengths for special situations. Fixed ladders with and without cage and security door are also available- contact us for details.**

Ladder Down

Ladder Up

Diagram Up

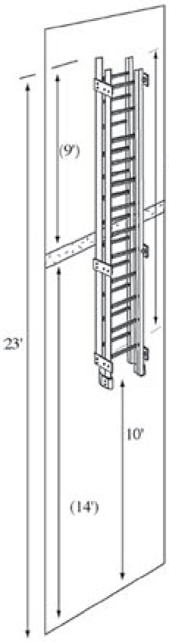
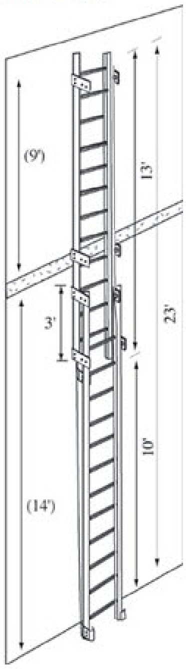


Diagram Down



read more on this product

Counter Balanced ladders are your security solution for all your caged ladder, warehouse ladder and industrial ladder needs. OSHA Compliant! Lift it up and lock it off !

Various acceptance reports.

Below are links to three reports obtained from the company that manufactures these fire escape ladders

- UL - Underwriters Laboratories UL
- ICBO - International Conference of Building Officials ICBO
- BOCA - Building Officials and Code Administrators BOCA

Bibliography: 2015 NFPA 101

Cost Impact: Will not increase the cost of construction
This will not increase the cost of construction. Systems are not mandated, however if wanted and approved by the Authority Having Jurisdiction, prices range from $2000.00 up depending on type and size.

EB 27-15 : 405.1.3-COLEMAN5368

EB 28-15

405.5

Proponent: Jeff Hugo, National Fire Sprinkler Association, representing National Fire Sprinkler Association (hugo@nfsa.org)

2015 International Existing Building Code

Revise as follows:

405.5 Opening protectives. Doors and windows ~~along the~~within 10 feet of fire escape stairways shall be protected with $^3/_4$ -hour opening protectives.

Exception: Opening protection shall not be required in buildings equipped throughout with an automatic sprinkler system.

Reason: Section 805.3.1.2.1 permits this exception for Level 2 Alterations. This proposal would provide the same exception for fire doors and windows along the fire escape when using the prescriptive compliance method.

Cost Impact: Will not increase the cost of construction
When fire sprinkler systems are installed there would be no need to install new opening protectives.

EB 28-15 : 405.5-HUGO4696

EB 29-15

406.2, 406.3, 702.4, 702.5

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

Revise as follows:

406.2 Replacement window opening control devices. In Group R-2 or R-3 buildings containing dwelling units and one- and two-family dwellings and townhouses regulated by the *International Residential Code*, window opening control devices complying with ASTM F 2090 shall be installed where an existing window is replaced and where all of the following apply to the replacement window:

1. The window is operable;
2. The window replacement includes replacement of the sash and the frame;
3. ~~The~~One of the following applies:
    1. In Group R-2 or R-3 building containing dwelling units, the top of the sill of the window opening is at a height less than 36 inches (915 mm) above the finished floor; or
    2. In one- and two-family dwellings and townhouses regulated by the International Residential Code, the top sill of the window opening is at a height less than 24 inches (610 mm) above the finished floor;
4. The window will permit openings that will allow passage of a 4-inch-diameter (102 mm) sphere when the window is in its largest opened position; and
5. The vertical distance from the top of the sill of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches (1829 mm).

The window opening control device, after operation to release the control device allowing the window to fully open, shall not reduce the minimum net clear opening area of the window unit to less than the area required by Section 1029.2 of the *International Building Code*.

Exceptions:

1. Operable windows where the top of the sill of the window opening is located more than 75 feet (22860 mm) above the finished grade or other surface below, on the exterior of the room, space or building, and that are provided with window fall prevention devices that comply with ASTM F 2006.
2. Operable windows with openings that are provided with window fall prevention devices that comply with ASTM F 2090.

406.3 Replacement window emergency escape and rescue openings. Where windows are required to provide *emergency escape* and *rescue openings* in Group R-2 and R-3 occupancies and one- and two-family dwellings and townhouses regulated by the *International Residential Code*, replacement windows shall be exempt from the requirements of Sections 1030.2, 1030.3 and 1030.5 of the *International Building Code* and Sections R310.2.1 and R310.2.3 of the *International Residential Code* accordingly provided the replacement window meets the following conditions:

1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.
2. The replacement of the window is not part of a change of occupancy.

Window opening control devices complying with ASTM F 2090 shall be permitted for use on windows required to provide emergency escape and rescue openings.

702.4 Window opening control devices on replacement windows. In Group R-2 or R-3 buildings containing dwelling units and one- and two-family dwellings and townhouses regulated by the *International Residential Code*, window opening control devices complying with ASTM F 2090 shall be installed where an existing window is replaced and where all of the following apply to the replacement window:

1. The window is operable;
2. The window replacement includes replacement of the sash and the frame;
3. One of the following applies:
    - 3.1. In Group R-2 or R-3 buildings containing dwelling units, the top of the sill of the window opening is at a height less than 36 inches (915 mm) above the finished floor; or
    - 3.2. In one- and two-family dwellings and town-houses regulated by the *International Residential Code*, the top sill of the window opening is at a height less than 24 inches (610 mm) above the finished floor;
4. The window will permit openings that will allow passage of a 4-inch-diameter (102 mm) sphere when the window is in its largest opened position; and
5. The vertical distance from the top of the sill of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches (1829 mm).

The window opening control device, after operation to release the control device allowing the window to fully open, shall not reduce the minimum net clear opening area of the window unit to less than the area required by Section 1029.2 of the *International Building Code*.

Exceptions:

1. Operable windows where the top of the sill of the window opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below, on the exterior of the room, space or building, and that are provided with window fall prevention devices that comply with ASTM F 2006.
2. Operable windows with openings that are provided with window fall prevention devices that comply with ASTM F 2090.

702.5 ~~Emergency~~Replacement window emergency escape and rescue openings. Where windows are required to provide emergency escape and rescue openings in Group R-2 and R-3 occupancies and one- and two-family dwellings and townhouses regulated by the *International Residential Code*, replacement windows shall be exempt from the requirements of Sections 1030.2, 1030.3 and 1030.5 of the *International Building Code* and Sections R310.21 and R310.2.3 of the *International Residential Code* accordingly, provided the replacement window meets the following conditions:

1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.
2. The replacement of the window is not part of a change of occupancy.

Window opening control devices complying with ASTM F 2090 shall be permitted for use on windows required to provide *emergency escape* and *rescue openings*.

Reason: This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.
The intent of this proposal is for consistent terminology in the IEBC between Chapter 4 and 7 when dealing with replacement windows. The added language also clarifies that this applies to windows in IRC dwellings.

Cost Impact: Will not increase the cost of construction
Will not increase the cost of construction.

Staff note: An errata was addressed in Section 406.3 where reference to Sections 1030.2, 1030.3 and 1030.5 should have referenced "of the International Building Code." Therefore the phrase did not need to be underlined.

EB 29-15 : 406.2-KULIK3685

EB 30-15

407.1, 410.4

Proponent: Maureen Traxler, representing Seattle Dept of Planning & Development (maureen.traxler@seattle.gov)

2015 International Existing Building Code

Revise as follows:

407.1 Conformance. No change of occupancy shall be made in ~~the use or occupancy of~~ any building unless ~~such~~the building is made to comply with the requirements of the *International Building Code* for the use or occupancy. Changes ~~in use or~~of occupancy in a building or portion thereof shall be such that the existing building is no less complying with the provisions of this code than the existing building or structure was prior to the change. Subject to the approval of the building official, ~~the use or~~changes of occupancy ~~of *existing buildings*~~ shall be permitted ~~to be changed and the building is allowed to be occupied for purposes in other groups~~ without conforming to all of the requirements of this code for ~~those groups~~the new occupancy, provided the new ~~or proposed use~~occupancy is less hazardous, based on life and fire risk, than the existing ~~use~~occupancy.

> **Exception:** The building need not be made to comply with the seismic requirements for a new structure unless required by Section 407.4.

410.4 Change of occupancy. *Existing buildings* that undergo a change of ~~group or~~ occupancy shall comply with this section.

> **Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in *existing buildings* and facilities undergoing a *change of occupancy* in conjunction with *alterations* where the *work area* is 50 percent or less of the aggregate area of the building.

Reason: These changes are proposed for consistency with EB52-12 from the last code cycle. EB52 modified the definition of "change of occupancy" and made other changes consistent with the revised definition. EB52, however, only modified Chapter 10 for the work area method of compliance. This proposal makes changes that make the prescriptive compliance method consistent with EB52 and the work area method.
EB52-12 modified the definition of "change of occupancy" to make clear distinctions between changing occupancy classifications (e.g., B to R), changing occupancy group (e.g., R-1 to R-2), and changing use within a group (e.g., R-2 dormitory to R-2 boarding house). However, any of those changes are still under the umbrella "change of occupancy" definition, which is why this proposal changes the terms "group" and "use" to "occupancy."

Cost Impact: Will not increase the cost of construction
This proposal makes editorial changes for consistency within the code.

EB 30-15 : 407.1-TRAXLER5575

EB 31-15

408.3 (New), 1203.2 (New)

Proponent: Anthony Apfelbeck, City of Altamonte Springs, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Existing Building Code

Add new text as follows:

408.3 Fire protection plan. *Additions, alterations, changes in occupancy* or *repairs* to historic buildings shall be in compliance with the *approved* fire protection plan developed in accordance with Section 1103.1.1 of the *International Fire Code.*

1203.2 Fire protection plan. Additions, alterations, changes in occupancy or repairs to historic buildings shall be in compliance with the approved fire protection plan developed in accordance with Section 1103.1.1 of the International Fire Code.

Reason: Section 1103.1.1 of the IFC requires that each historic building have an approved fire protection plan in accordance with NFPA 914. Any repairs, alterations, additions or changes of occupancy should only occur in accordance with the approved fire protection plan. The fire protection plan is a key component for the life safety and property preservation of historic buildings. Referencing the fire protection plan in Section 408 and Section 1203 of the IEBC will ensure the building official, design professional, owner and contractor all understand the fire protection plan under the IFC is applicable and need to be consulted.

Cost Impact: Will not increase the cost of construction
This code change does not change an existing technical provision but does provide a more obvious pointer to the important provision of IFC applicable to historic buildings.

EB 31-15 : 408.3 (New)-APFELBECK4260

EB 32-15

409

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Delete without substitution:

~~**SECTION 409 MOVED STRUCTURES**~~

~~**409.1 Conformance.** Structures moved into or within the jurisdiction shall comply with the provisions of this code for new structures.~~

Reason: The purpose of this proposal is to remove Section 409 altogether since the IEBC does not contain requirements for new construction. That requirement as written presents an unresolvable conflict within the IEBC, and also between the IBC with the IEBC.
Previous editions of the IBC contained requirements for both new and existing buildings. This specific language appeared in the 2012 IBC as Section 3410. All of the requirements for existing buildings that were previously located in IBC Chapter 34 were moved from the IBC to the IEBC in the 2015 Edition.

In the context of the 2015 IEBC, this section is a technically inaccurate statement since existing structures that are moved are no longer required by the IEBC to comply with the requirements for new buildings.

Although there is nothing in any code that would preclude an owner from bringing an existing building or a moved structure up to the new building code requirements, the IEBC code permits an owner other, more practical options.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This code change proposal will not increase the cost of construction because it simply eliminates a conflict that exists in the IEBC and between the IBC and IEBC which only helps to clarify the requirements already in place.

EB 32-15 : 409-KULIK4923

EB 33-15

410, 705, 801.1, 806, 901.2, 906, 1006, 1012.1.4, 1012.8, 1105, 1204, 1401.2.5, B101.3, B101.4, B102.2.3

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com); Maureen Traxler, City of Seattle (maureen.traxler@seattle.gov) representing City of Seattle Dept of Planning and Development; Steven Winkel (swinkel@preview-group.com) representing the Preview Group

2015 International Existing Building Code

Revise as follows:

~~410.1~~303.1 Scope. The provisions of Sections ~~410.1~~303.1 through ~~410.9~~303.9 apply to maintenance, *change of occupancy*, *additions* and *alterations* to *existing buildings*, including those identified as *historic buildings*.

~~410.2~~303.2 Maintenance of facilities. *No change to text.*

~~410.3~~303.3 Extent of application. *No change to text.*

~~410.4~~303.4 Change of occupancy. *No change to text.*

~~410.4.1~~303.4.1 Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification, any *alterations* shall comply with Sections ~~410.6~~303.6, ~~410.7~~303.7 and ~~410.8~~303.8.

~~410.4.2~~303.4.2 Complete change of occupancy. Where an entire building undergoes a *change of occupancy*, it shall comply with Section ~~410.4.1~~303.4.1 and shall have all of the following accessible features:

1. At least one accessible building entrance.
2. At least one accessible route from an accessible building entrance to *primary function* areas.
3. Signage complying with Section 1111 of the *International Building Code*.
4. Accessible parking, where parking is being provided.
5. At least one accessible passenger loading zone, when loading zones are provided.
6. At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.

Where it is *technically infeasible* to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent technically feasible.

Exception: The accessible features listed in Items 1 through 6 are not required for an accessible route to Type B units.

~~410.5~~303.5 Additions. Provisions for new construction shall apply to *additions*. An *addition* that affects the accessibility to, or contains an area of, a *primary function* shall comply with the requirements in Section ~~410.7~~303.7.

~~410.6~~303.6 Alterations. A *facility* that is altered shall comply with the applicable provisions in Chapter 11 of the *International Building Code*, unless *technically infeasible*. Where compliance with this section is *technically infeasible*, the *alteration* shall provide access to the maximum extent technically feasible.

Exceptions:

1. The altered element or space is not required to be on an accessible route, unless required by Section ~~410.7~~303.7.
2. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing facilities.
3. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall be permitted to meet the provision for a Type B dwelling unit.
4. Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in *existing buildings* and facilities undergoing a *change of occupancy* in conjunction with *alterations* where the *work area* is 50 percent or less of the aggregate area of the building.

~~410.7~~303.7 Alterations affecting an area containing a primary function. *No change to text.*

~~410.8~~303.8 Scoping for alterations. The provisions of Sections ~~410.8.1~~303.8.1 through ~~410.8.14~~303.8.15 shall apply to *alterations* to *existing buildings* and *facilities*.

~~410.8.1~~303.8.1 Entrances. *No change to text.*

~~410.8.2~~303.8.2 Elevators. *No change to text.*

~~410.8.3~~303.8.3 Platform lifts. *No change to text.*

~~410.8.4~~303.8.4 Stairways and escalators in existing buildings. *No change to text.*

~~410.8.5~~303.8.5 Ramps. Where slopes steeper than allowed by Section 1012.2 of the *International Building Code* are necessitated by space limitations, the slope of ramps in or providing access to existing facilities shall comply with Table ~~410.8.5~~303.8.5.

TABLE 303.8.5
RAMPS

SLOPE	MAXIMUM RISE
Steeper than 1:10 but not steeper than 1:8	3 inches
Steeper than 1:12 but not steeper than 1:10	6 inches

For SI: 1 inch = 25.4 mm.

~~410.8.6~~303.8.6 Accessible dwelling or sleeping units. *No change to text.*

~~410.8.7~~303.8.7 Type A dwelling or sleeping units. *No change to text.*

~~410.8.8~~303.8.8 Type B dwelling or sleeping units. *No change to text.*

303.8.9 Dining areas An accessible route to raised or sunken dining areas or to outdoor seating areas is not required provided that the same services and decor are provided in an accessible space usable by any occupant and not restricted to use by people with a disability.

~~410.8.9~~303.8.10 **Jury boxes and witness stands.** *No change to text.*

~~410.8.10~~303.8.11 **Toilet rooms.** *No change to text.*

~~410.8.11~~303.8.12 **Dressing, fitting and locker rooms.** *No change to text.*

~~410.8.12~~303.8.13 **Fuel dispensers.** *No change to text.*

~~410.8.13~~303.8.14 **Thresholds.** *No change to text.*

~~410.8.14~~303.8.15 **Amusement rides.** *No change to text.*

~~410.9~~303.9 **Historic buildings.** These provisions shall apply to *facilities* designated as historic structures that undergo *alterations* or a *change of occupancy*, unless *technically infeasible*. Where compliance with the requirements for accessible routes, entrances or toilet rooms would threaten or destroy the historic significance of the *facility*, as determined by the applicable governing authority, the alternative requirements of Sections ~~410.9.1~~303.9.1 through ~~410.9.4~~303.9.4 for that element shall be permitted.

> **Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in historical buildings.

~~410.9.1~~303.9.1 **Site arrival points.** *No change to text.*

~~410.9.2~~303.9.2 **Multilevel buildings and facilities.** *No change to text.*

~~410.9.3~~303.9.3 **Entrances.** *No change to text.*

~~410.9.4~~303.9.4 **Toilet and bathing facilities.** *No change to text.*

801.1 Scope. Level 2 *alterations* as described in Section 504 shall comply with the requirements of this chapter.

> **Exception:** Buildings in which the reconfiguration is exclusively the result of compliance with the accessibility requirements of Section ~~705.2~~ 303.7 shall be permitted to comply with Chapter 7.

901.2 Compliance. In addition to the provisions of this chapter, work shall comply with all of the requirements of Chapters 7 and 8. The requirements of Sections 803, 804 and 805 shall apply within all *work areas* whether or not they include exits and corridors shared by more than one tenant and regardless of the occupant load.

> **Exception:** Buildings in which the reconfiguration of space affecting exits or shared egress access is exclusively the result of compliance with the accessibility requirements of Section ~~705.2~~ 303.7 shall not be required to comply with this chapter.

~~[BS]~~ B101.3 Qualified historic buildings and facilities subject to Section 106 of the National Historic Preservation Act. Where an *alteration* or *change of occupancy* is undertaken to a qualified *historic building* or facility that is subject to Section 106 of the National Historic Preservation Act, the federal agency with jurisdiction over the undertaking shall follow the Section 106 process. Where the state historic preservation officer or Advisory Council on Historic Preservation determines that compliance with the requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, the alternative requirements of Section ~~410.9~~303.9 for that element are permitted.

~~[BS]~~ B101.4 Qualified historic buildings and facilities not subject to Section 106 of the National Historic Preservation Act. Where an *alteration* or *change of occupancy* is undertaken to a qualified *historic building* or facility that is not subject to Section 106 of the National Historic Preservation Act, and the entity undertaking the alterations believes that compliance with the requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, the entity shall consult with the state historic preservation officer. Where the state historic preservation officer determines that compliance with the accessibility requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historical significance of the building or facility, the alternative requirements of Section ~~410.9~~303.9 for that element are permitted.

~~[BS]~~ B102.2.3 Direct connections. New direct connections to commercial, retail, or residential facilities shall, to the maximum extent feasible, have an accessible route complying with Section ~~705.2~~ 303.7 from the point of connection to boarding platforms and transportation system elements used by the public. Any elements provided to facilitate future direct connections shall be on an accessible route connecting boarding platforms and transportation system elements used by the public.

Delete without substitution:

~~SECTION705 ACCESSIBILITY~~

~~**705.1 General.** A *facility* that is altered shall comply with the applicable provisions in Sections 705.1.1 through 705.1.14, and Chapter 11 of the *International Building Code* unless it is *technically infeasible*. Where compliance with this section is *technically infeasible*, the alteration shall provide access to the maximum extent that is technically feasible.~~

~~A *facility* that is constructed or altered to be accessible shall be maintained accessible during occupancy.~~

> ~~**Exceptions:**~~
>
> ~~1. The altered element or space is not required to be on an accessible route unless required by Section 705.2.~~
> ~~2. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing *facilities*.~~
> ~~3. Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in existing *facilities* undergoing less than a Level 3 *alteration*.~~
> ~~4. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall meet the provisions for Type B dwelling units.~~

~~**705.1.1 Entrances.** Where an *alteration* includes alterations to an entrance, and the *facility* has an accessible entrance on an accessible route, the altered entrance is not required to be accessible unless required by Section 705.2. Signs complying with Section 1111 of the *International Building Code* shall be provided.~~

~~**705.1.2 Elevators.** Altered elements of existing elevators shall comply with ASME A17.1/CSA B44 and ICC A117.1. Such elements shall also be altered in elevators programmed to respond to the same hall call control as the altered elevator.~~

~~**705.1.3 Platform lifts.** Platform (wheelchair) lifts complying with ICC A117.1 and installed in accordance with ASME A18.1 shall be permitted as a component of an accessible route.~~

~~**705.1.4 Ramps.** Where steeper slopes than allowed by Section 1012.2 of the *International Building Code* are necessitated by space limitations, the slope of ramps in or providing access to existing facilities shall comply with Table 705.1.4.~~

~~RAMPS~~

~~SLOPE~~	~~MAXIMUM RISE~~

~~Steeper than 1:10 but not steeper than 1:8~~	~~3 inches~~
~~Steeper than 1:12 but not steeper than 1:10~~	~~6 inches~~

~~For SI: 1 inch = 25.4 mm.~~

~~**705.1.5 Dining areas.** An accessible route to raised or sunken dining areas or to outdoor seating areas is not required provided that the same services and decor are provided in an accessible space usable by any occupant and not restricted to use by people with a disability.~~

~~**705.1.6 Jury boxes and witness stands.** In *alterations*, accessible wheelchair spaces are not required to be located within the defined area of raised jury boxes or witness stands and shall be permitted to be located outside these spaces where ramp or lift access poses a hazard by restricting or projecting into a required means of egress.~~

~~**705.1.7 Accessible dwelling or sleeping units.** Where Group I-1, I-2, I-3, R-1, R-2 or R-4 dwelling or sleeping units are being altered, the requirements of Section 1107 of the *International Building Code* for Accessible units apply only to the quantity of the spaces being altered.~~

~~**705.1.8 Type A dwelling or sleeping units.** Where more than 20 Group R-2 dwelling or sleeping units are being altered, the requirements of Section 1107 of the *International Building Code* for Type A units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being altered.~~

~~**705.1.9 Toilet rooms.** Where it is technically infeasible to alter existing toilet and bathing rooms to be accessible, an accessible family or assisted-use toilet or bathing room constructed in accordance with Section 1109.2.1 of the *International Building Code* is permitted. The family or assisted-use toilet or bathing room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. At the inaccessible toilet and bathing rooms, directional signs indicating the location of the nearest family or assisted-use toilet room or bathing room shall be provided. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1.~~

~~**705.1.10 Dressing, fitting and locker rooms.** Where it is *technically infeasible* to provide accessible dressing, fitting, or locker rooms at the same location as similar types of rooms, one accessible room on the same level shall be provided. Where separate sex facilities are provided, accessible rooms for each sex shall be provided. Separate sex facilities are not required where only unisex rooms are provided.~~

~~**705.1.11 Fuel dispensers.** Operable parts of replacement fuel dispensers shall be permitted to be 54 inches (1370 mm) maximum measured from the surface of the vehicular way where fuel dispensers are installed on existing curbs.~~

~~**705.1.12 Thresholds.** The maximum height of thresholds at doorways shall be $^3/_4$ inch (19.1 mm). Such thresholds shall have beveled edges on each side.~~

~~**705.1.13 Extent of application.** An *alteration* of an existing element, space, or area of a *facility* shall not impose a requirement for greater accessibility than that which would be required for new construction. *Alterations* shall not reduce or have the effect of reducing accessibility of a *facility* or portion of a *facility*.~~

~~**705.1.14 Amusement rides.** Where the structural or operational characteristics of an amusement ride are altered to the extent that the amusement ride's performance differs from that specified by the manufacturer or the original design, the amusement ride shall comply with requirements for new construction in accordance with Section 1110.4.8 of the *International Building Code*.~~

~~**705.2 Alterations affecting an area containing a primary function.** Where an *alteration* affects the accessibility to a, or contains an area of, *primary function*, the route to the primary function area shall be accessible. The accessible route to the *primary function* area shall include toilet facilities and drinking fountains serving the area of *primary function*.~~

~~**Exceptions:**~~

1. ~~The costs of providing the accessible route are not required to exceed 20 percent of the costs of the alterations affecting the area of *primary function*.~~
2. ~~This provision does not apply to *alterations* limited solely to windows, hardware, operating controls, electrical outlets and signs.~~
3. ~~This provision does not apply to *alterations* limited solely to mechanical systems, electrical systems, installation or *alteration* of fire protection systems and abatement of hazardous materials.~~
4. ~~This provision does not apply to *alterations* undertaken for the primary purpose of increasing the accessibility of a *facility*.~~
5. ~~This provision does not apply to altered areas limited to Type B dwelling and sleeping units.~~

~~SECTION806 ACCESSIBILITY~~

~~**806.1 General.** A building, *facility*, or element that is altered shall comply with this section and Section 705.~~

~~**806.2 Stairways and escalators in existing buildings.** In *alterations* where an escalator or stairway is added where none existed previously, an accessible route shall be provided in accordance with Sections 1104.4 and 1104.5 of the *International Building Code*.~~

~~SECTION906 ACCESSIBILITY~~

~~**906.1 General.** A building, *facility* or element that is altered shall comply with this section and Sections 705 and 806.~~

~~**906.2 Type B dwelling or sleeping units.** Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered, the requirements of Section 1107 of the *International Building Code* for Type B units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being altered.~~

~~**Exception:** Group I-1, I-2, R-2, R-3 and R-4 dwelling or sleeping units where the first certificate of occupancy was issued before March 15, 1991 are not required to provide Type B dwelling or sleeping units.~~

~~SECTION1006 ACCESSIBILITY~~

~~**1006.1 General.** Accessibility in portions of buildings undergoing a *change of occupancy* classification shall comply with Section 1012.8.~~

~~**1012.1.4 Accessibility.** All buildings undergoing a change of occupancy classification shall comply with Section 1012.8.~~

~~**1012.8 Accessibility.** *Existing buildings* that undergo a change of group or occupancy classification shall comply with this section.~~

~~**Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in existing buildings and facilities undergoing a *change of occupancy* in conjunction with less than a Level 3 *alteration*.~~

~~**1012.8.1 Partial change in occupancy.** Where a portion of the building is changed to a new occupancy classification, any *alteration* shall comply with Sections 705, 806 and 906, as applicable.~~

~~**1012.8.2 Complete change of occupancy.** Where an entire building undergoes a *change of occupancy*, it shall comply with Section 1012.8.1 and shall have all of the following accessible features:~~

1. ~~At least one accessible building entrance.~~

2. ~~At least one accessible route from an accessible building entrance to *primary function* areas.~~
3. ~~Signage complying with Section 1111 of the *International Building Code.*~~
4. ~~Accessible parking, where parking is provided.~~
5. ~~At least one accessible passenger loading zone, where loading zones are provided.~~
6. ~~At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.~~

~~Where it is *technically infeasible* to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent technically feasible.~~

~~**Exception:** The accessible features listed in Items 1 through 6 are not required for an accessible route to Type B units.~~

~~SECTION1105 ACCESSIBILITY~~

~~**1105.1 Minimum requirements.** Accessibility provisions for new construction shall apply to additions. An addition that affects the accessibility to, or contains an area of, *primary function* shall comply with the requirements of Sections 705, 806 and 906, as applicable.~~

~~**1105.2 Accessible dwelling units and sleeping units.** Where Group I-1, I-2, I-3, R-1, R-2 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for accessible units apply only to the quantity of spaces being added.~~

~~**1105.3 Type A dwelling or sleeping units.** Where more than 20 Group R-2 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for Type A units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being added.~~

~~**1105.4 Type B dwelling or sleeping units.** Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for Type B units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of spaces being added.~~

CHAPTER 12 HISTORIC BUILDINGS

~~SECTION1204 ALTERATIONS~~

~~**1204.1 Accessibility requirements.** The provisions of Sections 705, 806 and 906, as applicable, shall apply to facilities designated as historic structures that undergo *alterations*, unless *technically infeasible.* Where compliance with the requirements for accessible routes, entrances or toilet rooms would threaten or destroy the historic significance of the building or *facility*, as determined by the *code official*, the alternative requirements of Sections 1204.1.1 through 1204.1.4 for that element shall be permitted.~~

~~**Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in historical buildings.~~

~~**1204.1.1 Site arrival points.** At least one accessible route from a site arrival point to an *accessible* entrance shall be provided.~~

~~**1204.1.2 Multilevel buildings and facilities.** An accessible route from an accessible entrance to public spaces on the level of the accessible entrance shall be provided.~~

~~**1204.1.3 Entrances.** At least one main entrance shall be accessible.~~

~~**Exceptions:**~~

1. ~~If a main entrance cannot be made accessible, an accessible nonpublic entrance that is unlocked while the building is occupied shall be provided; or~~
2. ~~If a main entrance cannot be made accessible, a locked accessible entrance with a notification system or remote monitoring shall be provided.~~

~~**1204.1.4 Toilet and bathing facilities.** Where toilet rooms are provided, at least one accessible family or assisted-use toilet room complying with Section 1109.2.1 of the *International Building Code* shall be provided.~~

~~**1205.15 Accessibility requirements.** The provisions of Section 1012.8 shall apply to facilities designated as historic structures that undergo a *change of occupancy*, unless *technically infeasible.* Where compliance with the requirements for accessible routes, ramps, entrances, or toilet rooms would threaten or destroy the historic significance of the building or *facility*, as determined by the authority having jurisdiction, the alternative requirements of Sections 1204.1.1 through 1204.1.4 for those elements shall be permitted~~

~~**Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in historical buildings.~~

~~**1401.2.5 Accessibility requirements.** Accessibility shall be provided in accordance with Section 410 or 605.~~

SECTION 410 ACCESSIBILITY FOR EXISTING BUILDINGS

Reason: This change is written to move all of the accessibility requirements into a single section in new IEBC Section 303. New 303 is editorial with no change in criteria or requirements and simply renumbers Section 410 to Section 303. All accessibility requirements for existing buildings are placed in one section (303) allowing a focused and clear set of requirements for users to understand. In the existing IEBC, two of the three compliance methods (prescriptive and work area methods) have provisions for accessibility that are virtually identical. In addition, the existing performance method refers to the accessibility provisions of the other compliance methods.

The intent of this change is a reorganization of accessibility provisions to avoid duplication of the same requirements in multiple code sections. The text of requirements is relocated, but the content of the moved sections is not changed. There is no intent to change code requirements, only to recognize them. Note that Section 303.8.9 addressing dining areas is included only because that section has not yet been deleted from Chapter 7 as it was in current Section 410.

The identical provisions in all subsequent sections have been deleted.
We understand that there are several proposals from BCAC to coordinate the provisions between Chapter 4 and 7. Our intent is that those proposals would be incorporated into the change. This move is editorial only.

Cost Impact: Will not increase the cost of construction
This change simply consolidate the various crieria in the IEBC, and should not change the cost of construction.

Staff Note: The deletion to the committee scoping of [BS] to Sections B101.3, B101.4 and B102.2.3 is an errata and is not part of the proposal.

EB 33-15 : 410-COLLINS4528

EB 34-15

410.2 (New), 410.7, 705.1.1 (New), 705.1.13, 705.2, 1012.8.2

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com); Ronald Nickson (rnickson@nmhc.org), representing National Multi-Housing Council; Kevin Fry, BOMA International (Kfry@BOMA.org), representing BOMA International; Dan Buuck (dbuuck@nahb.org), representing NAHB

2015 International Existing Building Code

Add new text as follows:

410.2 Compliance with accessibility Accessible requirements for existing buildings shall comply with the 2009 edition of ICC A117.1.

Revise as follows:

410.7 Alterations affecting an area containing a primary function. Where an *alteration* affects the accessibility to, or contains an area of *primary function*, the route to the *primary function* area shall be *accessible*. The accessible route to the *primary function* area shall include toilet facilities and drinking fountains serving the area of *primary function*.

Exceptions:

1. Accessible requirements for existing buildings shall comply with the 2009 edition of ICC A117.1.
2. The costs of providing the *accessible* route are not required to exceed 20 percent of the costs of the *alterations* affecting the area of *primary function*.
3. This provision does not apply to *alterations* limited solely to windows, hardware, operating controls, electrical outlets and signs.
4. This provision does not apply to *alterations* limited solely to mechanical systems, electrical systems, installation or *alteration* of fire protection systems and abatement of hazardous materials.
5. This provision does not apply to *alterations* undertaken for the primary purpose of increasing the accessibility of a *facility*.
6. This provision does not apply to altered areas limited to Type B dwelling and sleeping units.

Add new text as follows:

705.1.1 Compliance with accessibility. Accessible requirements for existing buildings shall comply with the 2009 edition of ICC A117.1.

705.1.2 Extent of application. An *alteration* of an existing element, space, or area of a *facility* shall not impose a requirement for greater accessibility than that which would be required for new construction. *Alterations* shall not reduce or have the effect of reducing accessibility of a *facility* or portion of a *facility*..

705.2 Alterations affecting an area containing a primary function. Where an *alteration* affects the accessibility to a, or contains an area of, *primary function*, the route to the primary function area shall be accessible. The accessible route to the *primary function* area shall include toilet facilities and drinking fountains serving the area of *primary function.*

Exceptions:

1. Accessible requirements for existing buildings shall comply with the 2009 edition of ICC A117.1.
2. The costs of providing the accessible route are not required to exceed 20 percent of the costs of the alterations affecting the area of *primary function.*
3. This provision does not apply to *alterations* limited solely to windows, hardware, operating controls, electrical outlets and signs.
4. This provision does not apply to *alterations* limited solely to mechanical systems, electrical systems, installation or *alteration* of fire protection systems and abatement of hazardous materials.
5. This provision does not apply to *alterations* undertaken for the primary purpose of increasing the accessibility of a *facility*.
6. This provision does not apply to altered areas limited to Type B dwelling and sleeping units.

Revise as follows:

1012.8.2 Complete change of occupancy. Where an entire building undergoes a *change of occupancy*, it shall comply with Section 1012.8.1 and shall have all of the following accessible features:

1. At least one accessible building entrance.
2. At least one accessible route from an accessible building entrance to *primary function* areas.
3. Signage complying with Section 1111 of the *International Building Code*.
4. Accessible parking, where parking is provided.
5. At least one accessible passenger loading zone, where loading zones are provided.
6. At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.

Where it is *technically infeasible* to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent technically feasible.

~~Exception~~Exceptions:

1. The accessible features listed in Items 1 through 6 are not required for an accessible route to Type B units.
2. Accessible requirements for existing buildings shall comply with the 2009 edition of ICC A117.1.

Reason: Dramatic changes are being proposed in the next edition of the ANSI A117.1 standard that will accommodate a higher number of individuals. For example, the turning radius is being changed from 60" diameter to a 67" diameter, and clear floor space from 30"x48" to 30"x52" and related access to features. While these changes are able to be incorporated into new construction relatively easily, existing buildings that have been designed to conform with earlier standards or were modified to meet those earlier standards are likely to find that full compliance will create problems. Even using provisions based on the technical infeasibility for compliance will still require compliance in some circumstances that aren't justifiable financially and physically.
The Department of Justice in development of the 2010 ADA Standard allows for "grandfathering" of elements in an existing building that have already been made to conform and are found to comply with the earlier ADA standard. The 2009 edition of A117.1 provides the most comprehensively structured provisions for compliance with the original ADA and HUD standard, which is why a specific reference to that edition of the Standard for determining whether areas outside the specific alterations or change of occupancy must be modified.

In the other chapters (806.1, 906.1, 1012.8.1, 1105.1, 1204.1, 1401.2.5), by a reference back to Sections 410 and/or 705, this allowance would be applicable to all existing buildings.

Bibliography: None

Cost Impact: Will not increase the cost of construction
This change will reduce the cost of construction where changes have already been made to features of a building to conform to older accessibility standards. Under the proposed changes to A117.1 significant cost would be required to conform to these requirements often in areas where upgrades have already been performed in areas such as toilet rooms to meet the barrier removal requirements of the ADA or because of alterations and change of occupancy under the I-Codes when that work had been done prior to the adoption of this new standard.

Staff Note: If this code change is successful, the edition referenced for ICC A117.1 in Chapter 16 will remain the 2009 edition.

EB 34-15 : 410.2 (New)-COLLINS4459

EB 35-15

410.2, 705.1, 1508.2 (New)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

410.2 Maintenance of facilities. A *facility* that is constructed or altered to be *accessible* shall be maintained *accessible* during occupancy to the maximum extent feasible.

705.1 General. A *facility* that is altered shall comply with the applicable provisions in Sections 705.1.1 through 705.1.14, and Chapter 11 of the *International Building Code* unless it is *technically infeasibl* e. Where compliance with this section is *technically infeasible* , the alteration shall ~~provide access~~ comply with these requirements to the maximum extent that is technically feasible.
~~A *facility* that is constructed or altered to be accessible shall be maintained accessible during occupancy.~~

Exceptions:

1. The altered element or space is not required to be on an accessible route unless required by Section 705.2.
2. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing *facilities* .
3. Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in existing *facilities* undergoing less than a Level 3 *alteration* .
4. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall meet the provisions for Type B dwelling units.

Add new text as follows:

1508.2 During construction. A facility that is constructed or altered to be accessible shall be maintained accessible during occupancy to the maximum extent feasible.

Reason: There is a series of proposals intended to coordinate the provisions in the first and second options in the IEBC. Requirements for maintenance of facilities during construction in Sections 410.2 and 705.1 should match. However, it was also felt that maintenance of facilities during construction would be more appropriately located under Chapter 15, Construction Safeguards. Maintenance/repairs to maintain accessibility is already addressed in Section 605.1.
In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification and coordination of current requirements; therefore, there is no impact on the cost.

EB 35-15 : 410.2-KULIK3344

EB 36-15

410.3, 705.1.13

Proponent: Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com)

2015 International Existing Building Code

Revise as follows:

410.3 Extent of application. An *alteration* of an existing *facility* shall not impose a requirement for greater accessibility than that which would be required for new construction. *Alterations* shall not reduce or have the effect of reducing accessibility of a *facility* or portion of a *facility*, including the accessible means of egress.

705.1.13 Extent of application. An *alteration* of an existing element, space, or area of a *facility* shall not impose a requirement for greater accessibility than that which would be required for new construction. *Alterations* shall not reduce or have the effect of reducing accessibility of a *facility* or portion of a *facility*, including the accessible means of egress.

Reason: These two secions of the code already address the issue of the extent of application of accessibility to alterations. However, Sections 410.6 and 705.1 contains exceptions which state that accessible means of egress are not requried in existing buidlings. This leads to a conflict where it could be construed that it would be acceptable for the existing accessible means of egress to be reduced. The added text clarifies that this is not the case. By placing the added langauge in this section, it is also clear that the intent is not to impose any requirement greater than what would be allowed for new construction. Therefore, if the budiling was originally constructed in compliance with the 2006 IBC, with areas of refuge in a building which is protected throughout with an automatic fire sprinkler system, it would be acceptable to remove those areas of refuge since the 2015 IBC does not require areas of refuge where the building is protected throughout with an automatic fire sprinkler system. However, so as not to "reduce" the accessibility, two-way communications devices would need to be provided, consitent with the current code under which the request for removal of the areas of refuge is made.

Cost Impact: Will not increase the cost of construction
No increase in cost would be a part of this proposal since the least that would be done is to maintain the status quo. A possible cost savings can be made by allowing use of current code.

EB 36-15 : 410.3-BOECKER5613

EB 37-15

410.4.1, 410.4.2, 1012.8.1, 1012.8.2

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

410.4 Change of occupancy. *Existing buildings* that undergo a change of group or occupancy shall comply with this section.

> **Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in *existing buildings* and facilities undergoing a *change of occupancy* in conjunction with *alterations* where the *work area* is 50 percent or less of the aggregate area of the building.

410.4.1 Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification or the building has an aggregate area of not more than 3,000 square feet (278.7 m^2), any *alterations* shall comply with Sections 410.6, 410.7 and 410.8.

410.4.2 Complete change of occupancy. Where an entire building undergoes a *change of occupancy*and has an aggregate are of more than 3,000 square feet (278.7 m^2), it shall comply with Section 410.4.1 and shall have all of the following accessible features:

1. At least one accessible building entrance.
2. At least one accessible route from an accessible building entrance to *primary function* areas.
3. Signage complying with Section 1111 of the *International Building Code.*
4. Accessible parking, where parking is being provided.
5. At least one accessible passenger loading zone, when loading zones are provided.
6. At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.

Where it is *technically infeasible* to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent technically feasible.

> **Exception:** The accessible features listed in Items 1 through 6 are not required for an accessible route to Type B units.

1012.8 Accessibility. *Existing buildings* that undergo a change of group or occupancy classification shall comply with this section.

> **Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in existing buildings and facilities undergoing a *change of occupancy* in conjunction with less than a Level 3 *alteration*.

1012.8.1 Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification or the building has an aggregate area of not more than 3,000 square feet (278.7 m^2), any *alteration* shall comply with Sections 705, 806 and 906, as applicable.

1012.8.2 Complete change of occupancy. Where an entire building undergoes a *change of occupancy* and has an aggregate area of more than 3,000 square feet (278.7 m^2), it shall comply with Section 1012.8.1 and shall have all of the following accessible features:

1. At least one accessible building entrance.
2. At least one accessible route from an accessible building entrance to *primary function* areas.
3. Signage complying with Section 1111 of the *International Building Code* .
4. Accessible parking, where parking is provided.
5. At least one accessible passenger loading zone, where loading zones are provided.
6. At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.

Where it is *technically infeasible* to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent technically feasible.

> **Exception:** The accessible features listed in Items 1 through 6 are not required for an accessible route to Type B units.

Reason: The current provisions for a complete change of occupancy is sometimes very difficult or costly for small facilities undergoing a complete change of occupancy. The 3,000 sq.ft. limit proposed is consistent with Live/work units. These small facilities will have the same accessibility requirements, regardless if the alteration is a change of occupancy or not. Changes of occupancy are probably more likely to include alterations, so a small facility would be looking at improvements to the accessible route up to the 20% cost limitation. The larger facilities will still have to provide an accessible route when the entire facility undergoes a complete change of occupancy.
The current list of 6 items can be read to require an accessible route, including an elevator, regardless of the cost of the items and how much is spent on any alterations. For the small building, this can result in an existing building being so expensive to fix that it cannot be used for anything other than its original purpose.

What is currently proposed for small buildings is similar to what is allowed for historic buildings in Section 410.9, 1204.1 and 1205.15.

In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
As indicated in the reason, this would be a possible reduction in cost for small buildings undergoing a complete change in occupancy.

EB 37-15 : 410.4.1-KULIK3363

EB 38-15

410.4.2, 1012.8.2

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

410.4.2 Complete change of occupancy. Where an entire building undergoes a *change of occupancy* , it shall comply with Section 410.4.1 and shall have at least one accessible route throughout the building.~~all of the following accessible features:~~

1. ~~At least one accessible building entrance.~~
2. ~~At least one accessible route from an accessible building entrance to *primary function* areas.~~
3. ~~Signage complying with Section 1111 of the *International Building Code.*~~
4. ~~Accessible parking, where parking is being provided.~~
5. ~~At least one accessible passenger loading zone, when loading zones are provided.~~
6. ~~At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.~~

Where it is *technically infeasible*to comply with the new construction standards for ~~any of these requirements for a change of group or occupancy~~ an accessible route, the ~~above items~~ accessible route shall conform to the requirements to the maximum extent technically feasible.

> **Exception:** The accessible ~~features listed in Items 1 through 6 are~~ route is not required ~~for an accessible route~~ to Type B units required by Section 410.8.8.

1012.8.2 Complete change of occupancy. Where an entire building undergoes a *change of occupancy* , it shall comply with Section 1012.8.1 and shall have at least one accessible route throughout the building.~~all of the following accessible features:~~

1. ~~At least one accessible building entrance.~~
2. ~~At least one accessible route from an accessible building entrance to primary function areas.~~
3. ~~Signage complying with Section 1111 of the International Building Code.~~
4. ~~Accessible parking, where parking is being provided.~~
5. ~~At least one accessible passenger loading zone, when loading zones are provided.~~
6. ~~At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.~~

Where it is*technically infeasible*to comply with the new construction standards for ~~any of these requirements for a change of group or occupancy~~ an accessible route, the ~~above items~~ accessible route shall conform to the requirements to the maximum extent technically feasible.

> **Exception:** The accessible ~~features listed in Items 1 through 6 are~~ route is not required ~~for an accessible route~~ to Type B units required by Section 906.2 and 1105.4.

Reason: The intent of this proposal is to clarify what is expected when a building undergoes a complete change of occupancy, regardless if it has alterations or not. The list of six items is basically describing the items on an accessible route. Stating it simply will increase understanding of the requirement. This should also eliminate the question as to if this list is intended to over ride new construction exceptions for percentages of accessible entrances or where an elevator is not required. It was never intended to ask for an existing building to exceed new construction requirements. There is a wide variety of interpretations for the list of 6 items in Section 410.4.2 and 1202.8.2. This list was originally from a draft of the new ADAAG during development. This was a list of priority items for accessible routes that ended up not being included in ADA. It was decided that designers should be able to use the money where there was the best advantage with the goal of existing buildings become as accessible as feasible over time. In addition, ADA does not address a change in occupancy; the 2010 ADA standard treats alterations the same, change of occupancy or not.

Toilet rooms and drinking fountains are not in the current list. These items would require improvements for accessibility if the complete change of occupancy also included alterations to a primary function area in accordance with Sections 410.7 and 705.2.

In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification of current requirements; therefore, there is no impact on the cost.

EB 38-15 : 410.4.2-KULIK3402

EB 39-15

410.6

Proponent: Dominic Marinelli, United Spinal Association (DMarinelli@accessibility-services.com);Lee Kranz, City of Bellevue, WA, representing Washington Association of Building Officials Technical Code Development Committee

2015 International Existing Building Code

Revise as follows:

410.6 Alterations. A *facility* that is altered shall comply with the applicable provisions in Chapter 11 of the *International Building Code*, unless *technically infeasible*. Where compliance with this section is *technically infeasible*, the *alteration* shall provide access to the maximum extent technically feasible.

Exceptions:

1. The altered element or space is not required to be on an accessible route, unless required by Section 410.7.
2. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing facilities.
3. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall be permitted to meet the provision for a Type B dwelling unit.
4. Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in *existing buildings* and facilities undergoing ~~a *change of occupancy* in conjunction with~~ *alterations* where the *work area* is 50 percent or less of the aggregate area of the building.

Reason: Dominic Marinelli: The purpose of this code change proposal is to eliminate a conflict in the IEBC between the requirements in the Prescriptive and Work Area methods.
United Spinal Association and its partners supports requiring Type B units in existing buildings when that building is undergoing a major alteration (i.e., greater than 50% or Level 3). We do not believe that this requirement should depend on this also being a change in occupancy. We were successful in getting this requirement into the International Existing Building Code three (3) cycles ago. Previous editions exempted Type B units in any existing building.
We believe that there is a technical conflict in Section 410.6, Exception 4. The exception literally says that a minor alteration with a change of occupancy does not have to provide Type B units. The exception does not allow for minor alterations with no change in occupancy to be exempted from Type B units. That would be in conflict with the requirements in 410.8.8, 705.1 and 906.2. These three indicate Type B units are required only in major alterations.
United spinal also has a proposal in for Section 906.2 that is a different discussion.

410.8.8 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the International Building Code for Type B units apply only to the quantity of the spaces being added.
Where Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered and where the work area is greater than 50 percent of the aggregate area of the building, the requirements of Section 1107 of the International Building Code for Type B units apply only to the quantity of the spaces being altered.

705.1 General. A facility that is altered shall comply with the applicable provisions in Sections 705.1.1 through 705.1.14, and Chapter 11 of the International Building Code unless it is technically infeasible. Where compliance with this section is technically infeasible, the alteration shall provide access to the maximum extent that is technically feasible.
A facility that is constructed or altered to be accessible shall be maintained accessible during occupancy.
Exceptions:
1. The altered element or space is not required to be on an accessible route unless required by Section 705.2.
2. Accessible means of egress required by Chapter 10 of the International Building Code are not required to be provided in existing facilities.
3. Type B dwelling or sleeping units required by Section 1107 of the International Building Code are not required to be provided in existing facilities undergoing less than a Level 3 alteration.
4. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall meet the provisions for Type B dwelling units.
906.2 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered, the requirements of Section 1107 of the International Building Code for Type B units and Chapter 9 of the International Building Code for visible alarms apply only to the quantity of the spaces being altered.
Exception:
Group I-1, I-2, R-2, R-3 and R-4 dwelling or sleeping units where the first certificate of occupancy was issued before March 15, 1991 are not required to provide Type B dwelling or sleeping units.

Lee Kranz: The text in exception #4 of Section 410.6 is intended to address alternations to existing buildings but currently includes change of occupancy language. The exception in Section 410.4 deals with change of occupancy issues so the language in exception #4 of Section 410.6 is redundent and is not misplaced under the Alterations section. This proposal corrects exception #4 of Section 410.6 relating to alterations by deleting the change of occupancy text which is already covered in the exception to Section 410.4. Also, the revision creates consistency with exception #3 of Section 705.1.

Cost Impact: Will not increase the cost of construction
This is a correction to clarfiy the code and will not impact the cost of construction.

EB 39-15 : 410.6-KRANZ4115

EB 40-15

410.8.1, 705.1.1

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

410.8.1 Entrances. ~~*Accessible* entrances shall be provided in accordance with Section 1105.~~

> ~~**Exception:**~~ Where an *alteration* includes alterations to an entrance that is not accessible, and the *facility* has an *accessible* entrance, the altered entrance is not required to be *accessible*, unless required by Section 410.7. Signs complying with Section 1111 of the *International Building Code* shall be provided.

705.1.1 Entrances. Where an *alteration* includes alterations to an entrance that is not accessible, and the *facility* has an accessible entrance ~~on an accessible route~~, the altered entrance is not required to be accessible unless required by Section 705.2. Signs complying with Section 1111 of the *International Building Code* shall be provided.

Reason: There is a series of proposals intended to coordinate the provisions in the first and second options in the IEBC. Requirements for entrances in Sections 410.8.2 and 705.1.1 should match.
In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

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Cost Impact: Will not increase the cost of construction
The proposal is a clarification and coordination of current requirements; therefore, there is no impact on the cost.

EB 40-15 : 410.8.1-KULIK3346

EB 41-15

410.8.4, 806.2

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

410.8.4 Stairways and escalators in existing buildings. ~~In *alterations*, *change of occupancy* or *additions* where~~ Where an escalator or stairway is added where none existed previously and major structural modifications are necessary for installation, an accessible route shall be provided between the levels served by the escalator or stairways in accordance with Section 1104.4 of the *International Building Code.*

806.2 Stairways and escalators in existing buildings. ~~In *alterations* where~~Where an escalator or stairway is added where none existed previously and major structural modifications are necessary for installation, an accessible route shall be provided between the levels served by the escalator or stairways in accordance with Sections 1104.4 ~~and 1104.5~~ of the *International Building Code*.

Reason: There is a series of proposals intended to coordinate the provisions in the first and second options in the IEBC. Requirements for stairways in Sections 410.8.4 and 806.2 should match. While 806.2 is Level II alteration, change of occupancy and additions reference this section. Adding "change or occupancy or additions" under Level 2 could be confusing, so the best alternative is to remove the list from both 410.8.4 and 806.2. Where this is applicable will be handled through the references to this section.

G208-06/07 added the language in Section 410.8.4 as part of coordination with ADA 206.2.3.1. The ADA approach seems more reasonable for when and elevator or platform lift would be required. G241-12 struck the reference to 1104.5 in Section 410.8.4 so that the accessible route will be permitted to be provided in the same area as the new construction, and is not require it to be located elsewhere in the building. A reference to Section 1104.5 could be interpreted to require the accessible route to be provided in another part of the building if the new stairway was not on a general circulation route (such as a 2nd egress stairway).

In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

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Cost Impact: Will not increase the cost of construction
The proposal is a clarification and coordination of current requirements; therefore, there is no impact on the cost.

EB 41-15 : 410.8.4-KULIK3347

EB 42-15

410.8.6, 410.8.7, 410.8.8

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

410.8.6 Accessible dwelling or sleeping units. Where Group I-1, I-2, I-3, R-1, R-2 or R-4 dwelling or sleeping units are being altered or added, the requirements of Section 1107 of the *International Building Code* for Accessible units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of spaces being altered or added.

410.8.7 Type A dwelling or sleeping units. Where more than 20 Group R-2 dwelling or sleeping units are being altered or added, the requirements of Section 1107 of the *International Building Code* for Type A units and Chapter 9 of the *Internatinoal Buidling Code* for visible alarms apply only to the quantity of the spaces being altered or added.

410.8.8 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for Type B units apply only to the quantity of the spaces being added. Where Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered and where the work area is greater than 50 percent of the aggregate area of the building, the requirements of Section 1107 of the *International Building Code* for Type B units and Chapter 9 of the *Internatinoal Buidling Code* for visible alarms apply only to the quantity of the spaces being altered.

Reason: There is a series of proposals intended to coordinate the provisions in the first and second options in the IEBC. This phrase was deleted from Sections 410.8.7, 410.8.8 and 410.8.9 by code change G215-07/08. The reason given was that when visible alarms are required to be added or altered is addressed in IBC/IFC Chapter 9. However, in Chapter 9, if a system is touched, the whole building system needs to be upgraded. This would limit the change to just the units being altered.

ALTERATIONS – LEVEL 1

705.1.8 Type A dwelling or sleeping units. Where more than 20 Group R-2 dwelling or sleeping units are being altered, the requirements of Section 1107 of the *International Building Code* for Type A units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being altered.

ALTERATIONS – LEVEL 3

906.2 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered, the requirements of Section 1107 of the *International Building Code* for Type B units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being altered.

Exception: Group I-1, I-2, R-2, R-3 and R-4 dwelling or sleeping units where the first certificate of occupancy was issued before March 15, 1991 are not required to provide Type B dwelling or sleeping units.

ADDITION

1105.3 Type A dwelling or sleeping units. Where more than 20 Group R-2 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for Type A units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being added.

1105.4 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for Type B units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of spaces being added.

In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

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Cost Impact: Will not increase the cost of construction
The proposal limits the revisions to the fire alarm system. Therefore, there will be no additional costs to construction.

EB 42-15 : 410.8.6-KULIK3350

EB 43-15

410.8.8, 410.8.9 (New)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

410.8.8 Additions with Type B dwelling or sleeping units.
Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for Type B units apply only to the quantity of the spaces being added.

410.8.9 Alterations with Type B dwelling and sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered and where the work area is greater than 50 percent of the aggregate area of the building, the requirements of Section 1107 of the International Building Code for Type B units apply only to the quantity of the spaces being altered.

Reason: There is a series of proposals intended to coordinate the provisions in the first and second options in the IEBC. Section 410.8.8 is being split to separate additions and alterations. This is a clarification that is consistent with Sections 906.2, 1012.8 and 1105.4.
In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

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Cost Impact: Will not increase the cost of construction
The proposal is a clarification and coordination of current requirements; therefore, there is no impact on the cost.

EB 43-15 : 410.8.8-KULIK3358

EB 44-15

410.8.8

Proponent: Dan Buuck, National Association of Home Builders, representing National Association of Home Builders (dbuuck@nahb.org)

2015 International Existing Building Code

Revise as follows:

410.8.8 Additions with Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for Type B units apply only to the quantity of the spaces being added.

410.8.9 Alterations with Type B dwelling and sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered and where the work area is greater than 50 percent of the aggregate area of the building, the requirements of Section 1107 of the International Building Code for Type B units apply only to the quantity of the spaces being altered.

> **Exception:** Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units where the first certificate of occupancy was issued before March 15, 1991 are not required to provide Type B dwelling or sleeping units.

Reason: Section 410.8.8 is being split to separate additions and alterations (similar to Section 906.2 and 1105.4). The addition of the exception to Section 410.8.9 is to coordinate with Section 906.2. The intent is to coordinate the requirements for Type B dwelling units within the options available in the IEBC.

This same exception was added to Section 906.2 during the last code cycle to bring it in line with the provisions of FHA. It was approved by the committee and had no public comments. This proposal fixes the unintended omission of the same language in Section 410.8.9. These provisions need to include similar language, because they are parallel sections.

Having this language in the IEBC allows buildings that were previously occupied to be revitalized without triggering requirements that would exceed the federal legislation. Too often existing building owners who submit plans to alter an existing residential building which was built before the FHA guidelines went into effect are told that they must comply with the accessible requirements for new buildings. This exception brings the IEBC in line with the federal guidelines.

For reference, FHA regulations state "The design requirements apply to buildings built for first occupancy after March 13, 1991, which fall under the definition of "covered multifamily dwellings." Sections 906.2 and 1105.4 are shown below for comparison:

906.2 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered, the requirements of Section 1107 of the International Building Code for Type B units and Chapter 9 of the International Building Code for visible alarms apply only to the quantity of the spaces being altered.

> **Exception:** Group I-1, I-2, R-2, R-3 and R-4 dwelling or sleeping units where the first certificate of occupancy was issued before March 15, 1991 are not required to provide Type B dwelling or sleeping units.

1105.4 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the International Building Code for Type B units and Chapter 9 of the International Building Code for visible alarms apply only to the quantity of spaces being added.

Cost Impact: Will not increase the cost of construction
This proposal limits the Type B units requirements to only buildings that should have complied with the Fair Housing Act at the time of initial construction. Therefore, older institutional and residential buildings would not have the additional costs of upgrading for accessibility.

EB 44-15 : 410.8.8-BUUCK4900

EB 45-15

410.8.9, 705.1.6

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

410.8.9 Jury boxes and witness stands. In *alterations*, accessible wheelchair spaces are not required to be located within the defined area of raised jury boxes or witness stands and shall be permitted to be located outside these spaces where the ramp or lift access restricts or projects into the required means of egress.

705.1.6 Jury boxes and witness stands. In *alterations*, accessible wheelchair spaces are not required to be located within the defined area of raised jury boxes or witness stands and shall be permitted to be located outside these spaces where ramp or lift access ~~poses a hazard by restricting~~restricts or ~~projecting~~ projects into a required means of egress.

Reason: There is a series of proposals intended to coordinate the provisions in the first and second options in the IEBC. Requirements for courtrooms in Sections 410.8.9 and 705.1.6 should match. In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

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Cost Impact: Will not increase the cost of construction
The proposal is a clarification and coordination of current requirements; therefore, there is no impact on the cost.

EB 45-15 : 410.8.9-KULIK3351

EB 46-15

410.8.10, 410.9.4, 705.1.9, 1204.1.4

Proponent: Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com)

2015 International Existing Building Code

Revise as follows:

410.8.10 Toilet rooms. Where it is *technically infeasible* to alter existing toilet and bathing rooms to be *accessible*, a unisex toilet room or bathing room shall be provided. The unisex toilet room or bathing room shall be constructed as an *accessible* family or assisted-use toilet or bathing room ~~constructed~~ in accordance with Section ~~1109.2.1~~1109.2.1.2, 1109.2.1.3, 1109.2.1.5, 1109.2.1.6 and 1109.2.1.7 of the *International Building Code*. ~~is~~A unisex toilet room shall be permitted to contain two water closets. The ~~family or assisted-use~~unisex toilet or bathing room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. At the inaccessible toilet and bathing rooms, ~~provide~~ directional signs shall be provided indicating the location of the nearest ~~family or assisted-use~~unisex toilet room or bathing room. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

410.9.4 Toilet and bathing facilities. Where toilet rooms are provided, at least one unisex toilet shall be provided. The unisex toilt room shall be constructed as an accessible family or assisted-use toilet room complying with ~~Section 1109.2.1~~Sections 1109.2.1.2, 1109.2.1.5, 1109.2.1.6 and 1109.2.1.7 of the *International Building Code*. A unisex toilet room shall be ~~provided~~permitted to contain two water closets.

705.1.9 Toilet rooms. Where it is technically infeasible to alter existing toilet and bathing rooms to be accessible, a unisex toilet room or bathing room shall be provided. The unisex toilet room or bathing room shall be constructed as an accessible family or assisted-use toilet or bathing room ~~constructed~~ in accordance with Section ~~1109.2.1~~1109.2.1.2, 1109.2.1.3, 1109.2.1.5, 1109.2.1.6 and 1109.2.1.7 of the *International Building Code*. ~~is~~A unisex toilet room shall be permitted to contain two water closets. The ~~family or assisted-use~~ unisex toilet or bathing room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. At the inaccessible toilet and bathing rooms, directional signs indicating the location of the nearest ~~family or assisted-use~~ unisex toilet room or bathing room shall be provided. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

1204.1.4 Toilet and bathing facilities. Where toilet rooms are provided, at least one unises toilet shall be provided. The unisex toilet room shall be constructed as an accessible family or assisted-use toilet room complying with ~~Section 1109.2.1~~Sections 1109.2.1.2, 1109.2.1.5, 1109.2.1.6 and 1109.2.1.7 of the *International Building Code*. A unisex toilet room shall be ~~provided~~permitted to contain two water closets.

Reason: The proposals to Sections 410.9.4 and 705.1.9 are for altered buildings and are exactly the same. The proposals to Section 410.9.4 and 1204.1.4 are for historic buildings, and are the same. The code change seeks to address all in the same manner.

The concept of the alternative toilet/bathing room has been confused between the IBC's intent to provide additional access and usability in the family and assisted-use toilet and bathing rooms; and, the unisex toilet/bathing rooms intended to provide some acessibility where none would otherwise be available. The former is intended to be requried only in mercantile and assembly occupnacies where other accessible group toilet/bathing rooms are provided. The latter is intended to provide at least one accesisble set of plumbing fixtures in an existing buidling where no other accessible plumbing fixtures are provided. One is for new construction and one is for existing construction. These are different needs and should be identified as such and given different names accordingly.

It would be easy to simply have a "one size fits all" approach to both of these. However, the federal 2010 ADA Standards for Accessible Design includes different fixtures within the room than what is included in the IBC. Both sets of rules allow two options for the toilet room fixture counts and two for the bathing room fixture counts:

	IBC Family or Assisted Use Toilet and Bathing Rooms (current)				2010 Standards Unisex Toilet Room and Unisex Bathing Room			
	Toilet Room A	Toilet Room B	Bathing Room A	Bathing Room B	Toilet Room A	Toilet Room B	Bathing Room A	Bathing Room B
Lavatory	1	1	1	1	1	1	1	1
Water Closet	1	1	1	1	2	1	1	1
Urinal	0	1	0	0	0	1	0	0
Shower	n/a	n/a	1	0	n/a	n/a	1	1
Bathtub	n/a	n/a	0	1	n/a	n/a	0	1

In some cases the two sets of rules align. In others they do not. These prposed changes would place the IEBC unisex toilet/bathing rooms in line with the provisions of the 2010 Standards for unisex toilet/bathing rooms.

The 2010 ADA Standards for Accessible Design:

Section 213.2 identifies, in exceptions 1 and 2 when the unisex toilet room is required.

> **213.2 Toilet Rooms and Bathing Rooms.** Where toilet rooms are provided, each toilet room shall comply with 603. Where bathing rooms are provided, each bathing room shall comply with 603.
>
> **EXCEPTIONS:** 1. In alterations where it is technically infeasible to comply with 603, altering existing toilet or bathing rooms shall not be required where a single unisex toilet room or bathing room complying with 213.2.1 is provided and located in the same area and on the same floor as existing inaccessible toilet or bathing rooms.
>
> 2. Where exceptions for alterations to qualified historic buildings or facilities are permitted by 202.5, no fewer than one toilet room for each sex complying with 603 or one unisex toilet room complying with 213.2.1 shall be provided.

Section 213.2.1 of the 2010 Standards identifies what should be included in a unisex toilet room to meet the federal guidelines.

> **213.2.1 Unisex (Single-Use or Family) Toilet and Unisex Bathing Rooms.** Unisex toilet rooms shall contain not more than one lavatory, and two water closets without urinals or one water closet and one urinal. Unisex bathing rooms shall contain one shower or one shower and one bathtub, one lavatory, and one water closet. Doors to unisex toilet rooms and unisex bathing rooms shall have privacy latches.

Cost Impact: Will not increase the cost of construction
The revision is a clarification. It should not increase or decrease costs of construction. It may reduce administration costs because it clarifies something.

EB 46-15 : 410.8.10-BOECKER5781

EB 47-15

410.9, 1204.1, 1205.15

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

410.9 Historic buildings. These provisions shall apply to *facilities* designated as historic structures that undergo *alterations* or a *change of occupancy*, unless *technically infeasible*. Where compliance with the requirements for accessible routes, entrances or toilet rooms would threaten or destroy the historic significance of the *facility*, as determined by the ~~applicable governing authority~~authority having jurisdiction, the alternative requirements of Sections 410.9.1 through 410.9.4 for that element shall be permitted.

Exception: Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in historical buildings.

1204.1 Accessibility requirements. The provisions of Sections 705, 806 and 906, as applicable, shall apply to facilities designated as historic structures that undergo *alterations*, unless *technically infeasible*. Where compliance with the requirements for accessible routes, entrances or toilet rooms would threaten or destroy the historic significance of the~~ building or~~ *facility*, as determined by the ~~*code official*~~authority having jurisdiction, the alternative requirements of Sections 1204.1.1 through 1204.1.4 for that element shall be permitted.

Exception: Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in historical buildings.

1205.15 Accessibility requirements. The provisions of Section 1012.8 shall apply to facilities designated as historic structures that undergo a *change of occupancy*, unless *technically infeasible*. Where compliance with the requirements for accessible routes~~, ramps~~, entrances, or toilet rooms would threaten or destroy the historic significance of the~~ building or~~ *facility*, as determined by the authority having jurisdiction, the alternative requirements of Sections 1204.1.1 through 1204.1.4 for those elements shall be permitted

Exception: Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in historical buildings.

Reason: There is a series of proposals intended to coordinate the provisions in the first and second options in the IEBC. Requirements for historic building in Sections 410.9, 1204.1 and 1205.5 should match. By changing 410.9 and 1204.1 to match 1205.15, 'the authority having jurisdiction' can include historical preservation offices and oversight. In Section 1205.15, 'ramps" are not part of the list of requirements in the following sections; therefore, they should not be in this list. The definition for the term 'facility' includes buildings, therefore you can use one descriptor.
In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

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Cost Impact: Will not increase the cost of construction
The proposal is a clarification and coordination of current requirements; therefore, there is no impact on the cost.

EB 47-15 : 410.9-KULIK3343

EB 48-15

410.9.3, 1204.1.3

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

410.9.3 Entrances. At least one ~~main~~ public entrance shall be accessible.

Exceptions:

1. If a ~~main~~ public entrance cannot be made accessible, an accessible ~~nonpublic~~ entrance that is unlocked while the building is occupied shall be provided; or
2. If a ~~main~~ public entrance cannot be made accessible, a locked accessible entrance with a notification system or remote monitoring shall be provided.

Signs complying with Section 1111 of the *International Building Code* shall be provided at the ~~primary~~ public entrance and the accessible entrance.

1204.1.3 Entrances. At least one ~~main~~ public entrance shall be accessible.

Exceptions:

1. If a ~~main~~ public entrance cannot be made accessible, an accessible ~~nonpublic~~ entrance that is unlocked while the building is occupied shall be provided; or
2. If a ~~main~~public entrance cannot be made accessible, a locked accessible entrance with a notification system or remote monitoring shall be provided.

Signs complying with Section 1111 of the *International Building Code* shall be provided at the public entrance and the accessible entrance.

Reason: There is a series of proposals intended to coordinate the provisions in the first and second options in the IEBC. Requirements for toilet rooms in Sections 410.9.3 and 1204.1.3 should match. The term 'public' is used in ADA instead of 'main'. The term 'nonpublic' is removed from exception 1 so that this can be any entrance to the building; also this is consistent with Exception 2. Adding the signage reference is consistent with Entrances in Sections 410.8.1 and 705.1.1.

In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

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Cost Impact: Will not increase the cost of construction
The proposal is a clarification and coordination of current requirements; therefore, there is no impact on the cost.

EB 48-15 : 410.9.3-KULIK3355

EB 49-15

410.8.11 (New), 806.3 (New)

Proponent: Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com)

2015 International Existing Building Code

410.8.10 Toilet rooms. Where it is *technically infeasible* to alter existing toilet and bathing rooms to be *accessible*, an *accessible* family or assisted-use toilet or bathing room constructed in accordance with Section 1109.2.1 of the *International Building Code* is permitted. The family or assisted-use toilet or bathing room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. At the inaccessible toilet and bathing rooms, provide directional signs indicating the location of the nearest family or assisted-use toilet room or bathing room. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

Add new text as follows:

410.8.11 Additional toilet and bathing facilities In assembly and mercantile occupancies, where additional toilet fixtures are added, at least one accessible family or assisted-use toilet room shall be provided where required by Section 1109.2.1 of the International Building Code. In recreational facilities, where additional bathing rooms are being added, at least one family or assisted-use bathing rooms shall be provided where required by Section 1109.2.1 of the International Building Code.

705.1.9 Toilet rooms. Where it is technically infeasible to alter existing toilet and bathing rooms to be accessible, an accessible family or assisted-use toilet or bathing room constructed in accordance with Section 1109.2.1 of the *International Building Code* is permitted. The family or assisted-use toilet or bathing room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. At the inaccessible toilet and bathing rooms, directional signs indicating the location of the nearest family or assisted-use toilet room or bathing room shall be provided. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

806.3 Toilet and bathing facilities In assembly and mercantile occupancies, where additional toilet fixtures are added, at least one accessible family or assisted-use toilet room shall be provided where required by Section 1109.2.1 of the International Building Code. In recreational facilities, where additional bathing rooms are being added, at least one family or assisted-use bathing rooms shall be provided where required by Section 1109.2.1 of the International Building Code.

Reason: The current text is unclear where a family or assisted use toilet room needs to be added within a facility. There is a correllative change to Section 410.8.10 and 705.1.9 to seperate this bathroom from where a unisex bathroom is permitted as an option when the men's and women's bathrooms cannot be made accessible.
410.8.11 The langauge of the requirement is changed to make it clear that the intent is to provide a family or assisted-use toilet room when it would normally be requried by Section 1109.2.1 of the IBC. The manner in which it is currently written, the text seems to imply that the family or assisted-use toilet room would be requried regardless of the occupancy classification of the facility. If so, it would impose a requirementr more strict than that for new construction.

806.3 The same langauge as shown in the revised Section 410.8.11 is being added to the Work Area method for Level 2 Alterations. It seems only appropriate that the requirement should apply to both methodologies.

Cost Impact: Will increase the cost of construction
The added requirement to the work area method will increase the cost of construction for some buidlings.
However, the clarification to the existing text will likely reduce the cost of construction. The specific balance will depend on which method is used and what type of project is involved.

EB 49-15 : 410.9.4-BOECKER5779

EB 50-15

Chapters 5, 6, 7, 8, 9, 10, 11, 12, 13

Proponent: Kathleen Petrie, representing Seattle Dept of Planning & Development (kathleen.petrie@seattle.gov)

2015 International Existing Building Code

Combine Chapters 5 through 12 and revise as follows:

CHAPTER 5 ~~CLASSIFICATION OF WORK~~WORK AREA METHOD

SECTION 501 ~~GENERAL~~CLASSIFICATION OF WORK

501.1 Scope. The provisions of this chapter~~ shall be used in conjunction with Chapters 6 through 13 and~~ shall apply to the *alteration*, *repair*, *addition* and *change of occupancy* of existing structures, including historic and moved structures, as referenced in Section 301.1.2. The work performed on an *existing building* shall be classified in accordance with this chapter.

501.1.1 Compliance with other alternatives. *Alterations*, *repairs*, *additions* and *changes of occupancy* to existing structures shall comply with the provisions of ~~Chapters 6 through 13~~this chapter or with one of the alternatives provided in Section 301.1.

~~501.2~~501.1.2 Work area. The *work area*, as defined in Chapter 2, shall be identified on the construction documents.

~~SECTION 502 REPAIRS~~

~~502.1~~501.2 ~~Scope~~Repairs. *Repairs,* as defined in Chapter 2, include the patching or restoration or replacement of damaged materials, elements, *equipment or fixtures* for the purpose of maintaining such components in good or sound condition with respect to existing loads or performance requirements.

~~502.2~~501.2.1 Application. *Repairs* shall comply with the provisions of ~~Chapter 6.~~Section 502.

~~502.3~~501.2.2 Related work. Work on nondamaged components that is necessary for the required *repair* of damaged components shall be considered part of the *repair* and shall not be subject to the provisions of ~~Chapter 7, 8, 9, 10 or 11~~ Sections 503, 504, 505, 506, or 507.

~~SECTION 503 ALTERATIONS- LEVEL 1~~

~~503.1~~501.3 ~~Scope~~Alteration - Level 1. *No change to text.*

~~503.2~~501.3.1 Application. Level 1 *alterations* shall comply with the provisions of ~~Chapter 7.~~Section 503.

~~SECTION 504 ALTERATIONS-LEVEL 2~~

~~504.1~~501.4 ~~Scope~~Alteration - Level 2. Level 2 *alterations* include the reconfiguration of space, the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment.

~~504.2~~501.4.1 Application. Level 2 *alterations* shall comply with the provisions of~~ Chapter 7~~ Section 503 for Level 1 *alterations* as well as the provisions of~~ Chapter 8.~~ Section 504.

~~SECTION 505 ALERATIONS- LEVEL 3~~

~~505.1~~501.5 ~~Scope~~Alteration-Level 3. Level 3 *alterations* apply where the work area exceeds 50 percent of the *building area*.

~~505.2~~501.5.1 Application. Level 3 *alterations* shall comply with the provisions of~~ Chapters 7~~ Sections 503 and ~~8~~ 504 for Level 1 and 2 *alterations*, respectively, as well as the provisions of ~~Chapter 9.~~Section 505.

~~SECTION 506 CHANGE OF OCCUPANCY~~

~~506.1~~501.6 ~~Scope~~Change of occupancy. *Change of occupancy* provisions apply where the activity is classified as a *change of occupancy* as defined in Chapter 2.

~~506.2~~501.6.1 Application. *Changes of occupancy* shall comply with the provisions of ~~Chapter 10.~~Section 506.

~~SECTION 507 ADDITIONS~~

~~507.1~~501.7 ~~Scope~~Additions. Provisions for *additions* shall apply where work is classified as an *addition* as defined in Chapter 2.

~~507.2~~501.7.1 Application. *Additions* to *existing buildings* shall comply with the provisions of ~~Chapter 11.~~Section 507.

~~SECTION 508 HISTORIC BUIDLINGS~~

~~508.1~~501.8 ~~Scope~~Historic Buildings. *Historic building* provisions shall apply to buildings classified as historic as defined in Chapter 2.

~~508.2~~501.8.1 Application. Except as specifically provided for in ~~Chapter 12~~Section 508, *historic buildings* shall comply with applicable provisions of this code for the type of work being performed.

~~SECTION 509 RELOCATED BUILDINGS~~

~~509.1~~501.9 ~~Scope~~Relocated Buildings. Relocated building provisions shall apply to relocated or moved buildings. Relocated buildings shall comply with the provisions of Section 509.

~~CHAPTER 6REPAIRS~~

SECTION~~ 601~~502~~GENERAL~~REPAIRS

~~601.1~~502.1 Scope. Repairs as described in Section 502 shall comply with the requirements of this ~~chapter~~section. Repairs to *historic buildings* need only comply with ~~Chapter 12.~~Section 508.

~~601.2~~502.2 Conformance. The work shall not make the building less conforming than it was before the *repair* was undertaken.

~~[BS] 601.3~~502.3 Flood hazard areas. In flood hazard areas, repairs that constitute *substantial improvement* shall require that the building comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable,

~~SECTION602 BUILDING ELEMENTS AND MATERIALS~~

~~602.2~~502.5 New and replacement materials. Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for *repairs* and *alterations*, provided no *dangerous* or *unsafe* condition, as defined in Chapter 2, is created. Hazardous materials, such as asbestos and lead-based paint, shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

~~602.3~~502.6 Glazing in hazardous locations. Replacement glazing in hazardous locations shall comply with the safety glazing requirements of the *International Building Code* or *International Residential Code* as applicable.

> **Exception:** Glass block walls, louvered windows, and jalousies repaired with like materials.

~~SECTION603 FIRE PROTECTION~~

~~603.1~~502.7 ~~General~~Fire protection. *No change to text.*

~~SECTION604 MEANS OF EGRESS~~

~~604.1~~502.8 ~~General~~Means of egress. *No change to text.*

~~SECTION605 ACCESSIBILITY~~

~~605.1~~502.9 ~~General~~Accessibility. *No change to text.*

~~SECTION606 STRUCTURAL~~

~~[BS] 606.1~~502.10 ~~General~~Structural. Structural repairs shall be in compliance with this section and Section ~~601.2~~502.10.1. Regardless of the extent of structural or nonstructural damage, *dangerous* conditions shall be eliminated. Regardless of the scope of *repair*, new structural members and connections used for *repair* or *rehabilitation* shall comply with the detailing provisions of the *International Building Code* for new buildings of similar structure, purpose and location.

~~SECTION607 ELECTRICAL~~

~~607.1~~502.11 ~~Material~~Electrical. Existing electrical wiring and equipment undergoing *repair* shall be allowed to be repaired or replaced with like material.

~~SECTION608 MECHANICAL~~

~~608.1~~502.12 ~~General~~Mechanical. Existing mechanical systems undergoing *repair* shall not make the building less conforming than it was before the *repair* was undertaken.

~~SECTION609 PLUMBING~~

~~609.1~~502.13 ~~Materials~~Plumbing. Plumbing materials and supplies shall not be used for repairs that are prohibited in the *International Plumbing Code*.

~~CHAPTER 7ALTERATIONS—LEVEL 1~~

SECTION ~~701~~503~~GENERAL~~ALTERATIONS-LEVEL 1

~~701.1~~503.1 Scope. Level 1 *alterations* as described in Section ~~503~~501.3 shall comply with the requirements of this ~~chapter~~section. Level 1 *alterations* to *historic buildings* shall comply with this ~~chapter~~section, except as modified in ~~Chapter 12.~~Section 508.

~~701.2~~503.2 Conformance. An *existing building* or portion thereof shall not be altered such that the building becomes less safe than its existing condition.

> **Exception:** Where the current level of safety or sanitation is proposed to be reduced, the portion altered shall conform to the requirements of the *International Building Code*.

~~[BS] 701.3~~503.3 Flood hazard areas. In *flood hazard areas*, *alterations* that constitute *substantial improvement* shall require that the building comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable,

~~SECTION702 BUILDING ELEMENTS AND MATERIALS~~

~~702.1~~503.4 Interior wall and ceiling finishes. All newly installed interior wall and ceiling finishes shall comply with Chapter 8 of the *International Building Code*.

~~702.2~~503.5 Interior floor finish. New interior floor finish, including new carpeting used as an interior floor finish material, shall comply with Section 804 of the *International Building Code*.

~~702.3~~503.6 Interior trim. All newly installed interior trim materials shall comply with Section 806 of the *International Building Code*.

~~702.4~~503.7 Window opening control devices. In Group R-2 or R-3 buildings containing dwelling units and one- and two-family dwellings and townhouses regulated by the *International Residential Code*, window opening control devices complying with ASTM F 2090 shall be installed where an existing window is replaced and where all of the following apply to the replacement window:

1. The window is operable;
2. The window replacement includes replacement of the sash and the frame;
3. One of the following applies:
    3.1. In Group R-2 or R-3 buildings containing dwelling units, the top of the sill of the window opening is at a height less than 36 inches (915 mm) above the finished floor; or
    3.2. In one- and two-family dwellings and town-houses regulated by the *International Residential Code*, the top sill of the window opening is at a height less than 24 inches (610 mm) above the finished floor;
4. The window will permit openings that will allow passage of a 4-inch-diameter (102 mm) sphere when the window is in its largest opened position; and
5. The vertical distance from the top of the sill of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches (1829 mm).

The window opening control device, after operation to release the control device allowing the window to fully open, shall not reduce the minimum net clear opening area of the window unit to less than the area required by the *International Building Code.*

Exceptions:

5.1. Operable windows where the top of the sill of the window opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below, on the exterior of the room, space or building, and that are provided with window fall prevention devices that comply with ASTM F 2006.

5.2. Operable windows with openings that are provided with window fall prevention devices that comply with ASTM F 2090.

~~702.5~~503.8 Emergency escape and rescue openings. Where windows are required to provide emergency escape and rescue openings in Group R-2 and R-3 occupancies and one- and two-family dwellings and townhouses regulated by the *International Residential Code*, replacement windows shall be exempt from the requirements of Sections 1030.2, 1030.3 and 1030.5 of the *International Building Code* and Sections R310.21 and R310.2.3 of the *International Residential Code* accordingly, provided the replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.

Window opening control devices complying with ASTM F 2090 shall be permitted for use on windows required to provide *emergency escape* and *rescue openings*.

~~702.6~~503.9 **Materials and methods.** All new work shall comply with the materials and methods requirements in the *International Building Code*, *International Energy Conservation Code*, *International Mechanical Code*, and *International Plumbing Code*, as applicable, that specify material standards, detail of installation and connection, joints, penetrations, and continuity of any element, component, or system in the building.

~~**SECTION703 FIRE PROTECTION**~~

~~**703.1**~~**503.10** ~~**General**~~**Fire protection.** *Alterations* shall be done in a manner that maintains the level of fire protection provided.

~~**SECTION704 MEANS OF EGRESS**~~

~~**704.1**~~**503.11** ~~**General**~~**Means of egress.** *Alterations* shall be done in a manner that maintains the level of protection provided for the means of egress.

~~**SECTION705 ACCESSIBILITY**~~

~~**705.1**~~**503.12** ~~**General**~~**Accessibility.** A *facility* that is altered shall comply with the applicable provisions in Sections ~~705.1.1~~503.12.1 through ~~705.1.14~~503.12.14, and Chapter 11 of the *International Building Code* unless it is *technically infeasible*. Where compliance with this section is *technically infeasible*, the alteration shall provide access to the maximum extent that is technically feasible.

A *facility* that is constructed or altered to be accessible shall be maintained accessible during occupancy.

Exceptions:

1. The altered element or space is not required to be on an accessible route unless required by Section 705.2.
2. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing *facilities*.
3. Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in existing *facilities* undergoing less than a Level 3 *alteration*.
4. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall meet the provisions for Type B dwelling units.

~~**SECTION706 REROOFING**~~

~~**[BS] 706.1**~~**503.13** ~~**General**~~**Reroofing.** Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15 of the *International Building Code*.

Exception: Reroofing shall not be required to meet the minimum design slope requirement of one-quarter unit vertical in 12 units horizontal (2-percent slope) in Section 1507 of the *International Building Code* for roofs that provide positive roof drainage.

~~**SECTION707 STRUCTURAL**~~

~~**[BS] 707.1**~~**503.14** ~~**General**~~**Structural.** Where *alteration* work includes replacement of equipment that is supported by the building or where a reroofing permit is required, the provisions of this section shall apply.

~~**SECTION708 ENERGY CONSERVATION**~~

~~**708.1**~~**503.15** ~~**Minimum requirements.**~~**Energy Conservation.** Level 1 *alterations* to *existing buildings* or structures are permitted without requiring the entire building or structure to comply with the energy requirements of the *International Energy Conservation Code* or *International Residential Code*. The *alterations* shall conform to the energy requirements of the *International Energy Conservation Code* or *International Residential Code* as they relate to new construction only.

~~**CHAPTER 8ALTERATIONS—LEVEL 2**~~

SECTION ~~801~~504 ~~GENERAL~~ALTERATIONS-LEVEL 2

~~**801.1**~~**504.1 Scope.** Level 2 *alterations* as described in Section ~~504~~501.4 shall comply with the requirements of this ~~chapter~~section.

Exception: Buildings in which the reconfiguration is exclusively the result of compliance with the accessibility requirements of Section ~~705.2~~ 503.12.1 shall be permitted to comply with ~~Chapter 7~~Section 503.

~~**801.2**~~**504.1.1** ~~**Alteration Level 1**~~**Additional compliance.** In addition to the requirements of this ~~chapter~~section, all work shall comply with the requirements of ~~Chapter 7.~~Section 503.

~~**801.3**~~**504.1.2 Compliance with International Building Code.** All new construction elements, components, systems, and spaces shall comply with the requirements of the *International Building Code*.

Exceptions:

1. Windows may be added without requiring compliance with the light and ventilation requirements of the *International Building Code*.
2. Newly installed electrical equipment shall comply with the requirements of Section 808.
3. The length of dead-end corridors in newly constructed spaces shall only be required to comply with the provisions of Section 805.6.
4. The minimum ceiling height of the newly created habitable and occupiable spaces and corridors shall be 7 feet (2134 mm).

~~**SECTION802 SPECIAL USE AND OCCUPANCY**~~

~~**802.1**~~**504.2** ~~**General**~~**Special Use and Occupancy.** *Alteration* of buildings classified as special use and occupancy as described in the *International Building Code* shall comply with the requirements of Section 801.1 and the scoping provisions of Chapter 1 where applicable.

~~**SECTION803 BUILDING ELEMENTS AND MATERIALS**~~

~~**803.1**~~**504.3** ~~**Scope**~~**Building Elements and materials.** *No change to text.*

~~**SECTION804 FIRE PROTECTION**~~

~~**804.1**~~**504.4** ~~**Scope**~~**Fire protection.** The requirements of this section shall be limited to work areas in which Level 2 *alterations* are being performed, and where specified they shall apply throughout the floor on which the *work areas* are located or otherwise beyond the *work area*.

~~**SECTION805 MEANS OF EGRESS**~~

~~**805.1**~~**504.5** ~~**Scope**~~**Means of egress.** The requirements of this section shall be limited to work areas that include exits or corridors shared by more than one tenant within the *work area* in which Level 2 *alterations* are being performed, and where specified they shall apply throughout the floor on which the *work areas* are located or otherwise beyond the *work area*.

~~**805.2**~~**504.5.1 General.** The means of egress shall comply with the requirements of this section.

Exceptions:

1. Where the work area and the means of egress serving it complies with NFPA 101.
2. Means of egress conforming to the requirements of the building code under which the building was constructed shall be considered compliant means of egress if, in the opinion of the code official, they do not constitute a distinct hazard to life.

~~**805.3 Number of exits.** The number of exits shall be in accordance with Sections 805.3.1 through 805.3.3.~~

~~805.3.1~~504.5.2 Minimum number of exits. Every story utilized for human occupancy on which there is a *work area* that includes exits or corridors shared by more than one tenant within the *work area* shall be provided with the minimum number of exits based on the occupancy and the occupant load in accordance with the *International Building Code*. In addition, the exits shall comply with Sections 805.3.1.1 and 805.3.1.2.

~~**805.4.1 Two egress doorways required.** Work areas shall be provided with two egress doorways in accordance with the requirements of Sections 805.4.1.1 and 805.4.1.2.~~

~~805.8~~504.5.10 Exit signs. ~~Exit signs~~Means of egress in all work areas shall be provided with exit signs in accordance with ~~this section, as applicable.~~the requirements of the *International Building Code.*

~~**805.8.1 Work areas.** Means of egress in all work areas shall be provided with exit signs in accordance with the requirements of the *International Building Code.*~~

~~**805.10.1 Capacity.** The required capacity of refuge areas shall be in accordance with Sections 805.10.1.1 through 805.10.1.3.~~

~~**SECTION806 ACCESSIBILITY**~~

~~806.1~~504.6 ~~General~~Accessibility. A building, *facility*, or element that is altered shall comply with this section and Section 705.~~SECTION807 STRUCTURAL~~

~~[BS] 807.1~~504.7 ~~General~~Structural. Structural elements and systems within buildings undergoing Level 2 *alterations* shall comply with this section.

~~**SECTION808 ELECTRICAL**~~

504.8 Electrical. Electrical equipment and wiring shall comply with section 504.8.1 through 504.8.3.7.

~~808.1~~504.8.1 New installations. All newly installed electrical equipment and wiring relating to work done in any work area shall comply with all applicable requirements of NFPA 70 except as provided for in Section ~~808.3~~504.8.3.

~~808.2~~504.8.2 Existing installations. Existing wiring in all work areas in Group A-1, A-2, A-5, H and I occupancies shall be upgraded to meet the materials and methods requirements of ~~Chapter 7.~~Section 503.

~~**SECTION809 MECHANICAL**~~

504.9 Mechanical. Mechanical equipment shall comply with sections 504.9 through 504.9.3.

~~**SECTION810 PLUMBING**~~

~~810.1~~504.10 Minimum plumbing fixtures. Where the occupant load of the story is increased by more than 20 percent, plumbing fixtures for the story shall be provided in quantities specified in the *International Plumbing Code* based on the increased occupant load.

~~**SECTION811 ENERGY CONSERVATION**~~

~~811.1~~504.11 Minimum energy conservation requirements. Level 2 *alterations* to *existing buildings* or structures are permitted without requiring the entire building or structure to comply with the energy requirements of the *International Energy Conservation Code* or *International Residential Code*. The *alterations* shall conform to the energy requirements of the *International Energy Conservation Code* or *International Residential Code* as they relate to new construction only.

~~**CHAPTER 9ALTERATIONS—LEVEL 3**~~

SECTION ~~901~~ 505~~GENERAL~~ ALTERATIONS-LEVEL 3

~~901.1~~505.1 Scope. Level 3 *alterations* as described in Section ~~505~~501.5 shall comply with the requirements of this ~~chapter~~section.

~~901.2~~505.2 Compliance. In addition to the provisions of this ~~chapter~~section, work shall comply with all of the requirements of ~~Chapters 7~~Sections 503 and ~~8~~504. The requirements of Sections 803, 804 and 805 shall apply within all *work areas* whether or not they include exits and corridors shared by more than one tenant and regardless of the occupant load.

> **Exception:** Buildings in which the reconfiguration of space affecting exits or shared egress access is exclusively the result of compliance with the accessibility requirements of Section 705.2 shall not be required to comply with this ~~chapter~~section.

~~**SECTION902 SPECIAL USE AND OCCUPANCY**~~

~~902.1~~505.3 High-rise buildings. *No change to text.*

~~902.2~~505.4 Boiler and furnace equipment rooms. Boiler and furnace equipment rooms adjacent to or within Groups I-1, I-2, I-4, R-1, R-2 and R-4 occupancies shall be enclosed by 1-hour fireresistance-rated construction.

Exceptions:

1. Steam boiler equipment operating at pressures of 15 pounds per square inch gauge (psig) (103.4 KPa) or less is not required to be enclosed.
2. Hot water boilers operating at pressures of 170 psig (1171 KPa) or less are not required to be enclosed.
3. Furnace and boiler equipment with 400,000 British thermal units (Btu) (4.22 × 108 J) per hour input rating or less is not required to be enclosed.
4. Furnace rooms protected with an automatic sprinkler system are not required to be enclosed.

~~**SECTION903 BUILDING ELEMENTS AND MATERIALS**~~

~~903.1~~505.5 Existing shafts and vertical openings. Existing stairways that are part of the means of egress shall be enclosed in accordance with Section 803.2.1 from the highest *work area* floor to, and including, the level of exit discharge and all floors below.

~~903.2~~505.6 Fire partitions in Group R-3. *No change to text.*

~~903.3~~505.7 Interior finish. Interior finish in exits serving the *work area* shall comply with Section 803.4 between the highest floor on which there is a *work area* to the floor of exit discharge.

~~**SECTION904 FIRE PROTECTION**~~

~~904.1~~505.8 Automatic sprinkler systems. *No change to text.*

~~904.2~~505.9 Fire alarm and detection systems. Fire alarm and detection shall be provided in accordance with Section 907 of the *International Building Code* as required for new construction.

~~**SECTION905 MEANS OF EGRESS**~~

~~905.1~~505.10 ~~General~~Means of egress. *No change to text.*

~~**SECTION906 ACCESSIBILITY**~~

~~906.1~~505.11 ~~General~~Accessibility. A building, *facility* or element that is altered shall comply with this section and Sections 705 and 806.

~~**SECTION907 STRUCTURAL**~~

~~[BS] 907.1~~505.12 ~~General~~Structural. Where buildings are undergoing Level 3 *alterations* including structural *alterations*, the provisions of this section shall apply.

~~[BS] 907.4~~505.12.3 Existing structural elements resisting lateral loads. All existing elements of the lateral force-resisting system shall comply with this section.

Exceptions:

1. Buildings of Group R occupancy with no more than five dwelling or sleeping units used solely for residential purposes that are altered based on the conventional light-frame construction methods of the *International Building Code* or in compliance with the provisions of the *International Residential Code*.
2. Where such *alterations* involve only the lowest story of a building and the *change of occupancy* provisions of ~~Chapter 10~~Section 506 do not apply, only the lateral force-resisting components in and below that story need comply with this section.

~~**SECTION908 ENERGY CONSERVATION**~~

~~908.1~~505.13 ~~Minimum requirements.~~Energy conservation. Level 3 *alterations* to *existing buildings* or structures are permitted without requiring the entire building or structure to comply with the energy requirements of the *International Energy Conservation Code* or *International Residential Code*. The *alterations* shall conform to the energy requirements of the *International Energy Conservation Code* or *International Residential Code* as they relate to new construction only.

~~**CHAPTER 10CHANGE OF OCCUPANCY**~~

SECTION ~~1001~~ 506~~GENERAL~~CHANGE OF OCCUPANCY

~~1001.1~~506.1 Scope. The provisions of this ~~chapter~~section shall apply where a *change of occupancy* occurs, as defined in Section 202.

~~1001.2~~506.2 Certificate of occupancy. A change of occupancy or a change of occupancy within a space where there is a different fire protection system threshold requirement in Chapter 9 of the *International Building Code* shall not be made to any structure without the approval of the *code official*. A certificate of occupancy shall be issued where it has been determined that the requirements for the change of occupancy have been met**.**

~~1001.3~~506.3 Certificate of occupancy required. A certificate of occupancy shall be issued where a *change of occupancy* occurs that results in a different occupancy classification as determined by the *International Building Code*.

~~**SECTION1002 SPECIAL USE AND OCCUPANCY**~~

~~1002.1~~506.4 ~~Compliance with the building code.~~Special use and occupancy. Where the character or use of an *existing building* or part of an *existing building* is changed to one of the following special use or occupancy categories as defined in the *International Building Code*, the building shall comply with all of the applicable requirements of the *International Building Code*:

1. Covered and open mall buildings.
2. Atriums.
3. Motor vehicle-related occupancies.
4. Aircraft-related occupancies.
5. Motion picture projection rooms.
6. Stages and platforms.
7. Special amusement buildings.
8. Incidental use areas.
9. Hazardous materials.
10. Ambulatory care facilities.
11. Group I-2 occupancies.

~~**SECTION1003 BUILDING ELEMENTS AND MATERIALS**~~

~~1003.1~~506.5 ~~General~~Building elements and materials. Building elements and materials in portions of buildings undergoing a *change of occupancy* classification shall comply with Section 1012.

~~**SECTION1004 FIRE PROTECTION**~~

~~1004.1~~506.6 ~~General~~Fire protection. Fire protection requirements of Section 1012 shall apply where a building or portions thereof undergo a *change of occupancy* classification or where there is a change of occupancy within a space where there is a different fire protection system threshold requirement in Chapter 9 of the *International Building Code*.

~~**SECTION1005 MEANS OF EGRESS**~~

~~1005.1~~506.7 ~~General~~Means of egress. Means of egress in portions of buildings undergoing a *change of occupancy* classification shall comply with Section 1012.

~~**SECTION1006 ACCESSIBILITY**~~

~~1006.1~~506.8 ~~General~~Accessibility. Accessibility in portions of buildings undergoing a *change of occupancy* classification shall comply with Section 1012.8.

~~**SECTION1007 STRUCTURAL**~~

506.9 Structural. Buildings undergoing *change of occupancy* are subject to Section 506.9.

~~**SECTION1008 ELECTRICAL**~~

506.10 Electrical. Electrical equipment and wiring shall comply with Sections 506.10.1 through 506.10.4

~~**SECTION1009 MECHANICAL**~~

~~1009.1~~506.11 Mechanical requirements. Where the occupancy of an *existing building* or part of an *existing building* is changed such that the new occupancy is subject to different kitchen exhaust requirements or to increased mechanical ventilation requirements in accordance with the *International Mechanical Code*, the new occupancy shall comply with the respective *International Mechanical Code* provisions.

~~**SECTION1010 PLUMBING**~~

506.12 Plumbing. Plumbing equipment and systems shall comply with Section 506.12.

~~**SECTION1011 OTHER REQUIREMENTS**~~

~~**1011.1**~~**506.13 Light and ventilation.** Light and ventilation shall comply with the requirements of the *International Building Code* for the new occupancy.

~~**SECTION1012 CHANGE OF OCCUPANCY CLASSIFICATION**~~

~~**1012.1**~~**506.14** ~~**General**~~**Change of occupancy classification.** The provisions of this section shall apply to buildings or portions thereof undergoing a change of occupancy classification. This includes a change of occupancy classification within a group as well as a change of occupancy classification from one group to a different group or where there is a change of occupancy within a space where there is a different fire protection system threshold requirement in Chapter 9 of the *International Building Code*. Such buildings shall also comply with Sections 1002 through 1011. The application of requirements for the change of occupancy shall be as set forth in Sections 1012.1.1 through 1012.1.4. A *change of occupancy*, as defined in Section 202, without a corresponding change of occupancy classification shall comply with Section 1001.2.

~~**1012.1.1**~~**506.14.1 Compliance with** ~~**Chapter 9.**~~**Section 505.** The requirements of ~~Chapter 9~~ Section 505 shall be applicable throughout the building for the new occupancy classification based on the separation conditions set forth in Sections 1012.1.1.1 and 1012.1.1.2.

~~**1012.2 Fire protection systems.** Fire protection systems shall be provided in accordance with Sections 1012.2.1 and 1012.2.2.~~

~~**1012.2.1**~~**506.14.5 Fire sprinkler system.** Where a change in occupancy classification occurs or where there is a change of occupancy within a space where there is a different fire protection system threshold requirement in Chapter 9 of the *International Building Code* that requires an automatic fire sprinkler system to be provided based on the new occupancy in accordance with Chapter 9 of the *International Building Code*, such system shall be provided throughout the area where the *change of occupancy* occurs.

~~**1012.2.2**~~**506.14.6 Fire alarm and detection system.** Where a change in occupancy classification occurs or where there is a change of occupancy within a space where there is a different fire protection system threshold requirement in Chapter 9 of the *International Building Code* that requires a fire alarm and detection system to be provided based on the new occupancy in accordance with Chapter 9 of the *International Building Code*, such system shall be provided throughout the area where the *change of occupancy* occurs. Existing alarm notification appliances shall be automatically activated throughout the building. Where the building is not equipped with a fire alarm system, alarm notification appliances shall be provided throughout the area where the *change of occupancy* occurs in accordance with Section 907 of the *International Building Code* as required for new construction.

~~**1012.3**~~**506.14.7 Interior finish.** In areas of the building undergoing the change of occupancy classification, the interior finish of walls and ceilings shall comply with the requirements of the *International Building Code* for the new occupancy classification.

~~**1012.4**~~**506.14.8 Means of egress, general.** Hazard categories in regard to life safety and means of egress shall be in accordance with Table ~~1012.4~~506.14.8.

~~**1012.5**~~**506.14.9 Heights and areas.** Hazard categories in regard to height and area shall be in accordance with Table ~~1012.5~~506.14.9.

~~**1012.6**~~**506.14.10 Exterior wall fire-resistance ratings.** Hazard categories in regard to fire-resistance ratings of exterior walls shall be in accordance with Table ~~1012.6~~506.14.10.

~~**1012.7**~~**506.14.11 Enclosure of vertical shafts.** Enclosure of vertical shafts shall be in accordance with Sections ~~1012.7.1~~ 506.14.11.1 through ~~1012.7.4~~506.14.11.4.

~~**1012.8**~~**506.14.12 Accessibility.** *Existing buildings* that undergo a change of group or occupancy classification shall comply with this section.

> **Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in existing buildings and facilities undergoing a *change of occupancy* in conjunction with less than a Level 3 *alteration*.

~~**CHAPTER 11ADDITIONS**~~

SECTION ~~**1101**~~ **507** ~~**GENERAL**~~ **ADDITIONS**

~~**1101.1**~~**507.1 Scope.** An *addition* to a building or structure shall comply with the *International Codes* as adopted for new construction without requiring the *existing building* or structure to comply with any requirements of those codes or of these provisions, except as required by this ~~chapter~~section. Where an *addition* impacts the *existing building* or structure, that portion shall comply with this code.

~~**1101.2**~~**507.2 Creation or extension of nonconformity.** An *addition* shall not create or extend any nonconformity in the *existing building* to which the *addition* is being made with regard to accessibility, structural strength, fire safety, means of egress, or the capacity of mechanical, plumbing, or electrical systems.

~~**1101.3**~~**507.3 Other work.** Any *repair* or *alteration* work within an *existing building* to which an *addition* is being made shall comply with the applicable requirements for the work as classified in ~~Chapter 5.~~Section 501.

~~**SECTION1102 HEIGHTS AND AREAS**~~

~~**1102.1**~~**507.4 Height limitations.** No *addition* shall increase the height of an *existing building* beyond that permitted under the applicable provisions of Chapter 5 of the *International Building Code* for new buildings.

~~**1102.2**~~**507.5 Area limitations.** No *addition* shall increase the area of an *existing building* beyond that permitted under the applicable provisions of Chapter 5 of the *International Building Code* for new buildings unless fire separation as required by the *International Building Code* is provided.

> **Exception:** In-filling of floor openings and nonoccupiable appendages such as elevator and exit stairway shafts shall be permitted beyond that permitted by the *International Building Code*.

~~**1102.3**~~**507.6 Fire protection systems.** Existing fire areas increased by the *addition* shall comply with Chapter 9 of the *International Building Code*.

~~**SECTION1103 STRUCTURAL**~~

~~**[BS] 1103.1**~~**507.7** ~~**Compliance with the International Building Code**~~**Structural.** *Additions* to *existing buildings* or structures are new construction and shall comply with the *International Building Code*.

[BS] ~~**1103.2**~~**507.7.1 Additional gravity loads.** Existing structural elements supporting any additional gravity loads as a result of additions shall comply with the *International Building Code*.

Exceptions:

1. Structural elements whose stress is not increased by more than 5 percent.
2. Buildings of Group R occupancy with no more than five dwelling units or sleeping units used solely for residential purposes where the *existing building* and the *addition* comply with the conventional lightframe construction methods of the *International Building Code* or the provisions of the *International Residential Code*.

~~**SECTION1104 SMOKE ALARMS IN OCCUPANCY GROUPS R AND I-1**~~

~~**1104.1**~~**507.8 Smoke alarms in existing portions of a building.** Where an *addition* is made to a building or structure of a Group R or I-1 occupancy, the *existing* *building* shall be provided with smoke alarms as required by Section 1103.8 of the *International Fire Code* or Section R314 of the *International Residential Code* as applicable.

~~SECTION1105 ACCESSIBILITY~~

~~1105.1~~507.9 ~~Minimum requirements~~Accessibility. Accessibility provisions for new construction shall apply to additions. An addition that affects the accessibility to, or contains an area of, *primary function* shall comply with the requirements of Sections 705, 806 and 906, as applicable.

~~1105.2~~507.9.1 Accessible dwelling units and sleeping units. Where Group I-1, I-2, I-3, R-1, R-2 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for accessible units apply only to the quantity of spaces being added.

~~SECTION1106 ENERGY CONSERVATION~~

~~1106.1~~507.10 ~~Minimum requirements.~~Energy Conservation. *Additions* to *existing buildings* shall conform to the energy requirements of the *International Energy Conservation Code* or *International Residential Code* as they relate to new construction.

~~CHAPTER 12HISTORIC BUILDINGS~~

SECTION ~~1201~~ 508~~GENERAL~~ HISTORIC BUILDINGS

~~1201.1~~508.1 Scope. It is the intent of this ~~chapter~~section to provide means for the preservation of *historic buildings*. Historical buildings shall comply with the provisions of this ~~chapter~~section relating to their *repair*, *alteration*, relocation and *change of occupancy*.

~~[BS] 1201.2~~508.2 Report. A *historic building* undergoing *repair*, *alteration*, or *change of occupancy* shall be investigated and evaluated. If it is intended that the building meet the requirements of this ~~chapter~~section, a written report shall be prepared and filed with the *code official* by a registered design professional when such a report is necessary in the opinion of the *code official*. Such report shall be in accordance with Chapter 1 and shall identify each required safety feature that is in compliance with this ~~chapter~~section and where compliance with other chapters of these provisions would be damaging to the contributing historic features. For buildings assigned to Seismic Design Category D, E or F, a structural evaluation describing, at a minimum, the vertical and horizontal elements of the lateral force-resisting system and any strengths or weaknesses therein shall be prepared. Additionally, the report shall describe each feature that is not in compliance with these provisions and shall demonstrate how the intent of these provisions is complied with in providing an equivalent level of safety.

~~1201.3~~508.3 Special occupancy exceptions—museums. When a building in Group R-3 is also used for Group A, B, or M purposes such as museum tours, exhibits, and other public assembly activities, or for museums less than 3,000 square feet (279 m^2), the *code official* may determine that the occupancy is Group B when life-safety conditions can be demonstrated in accordance with Section 1201.2. Adequate means of egress in such buildings, which may include a means of maintaining doors in an open position to permit egress, a limit on building occupancy to an occupant load permitted by the means of egress capacity, a limit on occupancy of certain areas or floors, or supervision by a person knowledgeable in the emergency exiting procedures, shall be provided.

~~[BS] 1201.4~~508.4 Flood hazard areas. In *flood hazard areas*, if all proposed work, including repairs, work required because of a *change of occupancy*, and *alterations*, constitutes *substantial improvement*, then the *existing building* shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.

Exception: If an *historic building* will continue to be an *historic building* after the proposed work is completed, then the proposed work is not considered a *substantial improvement*. For the purposes of this exception, an *historic building* is:

1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places;
2. Determined by the Secretary of the U.S. Department of Interior to contribute to the historical significance of a registered historic district or a district preliminarily determined to qualify as a historic district; or
3. Designated as historic under a state or local historic preservation program that is approved by the Department of Interior.

~~SECTION1202 REPAIRS~~

~~1202.1~~508.5 ~~General~~Repairs. Repairs to any portion of an *historic building* or structure shall be permitted with original or like materials and original methods of construction, subject to the provisions of this ~~chapter~~section. Hazardous materials, such as asbestos and lead-based paint, shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

~~1202.2~~508.5.1 Unsafe conditions. Conditions determined by the *code official* to be *unsafe* shall be remedied. No work shall be required beyond what is required to remedy the *unsafe* conditions.

~~SECTION1203 FIRE SAFETY~~

~~1203.1~~508.6 ~~Scope~~Fire safety. *Historic buildings* undergoing *alterations*, *changes of occupancy*, or that are moved shall comply with Section 1203.

~~1203.2~~508.6.1 General. Every *historic building* that does not conform to the construction requirements specified in this code for the occupancy or use and that constitutes a distinct fire hazard as defined herein shall be provided with an approved automatic fire-extinguishing system as determined appropriate by the *code official*. However, an automatic fire-extinguishing system shall not be used to substitute for, or act as an alternative to, the required number of exits from any *facility*.

~~SECTION1204 ALTERATIONS~~

~~1204.1~~508.7 Accessibility requirements. The provisions of Sections 705, 806 and 906, as applicable, shall apply to facilities designated as historic structures that undergo *alterations*, unless *technically infeasible*. Where compliance with the requirements for accessible routes, entrances or toilet rooms would threaten or destroy the historic significance of the building or *facility*, as determined by the *code official*, the alternative requirements of Sections 1204.1.1 through 1204.1.4 for that element shall be permitted.

Exception: Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in historical buildings.

~~SECTION1205 CHANGE OF OCCUPANCY~~

~~1205.1~~508.8 ~~General~~Change of occupancy. *Historic buildings* undergoing a *change of occupancy* shall comply with the applicable provisions of ~~Chapter 10~~Section 506, except as specifically permitted in this ~~chapter~~section. When ~~Chapter 10~~Section 506 requires compliance with specific requirements of ~~Chapter 7~~ Section 503, ~~Chapter 8~~Section 504, or ~~Chapter 9~~ Section 505 and when those requirements are subject to the exceptions in Section 1202, the same exceptions shall apply to this section.

~~SECTION1206 STRUCTURAL~~

~~[BS] 1206.1~~508.9 ~~General~~Structural. *Historic buildings* shall comply with the applicable structural provisions for the work as classified in ~~Chapter 5.~~Section 501.

Exception: The *code official* shall be authorized to accept existing floors and approve operational controls that limit the live load on any such floor.

~~CHAPTER 13RELOCATED OR MOVED BUILDINGS~~

SECTION ~~1301~~ 509~~GENERAL~~ RELOCATED OR MOVED BUILDINGS

~~1301.1~~509.1 Scope. This ~~chapter~~section provides requirements for relocated or moved structures, including relocatable buildings as defined in Chapter 2.

~~**509.2 Application.** Relocated buildings shall comply with the provisions of Chapter 13.~~

~~1301.2~~509.2 **Conformance.** The building shall be safe for human occupancy as determined by the *International Fire Code* and the *International Property Maintenance Code*. Any *repair*, *alteration*, or *change of occupancy* undertaken within the moved structure shall comply with the requirements of this code applicable to the work being performed. Any field-fabricated elements shall comply with the requirements of the *International Building Code* or the *International Residential Code* as applicable.

~~**SECTION1302 REQUIREMENTS**~~

~~1302.1~~509.3 **Location on the lot.** The building shall be located on the lot in accordance with the requirements of the *International Building Code* or the *International Residential Code* as applicable.

~~[BS] 1302.2~~509.4 **Foundation.** The foundation system of relocated buildings shall comply with the *International Building Code* or the *International Residential Code* as applicable.

~~[BS] 1302.3~~509.5 **Wind loads.** Buildings shall comply with *International Building Code* or *International Residential Code* wind provisions as applicable.

Exceptions:

1. Detached one- and two-family dwellings and Group U occupancies where wind loads at the new location are not higher than those at the previous location.
2. Structural elements whose stress is not increased by more than 10 percent.

~~[BS] 1302.4~~509.6 **Seismic loads.** Buildings shall comply with *International Building Code* or *International Residential Code* seismic provisions at the new location as applicable.

Exceptions:

1. Structures in Seismic Design Categories A and B and detached one- and two-family dwellings in Seismic Design Categories A, B and C where the seismic loads at the new location are not higher than those at the previous location.
2. Structural elements whose stress is not increased by more than 10 percent.

~~[BS] 1302.5~~509.7 **Snow loads.** Structures shall comply with *International Building Code* or *International Residential Code* snow loads as applicable where snow loads at the new location are higher than those at the previous location.

Exception: Structural elements whose stress is not increased by more than 5 percent.

~~[BS] 1302.6~~509.8 **Flood hazard areas.** If relocated or moved into a flood hazard area, structures shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.

~~[BS] 1302.7~~509.9 **Required inspection and repairs.** *No change to text.*

Reason: This proposal reorganizes the IEBC work area method into a single chapter without making any technical changes. For a complete version of this proposal we ask that you go to: Work Area Chapter. This other document shows the intent of the proposal more clearly and accurately.
The IEBC includes 3 compliance methods--prescriptive (chapter 4), work area method (chapters 5-13), and the performance method (chapter 14). The basic premise of the IEBC is that the 3 methods are equivalent. A remodel project that uses the prescriptive method is equally as compliant as one that uses the work area method.

The format of the code doesn't reflect this equivalence. Two compliance methods are contained within a single chapter each. The work area method, however, is spread out over 9 chapters. This formatting can be misleading. It gives the appearance, for instance, that Chapter 11 applies to all additions and that Chapter 12 applies to all historic buildings, regardless of compliance method chosen for a particular project. It's misleading and confusing to designers who are trying to apply the IEBC to a building project. It's also misleading for code development. As an example, EB52-2012 was a very good code change proposal from the last code cycle that straightened out how changes of occupancy are treated in the IEBC. However, it only addressed Chapter 10 in the work area method, omitting the other 2 methods.

Each chapter of the work area method is assigned to a single section, all the sections in chapters 5-13 are renumbered, some are given different titles, and some redundant language is deleted. A few charging sections are added where the current code relies on a section title for charging. The order of the sections is not changed. The code change proposal does not show every section that would be renumbered.Sections that are not shown would be renumbered sequentially. The proposal also shows a small number of sections where we're proposing to change some language. Our intention with this proposal is that a comprehensive renumbering and correction of cross references would be done by staff and ICC's editors. An attachment to this proposal shows the details of how the renumbering could be done.

We'd like to point out that the maximum number of decimal points in section numbers is not increased in this proposal. The IEBC currently has some sections with 4 decimal points, and that is also the maximum number of decimal points in this proposal.

Cost Impact: Will not increase the cost of construction
This proposal renumbers code sections without making any technical changes.

Analysis: As stated, this proposal reorganizes several chapters of the code into a single chapter. For clarity, the code change as depicted here shows only the major sections that are moved, renumbered, or both. To view the location and renumbering of all of the sections involved, the document entitled "Work Area Chapter" can be found by clicking the link at the begining of the proponent's reason statement.

EB 50-15 : CHAPTER 5-PETRIE5516

EB 51-15

202, 502.4(New)

Proponent: Aaron Wilson, Associated Design Partners Inc., representing Associated Design Partners (jthibodeau@adpengineering.com)

2015 International Existing Building Code

Revise as follows:

SECTION 202 DEFINITIONS

WORK AREA. That portion or portions of a building consisting of all reconfigured spaces as indicated on the construction documents. *Work area* excludes other portions of the building where ~~incidental~~*reconfiguration of space* is not proposed, including work ~~entailed by the intended work must be performed~~incidental to *repairs*, and portions of the building where work not initially intended by the owner is specifically required by this code, including work associated with correcting dangerous conditions.

Add new text as follows:

502.4 Alteration Exclusions. Removal and replacement of incidental elements including; wall finishes, electrical and mechanical systems, insulation, and structural components within the process of completing repairs shall not be subject to the provisions of Chapters 7,8, 9, 10 and 11.

Reason: This proposal will clarify the understanding and use of the code and help reduce the extra time spent with misscommunications regarding what is considered a repair and what is an alteration. The clarifcation of the definition will better define what is considered part of the work area and what is not.

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction. It will clarify the understanding and use of the code and help reduce the extra time spent with misscommunications.

EB 51-15 : 202-ALTERATION-WILSON5705

EB 52-15

601.2, 608.1

Proponent: David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Subcommittee, National Council of Structural Engineers Associations (dbonowitz@att.net)

2015 International Existing Building Code

Revise as follows:

601.2 Conformance. The work shall not make the building less conforming than it was before the ~~*repair* was undertaken.~~damage occurred.

608.1 General. Existing mechanical systems undergoing *repair* shall not make the building less conforming than it was before the ~~*repair* was undertaken.~~damage occurred.

Reason: The current text talks about the condition "before the repair was undertaken." This means the damaged condition. What these provisions intend is to restore the condition that existed before the damage, not before the repair.

Cost Impact: Will not increase the cost of construction
The proposal is editorial.

EB 52-15 : 601.2-BONOWITZ5185

EB 53-15

202 (New), 609.1, 609.3 (New), 609.4 (New), 609.4.1 (New), 609.4.2 (New), Chapter 16

Proponent: Ronald George, Self; Plumb-Tech Design & Consulting Services LLC; www.Plumb-TechLLC.com; www.ScaldPrevention.org, representing Self; Plumb-Tech Design & Consulting Services LLC (Ron@Plumb-TechLLC.com)

2015 International Existing Building Code

CHAPTER 6 REPAIRS
Add new definition as follows:

SECTION 202 DEFINITIONS

SCALD HAZARD A condition where high temperature hot water discharged from a plumbing fixture can cause serious burn injuries to the user.

Revise as follows:

609.1 Materials. Plumbing materials ~~and supplies shall not be~~ used for repairs ~~that are prohibited~~be in accordance with the *International Plumbing Code.*

Add new text as follows:

609.3 Replacement water heater capacity. A replacement water heater shall be of the same output capacity, in gallons per hour, as the existing water heater that is being replaced.

Exception: Where the replacement water heater manufacturer's sizing calculations or other generally-accepted water heater sizing calculations indicate that the first hour delivery capacity of the selected replacement water heater is adequate for the installation, a replacement water heater of smaller output capacity can be installed.

609.4 Delivered hot water temperature adjustment after water heater replacement, repair or hot water system alterations. Where the water temperature in a hot water distribution system changes as the result of a water heater replacement, repair or an alteration of the hot water distribution system such as a water heater thermostat adjustment or master mixing valve adjustment or replacement, each shower or combination tub-shower supplied by the system shall be inspected for the presence of a means for reducing scald hazards to the users.

Where the means for limiting the hot water temperature is a master mixing valve complying with ASSE 1017, a mixing valve complying with ASSE 1070 or an integral limit stop on the shower or combination tub-shower valve, adjustments shall be made in accordance with Section 609.4.1. Where the means for limiting the hot water temperature discharged at the fixture is a device complying with ASSE 1062, then the operation of the device shall be verified that it significantly reduces flow when the discharge temperature approaches 120◦F (48.8◦C).

Where a shower or tub-shower combination does not have a means for scald hazard protection for a user, a means shall be installed in accordance with Section 609.4.2.

609.4.1 Adjustment procedure. Temperature limit adjustments for shall be made and set to limit the temperature of the hot water discharged to any user to not greater than 120◦F (48.8◦C). These adjustments and settings shall only be performed after both of the following are satisfied:

1. The water heater has reached the water heater temperature control setting as recommended by the water heater manufacturer and has shut off its burner or electric elements.

2. Hot water has sufficiently reached the valve such that the temperature of the discharging at the fixture does not continue to rise.

A water heater thermostat shall be prohibited as a means for limiting hot water temperature for the purposes of required scald hazard protection for a user of hot water.

609.4.2 Showers and combination tub-showers without means of protection against scalding. Where a shower or tub-shower combination valve does not have a means for scald hazard protection for a user, one or more of the following shall be performed:

1. The shower or combination tub/shower valve shall be replaced with a valve complying with ASSE 1016/ASME A112.1016/CSA B125.16. After replacement, the temperature limit stop shall be adjusted in accordance with Section 609.4.1

2. A master temperature actuated mixing valve complying with ASSE 1017 or ASSE 1070 shall be installed in the hot water outlet piping at the water heater. After installation, the temperature setting of the valve shall be adjusted in accordance with Section 609.4.1.

3. A point-of-use water temperature limiting valve complying with ASSE 1070 shall be installed at or near each shower or tub-shower combination valve After installation,the the temperature setting of the ASSE 1070 valve shall be adjusted in accordance with Section 609.4.1. ASSE 1070 valves shall be provided with access.

4. A temperature-actuated, flow reduction valve complying with ASSE 1062 shall be installed on the shower arm prior to connection of shower head and, for tub-shower combinations, on both the tub spout and the shower arm. ASSE 1062 devices shall be capable of significantly limiting the flow of water discharged as the water temperature rises towards 120◦F (48.8◦C).

Add new standard(s) as follows:
ASSE 1016-2011/ASME A112.1016-2011/CSA B125.16-11 Automatic Compensating Valves for Individual Shower & Tub/Shower Combinations
ASSE 1017-2010 Temperature Actuated Mixing Valves for Hot Water Distribution Systems
ASSE 1062-2006 Temperature Actuated, Flow Reduction (TAFR) Valves for Individual Supply Fittings
ASSE 1070-2004 Water Temperature Limiting Devices

Reason: There is currently no provisions in the code to require unsafe existing plumbing installations to where scalding is a hazard. Hundreds of people are scalded each year where non-code compliant (Two-handle) shower valves are installed. This code change is iintended to address this and other hot water scald hazards in existing installations.
What are safe hot water temperatures?
By Ron George
President, Ron George Design & Consulting Services
Plumbing Engineer Magazine Aug 2009

I am often asked, "What is a safe hot water temperature for domestic hot water?" If you read the model codes, it states the maximum hot water temperature for a shower or bathtub is 120 degrees Fahrenheit. If you read the warning labels on the side of most water heaters the maximum hot water temperature is 120 degrees Fahrenheit on some labels and 125 degrees Fahrenheit on other labels. The 125 degree limit probably allows for some temperature loss before the hot water gets to the fixtures. Most water heater literature and warning labels mention the availability of thermostatic mixing valves or automatic temperature compensating valves and they recommend their use. If you look at many of the industry standards for shower mixing valves, they state the valves must have limit stops that are adjustable to limit the maximum hot water temperature to 120 degrees Fahrenheit. The testing in the standards gives test criteria for testing the shower valves to these limits.

I have served on the working groups for several plumbing industry standards committees for temperature actuated mixing valves and shower valves and it is generally agreed that 120 degrees is the maximum, safe hot water temperature. I also have served on hot water system design standards committees where the participants had agreed that maximum domestic hot water temperature from plumbing fixtures used for bathing and washing purposes should be 120 degrees Fahrenheit. There were a few exceptions for bidets, sitz baths and whirlpool tubs that had temperatures lower than 120 degrees Fahrenheit for the recommended maximum temperatures to prevent scalding. It also should be noted that some other uses like commercial dishwashers and laundries may need temperatures higher than 120 degrees Fahrenheit. There were two temperatures discussed for each fixture during the design standard meetings. One was the "use temperature" and the other was "the maximum temperature" to prevent scalding.

It's generally agreed that 120 degrees Fahrenheit is the maximum safe hot water temperature that should be delivered from a fixture. Therefore hot water above 120 degrees Fahrenheit can be considered hazardous. Model codes address this in various plumbing code sections...

...The codes generally agree if there is a hazardous condition or a condition that is unsafe or a nuisance to life, health and property it should be corrected but in the existing building code and property maintenance code there is little guidance. It is also generally agreed that water above 120 degrees Fahrenheit at fixtures for bathing and washing with a few exceptions for lower temperatures can be considered dangerous and proper precautions should be taken to prevent the hot water from being a scalding hazard by using the proper safety devices.
When I hear about people setting their water heater to 120 degrees Fahrenheit to prevent scalding, I know they have good intentions, but most people do not know you cannot accurately control the hot water temperature leaving a water heater with the thermostat dial.
Maximum Hot Water Temperature to Prevent Scalding
I have served on many industry committees dealing with hot water system code requirements, hot water system design standards and product standards related to domestic hot water systems devices for temperature control and scald prevention. There has been consensus in all of these committees that the maximum safe hot water delivery temperature for a shower or bathtub is 120 degrees Fahrenheit to prevent scalding with a few exceptions for lower temperatures for bidets and emergency eye wash fixtures. (See the attached Figure 1 - Hot Water Scald Burns – Time vs Temperature Relationship for Second and Third Degree Burns for Adults and Children)Figure 1

There were discussions in a plumbing code ad-hoc committee on temperature limits for the hot water system where everyone agreed the maximum safe temperature was 120 F. The ASPE Hot water committee dealing with a proposed standard for temperature limits in hot water systems also agreed the maximum safe hot water temperature to prevent scalding is 120 Fahrenheit. Several ASSE working groups that I have served on dealing with hot water temperature controls have all have discussed the reaction time of bathers and they have taken into consideration that children, the elderly and people with disabilities usually take longer to get out of harm's way if the water suddenly gets hot and they agreed 120 Fahrenheit is the maximum safe hot water temperature that a valve should deliver. At 120 F it takes about 80 seconds to develop a second degree burn in a child and it takes about 8 minutes to develop a second degree burn in an adult. (See Figure 1) The 120 Degree F temperature limit gives bathers or users an adequate amount of time to get out of harm's way before an irreversible scald burn injury can occur. Each of these committees looked back to the data that was the result of burn studies done by Dr. Moritz and Dr. Henrique's at Harvard Medical College in the 1940s. The burn studies were done using baby pigs that had skin thicknesses similar to that of adult males. The studies exposed the pig's skin to various temperatures of hot water for various periods of time and the severity of the burns were studied and recorded. These were the studies used to develop the time and temperature exposure charts. There have been numerous white papers, seminars, and reports since then discussing the fact that burns can occur quicker than those recorded in the Moritz & Henrique's studies for adult males. The skin is thinner for children and the elderly and the amount of time to receive an irreversible 2nd degree burn injury is less because their skin is thinner. Many of the white papers use the Moritz and Dr. Henrique's original burn studies and they use a ratio of the skin thickness to come up with burn times for thinner skin of children and the elderly. Children, the elderly and handicapped are also slower to react because it takes them more time to realize what is happening and try to react to get out of harm's way. Someone once told me an apartment complex was not intended for children or the elderly. I said everyone grows old and children often come visit so we need to consider prevention of scalds to children, the elderly and people with disabilities more so than burns to adults because burns can occur quicker for those groups.

The PIEV Theory for Reaction Time
There is a PIEV theory relates to reaction time. The PIEV theory is most commonly used to address braking distance in automobile accidents. It addresses the amount of time it takes a driver to sense a problem and decide to react, then the reaction time is added to the braking time for the total distance that a car travels before stopping. The PIEV theory can also apply to reaction times for a bather with respect to hot water scalds.
PIEV relates to the amount of time it takes a person to react to a hazard. PIEV means - Perception, Intellection, Emotion and Volition. It is usually referred to as the PIEV theory. Before we recognize and react to a hazard, four specific areas of activity need to be processed by the brain for the muscles to react. Those processes are:
1. Perception - We need to perceive or gain a Perception of a hazard. There can be delays in the perception with limitation in sight, sound, feeling, or any other of our senses.
2. Intellection - We go through a period called, Intellection or the act or process of using the intellect by thinking or reasoning. The bather must determine if the hazard is legitimate and deciding either move out of the way of the hazard or eliminate the hazard by adjusting the controls or in some cases where the bather may be sitting out of the reach of the controls the bather may choose to pull the shower curtain in front of them. If the adjustment of the controls is the choice one must decide which control to turn and try to remember which way to turn each control to adjust the temperature or turn the water off in order to eliminate the hazard. If a wrong choice is made during this process it could compound the situation by making the water even hotter. I travel a lot and I often find that shower controls can be very confusing with respect to how to adjust the controls. I still find two handle shower controls that do not meet code requirements. This is critically important when there is no temperature limit on the shower controls. For example if the shower has a two-handle shower valve and 160 degree hot water is supplied to the system, then turning of the cold water first could lead to instant scalding injuries. Turning down the hot water to 120 F or below creates a system where it could incubate Legionella Bacteria to very high levels.
3. Emotion - There is an Emotion or evaluation factor which is defined as a conscious mental reaction (as anger or fear) subjectively experienced as strong feeling usually directed toward a specific object and typically accompanied by physiological and behavioral changes in the body with respect to deciding or assessing how we want to react. A person with reduced mental capacity or someone that is just very old will take longer to process this information and ultimately decide to react.
4. Volition - There is the physical Volition or deciding/choosing to act and acting. In the case of braking distance it is when the choice is made to move the foot from the gas pedal to the brake pedal and pressing on the brake pedal. This can be related to the time the bather chooses to adjust the control, and they move their hand to the shower control valve, plus the time to rotate or re-adjust the shower valve plus the time from the adjustment until the water temperature changes coming out of the shower head. Often it can take as much as 3-5 seconds to re-adjust the shower head and another few seconds until the water temperature changes coming out of the shower head. For ultra-low-flow (ULF) showers the delay from the time of the adjustment of the shower valve until the water temperature changes coming out of the shower head can be even longer. So burns can become more severe with ULF shower heads. This is one more area where water conservations measures can unintentionally make plumbing systems less safe.
As the temperature of the water increases this PIEV reaction time becomes more important. Using a bathtub/shower controller with a single handle would reduce the mental processing time and reduce the possibility of making an error when turning off the water. As Figure 1 shows the higher the temperatures get, the quicker the burns can occur. within seconds or less and the degree and severity of the burn can be affected by this reaction time.
As you can see by the chart in Figure 1, if the water is at 140 F it will take about 0.8 seconds for a child to receive a 2nd degree irreversible burn injury and it will take about 5.6 seconds for an adult male to receive an irreversible burn injury at 140 degrees F. Everyone else will fall somewhere in between. An adult will often find it very difficult to react to a sudden change in temperature within five (5) seconds. If the shower head is an Ultra-Low-Flow (ULF) shower head the delay can be several seconds longer before the water temperature is reduced because the mixed water temperature must evacuate or flush out the hot water in the pipe riser from the shower valve to the shower head. There is basically very little or no time to react at higher temperatures. For a typical adult that is alert and aware the PIEV theory shows it can take well over five (5) seconds to react to a sudden burst of hot water in a shower. For an elderly person or a small child that is confused it could take several minutes or more before they are able to react and adjust the controls or get out of harm's way. There has been a lot of information that suggests reducing the domestic hot water temperature to 120 F or less as it flows from the fixtures will minimize scalding and allow most people to react or get out of harm's way before a scald injury occurs.
Reducing the water temperature flowing from the fixture can be done in several ways by:
1. Reducing the hot water temperature at the fixture by adjusting the maximum temperature limit-stop on the shower valve. (The best way)
2. Using local mixing valves conforming to ASSE 1070 to reduce the hot water temperature flowing from a faucet.
3. Reducing the temperature at the source (Water Heater) with the use of a master mixing valve or temperature actuated mixing valve conforming to ASSE 1017.
4. For existing non code compliant shower or tub/shower installations, Two handle tub/shower valves without a maximum temperature limit adjustment) an ASSE 1062 valve could be used. An ASSE 1062 valve is a Temperature Actuated Flow Reduction (TAFR) valve. It looks like a chrome pipe coupling and it screws on between the shower head and the shower arm. Other models screw into a tub spout or onto a sink faucet in place of the aerator. If the water flowing from fixture exceeds about 117-120 degrees Fahrenheit the TAFR valve will shut the flow of water down to just a trickle so that scalding hot water does not spray onto the bather. It can be reset by adjusting the fixture control valve to a cold water setting and when the cold water reaches the valve it will reset and begin flowing again. This can be a bit of a nuisance in buildings where the hot water temperature is erratic, but it is an inexpensive way to provide protection against scald injuries in older buildings without code compliant shower valves.
Water Heater Thermostats Do Not Control the Water Heater Outlet Temperatures
If you adjust the water heater thermostat for the burner or heating element on a water heater down to 120 degrees, it will not prevent scalding. Water heater thermostats cannot be relied upon to control the hot water temperature leaving a water heater. Water heater manufacturers recommend that installers set thermostats at 120 - 125 F, and most of them ship the water heaters at an even lower temperature setting. It is not possible to set a water heater thermostat at a given temperature and get a relatively constant temperature of hot water from a water heater. The thermostat can not accurately control the water heater outlet temperature with a water heater thermostat.

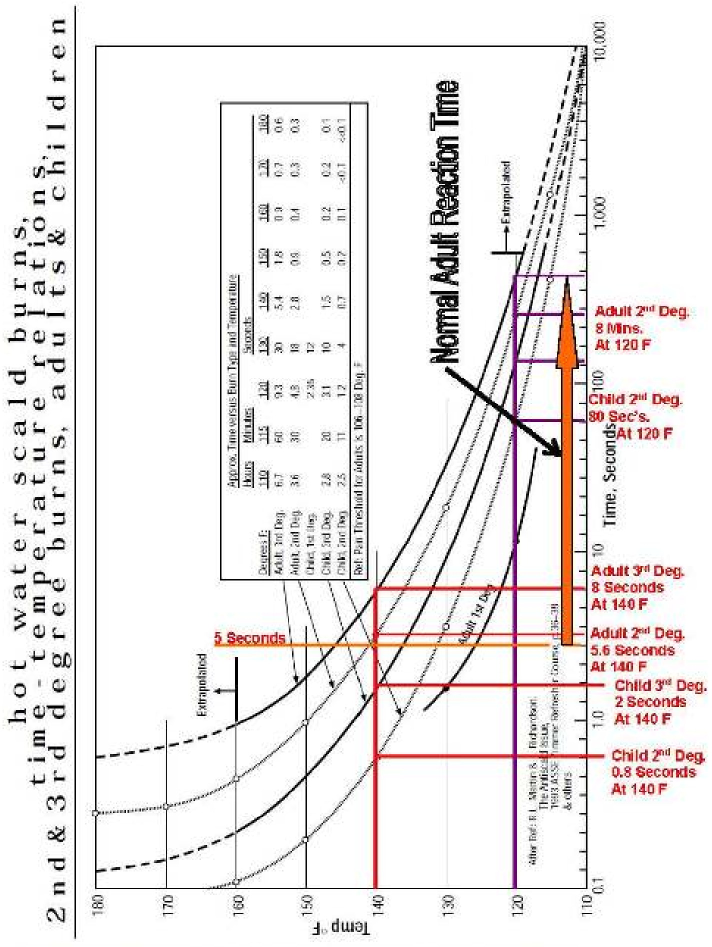
My experience has been that not many people know that water heater thermostats cannot control the outlet temperature of a water heater. This warrants an explanation of how a water heater thermostat works so everyone understands the dial on the water heater does not have the accuracy to control the outlet temperature of storage type heater.

Water heater thermostats do not provide precise temperature controls for hot water systems. For example: the thermostat dial calibration test of ANSI Z21.10.1-1998, which is the applicable standard for gas-fired water heaters, allows the temperature to vary 10 degrees above or below the thermostat setting. I have talked to water heater manufacturers that have indicated that the controls can vary as much as 15 to 18 degrees Fahrenheit above or below the set point of the thermostat. From my experience, I have recorded the temperature leaving the top portion of a water heater over a long period of time during intermittent uses and saw temperature swings over 40 degrees Fahrenheit leaving the water heater. The shower valve standards do not have this kind of temperature fluctuation included their testing for all types of shower valves. The significant temperature swings are because the thermostat is inserted into the lower portion of a water heater tank and turns the fuel supply to the heater on and off. Most new water heater thermostat dials have no way to know what the temperature in the tank is. There is rarely a fixed temperature indicated on the dial, however some manufacturers publish temperatures associated with various marks on the thermostat dial or in their literature even though the dial cannot not control the outlet temperature of the water heater, it only controls when the energy to the heater is turned "on" and "off" by sensing the cold water coming into the bottom of the heater.

Generally, if the water heater thermostat dial is set at 120 degrees Fahrenheit, the burner would come on when the temperature at the thermostat reaches about 105 degrees Fahrenheit. The burner stays on until the water around the thermostat which is near the bottom of the heater reaches about 135 degrees Fahrenheit. (The "burner off" temperature is about 30 degrees higher than when the burner came "on" and generally about 15 degrees above the theoretical set point of the thermostat).

Most people don't realize that the maximum temperature limit test of the ANSI Z21.10.1 Gas Water Heater Standard allows the outlet water temperature of the water heater to rise significantly above the thermostat setting. This provision in the standard accounts for the phenomenon known as "stacking" or "thermal layering". The hot water is less dense and rises to the top of the hot water tank. Just like hot air rises and lifts a hot air balloon, hot water rises to the top of the tank and the cooler water drops to the bottom of the tank. Stacking or thermal layering occurs when the hot water rises to the top of the heater due to recurring short duration heating cycles caused by a frequent number of small quantity hot water uses. Frequent short draws cause cold water to enter the bottom of the water heater where the thermostatic element senses the cold water from the turbulent flow stirring in the bottom of the heater. The cold water causes the water heater to cycle on. This phenomenon can occur in any type of storage water heater and generally is more significant in vertical heaters.

I have recorded temperatures as high as 150 to 166 degrees Fahrenheit at the top of water heaters that had the thermostats set between 120 to 125 degrees Fahrenheit. Temperatures over 151 degrees Fahrenheit are extremely high temperatures and can cause serious scald burns in only a two seconds of contact with the skin. (See Table 1 - Water Temperature Effects on Adult Skin) It should be noted that the time temperature relationships in Table 1 are based upon the thickness of the skin for adult males. Children and the elderly typically have a thinner layer of the skin or epidermis and the exposure times can be shorter or the same burns can occurs in a given time at slightly lower temperatures.
Source: http://www.plumbingengineer.com/aug_09



A Seminar and Technical Paper for the 25-28 Oct. 98 Annual ASPE Meeting at the Indianapolis Convention Center in Indianapolis, Indiana. Reprinted by Watts Regulator Company with permission of Dr. D. Bynum Jr.
Figure 1 – Hot Water Scald Burns – Time vs Temperature Relationship for Second and Third Degree Burns for Adults and Children.
(Notes By: Ron George, CPD, See: www.ScaldPrevention.org)

Bibliography: Source: http://www.plumbingengineer.com. Multiple articles over 21 years.

Cost Impact: Will increase the cost of construction
The cost impact is miinimal. This is a health and safety issue. The Health and Safety scald prrevvention benefits outweight any cost. The less expensive option of TAFR valves can be purchased for less than $10.

Analysis: The standards proposed for this code ASSE 1016/ASME A112.1016/CSA B125.16, ASSE 1017, ASSE 1070 and ASSE 1062 are already included in one or more of the 2015 I-codes.

EB 53-15 : 609-GEORGE5146

EB 54-15

609.2

Proponent: Ronald George, representing Self (Ron@Plumb-TechLLC.com)

2015 International Existing Building Code

609.2 Water closet replacement. The maximum water consumption flow rates and quantities for all replaced water closets shall be 1.6 gallons (6 L) per flushing cycle.

> ~~**Exception**~~**Exceptions:**
> 1. Blowout-design water closets having a water consumption of not greater than
> [3.5 gallons (13 L) per flushing cycle].
> 2. Existing water closets that were removed and replaced, specific to each toilet facility, provided that they have been cleaned and that the flushing mechanism intended by original water closet manufacturer is installed, is in working order and is without leakage.
> 3. Where data or a report indicates that the sizes, slopes and lengths of the existing sanitary drain system and the discharge of 1.6 gallons-per-flush water closets and other plumbing fixtures into the existing drain system could negatively impact the transport of solids within the drain system, water closets having greater flush volumes or supplemental flushing devices to provide for greater water flow volumes in the drain system shall be installed where approved.

Reason: This code change allows for owners of existing buildings to maintain exoisting flow rates to prevent building drain back-ups, sewer blockages and sanitary sewer overflows. Building drain back-ups and sanitary sewer overflows cause a significant Biological hazard and health hazard.

Bibliography: Title of Magazine: Plumbing Engineer, Code Column, Author: Ron George, CPD, June, 2010
Website link: http://www.plumbingengineer.com/june_10/conservation_feature.php

Water Conservation Efforts Unwittingly Leading to Dry Drains

By Ron George, CPD,
President, Plumb-Tech Design & Consulting Services, LLC, Website: www.Plumb-TechLLC.com

Many experts agree there are a multitude of factors contributing to water shortages in many areas of the world. These factors include: global warming, increases in population, lack of proper water utility infrastructure, wasteful practices and underpriced water. We will never run out of water because water is constantly here in the hydrological cycle, evaporating, condensing into rain and falling to earth and flowing into the ground as groundwater. The run-off flows into streams, rivers and lakes for surface freshwater and into the ocean where it mixes with salt water. The key for us is to learn how to manage the fresh water resources we have and learn what those limits are in various arid or tropical regions of the world. The things that are occurring that are making water scarce are overdevelopment in arid regions, increases in population and lack of planning for infrastructure to keep up with population growth and shifting climate zones. With increases in population, we need to divide the fixed amount of fresh water available with each additional person and have a good understanding of that dynamic. In many cases proper pre-planning can allow additional reservoir capacity to store more fresh water, which requires acquiring land building dams, treatment facilities, pumping stations and water mains.

The United Nations conducted a study on the total amount of world water and it gave a breakdown of the freshwater resources. The study shows that 97.5 percent of the Earth's water is saltwater and 2.5 percent is fresh water. They went on to break down the 2.5 percent freshwater to show about 70 percent of the fresh water is trapped in ice and snow cover in mountainous regions and polar ice caps. About 29.7 percent or 30 percent is in groundwater and the remaining 0.3 percent is available to us in the form of fresh surface water in rivers, lakes and streams. We actually have access to a significant percentage of groundwater and all of our surface water resources. Many areas of the world remove water from the groundwater reserve through water wells. Other areas with access to rivers, lakes and streams draw water from those resources. Troubled areas of the world are the arid parts of the world that get very little rain. The small amounts of rain they get could be managed better, or desalinization plants could be used to desalinate seawater with reverse osmosis treatment systems. This is not a very good option for areas way from the coast but many coastal areas could use seawater as a freshwater source, but few are willing to invest in the technology and energy required to do so. Just down the street from my office, there are two manufacturing facilities that make desalinization equipment. Their biggest customers are in the Middle East where there has been a building boom in arid regions such as Dubai and Saudi Arabia. If large reservoirs were constructed, it would be important to make the reservoirs deep and narrow to minimize the surface area of the water. Large surface areas would contribute to evaporation when there are long dry periods. Construction of covered storage facilities or deep surface water reservoirs in arid regions would require a significant infrastructure investment for arid regions, but could help catch the few rains they get each year.

Other concerns are maintaining a minimum water flow in a stream or river to maintain the aquatic life and vegetation downstream. As more water is captured for fresh water reservoirs, it affects the economies and environment downstream. I can see this issue becoming more political as rivers that flow across international boundaries are dammed and the resources become more important and more political. It might not be too far fetched to see a war fought over water in the not too distant future.
Water uses

According to a U.S. Geological Survey conducted by the Environmental Protection Agency, 87 percent of the water use in the United States is for non-residential water use. This includes agricultural, industrial and commercial uses. Industrial water uses include water used for fabrication, processing, washing, food production, cooling, and it also includes water used by smelting facilities, petroleum refineries and industries producing chemical products and paper products.

Large water users include the industries that produce metals, wood and paper products, chemicals, gasoline and oils. Just about every manufactured product uses water during some part of the production process. Other industrial water uses include: water used for such purposes as washing, diluting, cooling or transporting a product. Some uses incorporate water into a product, or for sanitation needs large amounts of water is used to wash down equipment, rooms and floors within the manufacturing facility in food processing plants, meat packing plants and dairy processing plants. Other industries that use large amounts of water produce such commodities as paper pulp for a variety of uses like diapers, facial tissue newspapers and other paper products. Water is used in chemical plants, for condensing towers in refineries and petroleum plants, or cooling water for primary metal processing plants. Irrigation water use includes water used for growing crops, frost protection, chemical applications, weed control and other agricultural purposes, as well as water used to maintain areas such as parks and golf courses. Other uses include private water wells, livestock, aquaculture, fish hatcheries and mining activities. Electric power accounts for a significant use of water withdrawals. Most of the water is derived from surface water and used for once-through cooling at power plants. In a few cases, lakes are built specifically for cooling water for power plants. The water in these lakes cannot always be used for other fresh water uses because the lake level must be maintained at a minimum pool elevation to allow for cooling the power plants.

Figure 2 shows that only eight percent (8%) of all water use in the United States is residential, yet this is where many of the federal laws dealing with water conservation have been focused. We need to focus more on conserving water in the commercial agricultural and industrial segments discussed above; there is a huge potential for water savings in these industries.

Global warming

Global warming has been attributed to increases in greenhouse gases from a variety of sources including burning of fossil fuels from industrial applications such as coal-fired electric power plants and other industrial processes in industrialized parts of the world. The greenhouse gases are contributing to an increase in global temperatures, which are melting the polar ice caps. Some experts say that the hot and arid parts of the world will expand as global warming increases.
Population increases — Increases in population place an increased demand on freshwater resources as each person needs water for: drinking; bathing; growing the crops they consume; processing the goods they consume; and making power that they use. We need to seriously consider limiting development in arid regions of the world or, simply raise water rates to discourage development and to help pay for the more expensive infrastructure costs to support the developments in arid regions.

Water utility infrastructure

Water utilities have not kept up with the increase in population growth for construction of new reservoirs and water storage facilities. I served on the water and sewer board for my township for several years and the water and sewer boards often have their hands tied when it comes to setting water utility rates. The process of raising rates is very political and takes a lot of work to justify the slightest increase in rates because most water and sewer boards are supposed to be non-profit entities. Long-range plans are needed to identify infrastructure needs and costs. Research needs to be done to look for the ideal reservoir locations and pay for the development of the reservoirs and associated water treatment facility and water distribution piping infrastructure.

Underpriced water

The price of water charged by most water utility systems does not reflect the actual value of the water — the price that water utility purveyors typically charge reflects only the costs of collection, treatment and distribution of the water. But water also provides society with many environmental benefits and those economic costs are hidden. We have the technical ability to solve the problem, we just need to do some research and adjust the water utility rates to provide money for long-term infrastructure improvements, and educate the politicians and developers to limit development in arid regions. This can be done with pricing structures of the water utility rates. Water rates could be significantly increased in dry or arid regions to support infrastructure improvements and deter development. And water rates could be kept low in areas with surplus water supplies.

It would require a significant investment in water reservoir and utility system upgrades for many areas to increase their capacity by harvesting the rainfall, and most current water pricing structures do not support the needed construction and improvements.

Wasteful practices

There are many wasteful practices that can be attributed to water being very cheap. Since water is so cheap, there is not much of an incentive for people to conserve water. The biggest users of water are agricultural, commercial and industrial users. They account for about 87 percent of all freshwater use. Water is often used in inefficient ways in agricultural, commercial and industrial uses, but with water rates so cheap there is no financial incentive to develop more efficient water uses. In residential applications, we have reduced water flow at each fixture to flow rates that are dangerously low levels, and, in some cases, we have gone too far. Currently there are many areas where there are drainline transport problems where solids are plugging up existing drainlines when more efficient plumbing fixtures are being installed on older plumbing systems with large drains installed at the minimum slope. I have heard many stories of the significant increases in sewer cleaning costs in recent years since the advent of the 1992 Energy Policy Act and lower flow fixtures. (If you know of an example or a story related to replacement of plumbing fixtures and an increase in drain stoppages, send an e-mail. I would appreciate hearing about it. I will forward it to the appropriate people. There is a new coalition called the Plumbing Efficiency Research Coalition (PERC) that will be addressing some of these issues. I will forward any information I receive on drain line transport problems to them.)

The 'dry drains' phenomenon

Recent water conservation and green building design initiatives have focused simply on reducing water flows and seem to have ignored health safety issues related to plumbing. Some voluntary programs that give points for water conservations and some states have looked to further reduce water use in plumbing systems by 20 percent. Currently, many areas are experiencing drainline transport problems with the reductions that were mandated by the federal government in the 1992 energy policy act, which required reductions from 3.5 gallons per flush to 1.6 gallons per flush and other similar reductions for various plumbing fixtures. Proposed legislation will reduce the maximum flushing volume for water closets to 1.28 gallons per flush.

In our rush to adopt water-saving legislation and technologies in residential commercial buildings, many green industry folks, building managers and owners failed to consider the consequences of significant reductions in water flows, particularly wastewater flows through building drain pipes. Faced with water shortages from over- development in arid regions, and, in some cases, the effects of climate change and the associated challenges of regional droughts governments around the world are pushing for water use reductions and focusing mostly on residential and commercial applications. They are not putting as much pressure on the biggest offenders which are the agricultural and industrial users. The unintended consequences of these residential and commercial water use reductions have been a significant rise in blocked drains and sewage overflows in buildings.

Plumbing and appliance manufacturers have begun to design and produce a wide range of water-saving appliances and fixtures, including dual-flush toilets, waterless urinals and low-flow showerheads.
There has been no comprehensive research done to verify if these new low-flow fixtures and appliances in conjunction with waterless urinals and greywater systems are creating health and safety problems from drain blockages in the name of water conservation. Continual reductions of water flows in the plumbing systems of buildings, however, have resulted in the phenomenon known as "dry drains," where drain flows may be insufficient to effectively transport solids down the drain. I have always said, "There needs to be enough water in the river to float the boats." If we reduce the drainage flow volume and leave the drain pipes the same size then the hydraulic depth of flow will be less. In older buildings there will likely be more problems than in newer buildings. In new buildings drain sizes can be designed smaller and the minimum slopes can be designed with greater slopes. The situation is further compounded with a trend to extract greywater from plumbing systems for reuse.

Dry drains is a relatively new phenomenon as it has only started to become a problem since the advent of global water conservation efforts and it seems to be more than just a drainline transport issue. Dry drains are a result of continual efforts to conserve water in many ways. Newer technologies such as high efficiency toilets (HETs) non-water using urinals and high efficiency urinals (HEUs), lower flow rate faucets and increasingly efficient water consuming appliances, reduce the amount of water discharged into sanitary waste systems. To compound the issue, when a greywater reuse system collects discharged water from lavatory basins, clothes washers, bathtubs and shower fixtures for reuse — for flushing water closets or sub-surface irrigation purposes — it is taking water away from the sanitary drainage system. (See Figure 3 and 4) The wastewater flow needs to be maintained at a level to keep the hydraulic depth of flow sufficient for proper water velocities and drain line transport.

Recent water use reduction efforts are creating an unhealthy environment and a non-sustainable condition for drainline transport, which is a serious health and safety issue. The arbitrary reductions in fixture flow rates without any technical justification for these reductions is placing drainline transport of solids wastes in serious jeopardy. Water use reductions seem to be out of balance with reality. The arbitrary 10 and 20 percent increment reductions in water usage seem to have no scientific basis. There has been no research into the water use reductions and the minimum amount of waste required for proper drainline transport. Research is needed to address the minimum water flow required for proper drain line transport without reverting to simple math for water savings that does not reflect the multiple flushes with poor performing fixtures and actual conditions in the drains. There are unique and dangerous hazards with arbitrarily reducing water consumption in plumbing fixtures without considering the consequences.

Studies show the reduction in drainline transport will be significant when reducing a 1.6 gallon per flush water closet 20 percent to flush with 1.28 gallons per flush in order to meet water use reduction quotas. This will reduce the drainline transport from about 36 feet average transport distance to about 23 feet on average. (See Figure 5). With lower flows, it will most likely be a challenge for larger horizontal buildings and drain blockages will become more common. In high-rise vertical buildings, it should be relatively easy to load a stack and have enough additional uses of water in the stack to provide sufficient drainline transport. In a remote restroom in a large horizontal building there will be drainline transport problems and an increase in drainline blockages. The cost of cleaning the drain lines, and cleaning up the spilled sewage from drainline blockages, and the increased health risks associated with the spread of bacteria and mold from drainline blockages, needs to be weighed against the few gallons of water that will be saved. The reality is, as drains block up on a regular basis people will be trained to flush twice or three times to ensure the waste goes down the drain. (I do not know what the final outcome will be, but I do know we need to research the issues and make sound decisions instead of arbitrarily picking percentages for water reductions.)

Horizontal branch connections

There has been research done overseas that addressed the fact that when drainline branches are connected horizontally they allow waste to divert or back-up into each branch as the waste flows by each branch, which lowered the hydraulic depth of flow in the main as the waste flowed past each branch. This illustrated the need to consider code requirements to roll up branches up on a 45-degree angle to prevent the waste from entering the branches and further reducing the drainline transport capacity for drains that are already at or near minimum flow rates for proper drainline transport for ultra-low flow fixtures. The research also confirmed a drain should not drop from directly overhead into a horizontal drain. Waste usually would be directed upstream from a vertical stack dropping into a horizontal drain. This allowed solids to settle in the horizontal pipe upstream of the connection and reduced the hydraulic depth of flow because of the diversion of waste. The stack should use a 45 and a Y fitting rolled to allow a rolled up 45-degree entry into the horizontal drain.

Some of these are already required in our codes and we should be more aware of using directional drainage pattern fittings as water closet flow rates are further reduced. An interesting thing of note is the fact that the minimum slope in Australia is 1.67 percent and in the U.S. the minimum slope is 1.0104 percent (1/8 inch per foot) because they generally use smaller drain pipes.

Water Pricing.

The solution is to increase the price of water. Water needs to be priced closer to its real value. Our goal should be to find ways of calculating the true economic value of water and other resources so this can be factored into social costs at the community, national, and international levels. Increasing water rates should encourage greater water conservation.

When people recognize the true economic value of water, there is an incentive to invest in products and technology that support efficient water use without mandating flows that are unrealistically low and do not allow the plumbing system to function as intended.

According to the United Nations Food and Agriculture Organization, more than eight billion people will inhabit the earth by the year 2030, requiring 60 percent more food and a significant increase in water over today's capacities. Increased water rates will give us the funds to support the needed infrastructure improvements and provide incentives for water conservation. I also believe we should mandate research at technical data before allowing any politician to reduce water and waste flows to unrealistic levels.

Ron George is president of Ron George Design & Consulting Services. He also maintains a website dedicated to scald prevention: www.ScladPrevention.org and a website dedicated to Prevention of Legionella Bacteria in building water systems. Email Ron at info@Plumb-TechLLC.com or call 734-755-1908.

Cost Impact: Will not increase the cost of construction
This will not increase the cost of construction by allowing existing fixtures to remain in place when documentation is provided showing problems with low-flow fixtures on existing larger, minimally sloped drain lines.

EB 54-15 : 609.2-GEORGE5137

EB 55-15

705.1.5

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Delete without substitution:

~~**705.1.5 Dining areas.** An accessible route to raised or sunken dining areas or to outdoor seating areas is not required provided that the same services and decor are provided in an accessible space usable by any occupant and not restricted to use by people with a disability.~~

Reason: There is a series of proposals intended to coordinate the provisions in the first and second options in the IEBC. This section was deleted from Chapter 4 (when it was IBC Chapter 34) by E95-01. All alterations should be affected by the building code in the same manner. Providing an exception for dining areas is inconsistent with the purpose and intent of the code. An existing restaurant would be able to use technical infeasibility and the 20% maximum cost for the accessible route exceptions.
In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification and coordination of current requirements; therefore, there is no impact on the cost.

EB 55-15 : 705.1.5-KULIK3349

EB 56-15

705.1.13

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

~~**705.1.13**~~**705.1.1** **Extent of application.** An *alteration* of an existing ~~element, space, or area of a~~ *facility* shall not impose a requirement for greater accessibility than that which would be required for new construction. *Alterations* shall not reduce or have the effect of reducing accessibility of a *facility* or portion of a *facility*.

Reason: The intent of the verbiage change is coordination between Section 410.3 and 705.1.13. The struck words are covered in the definition of facility. The relocation to first in the list is to place this allowance in a more prominent position, similar to Chapter 4. If accessibility is not required in new construction, you would not need to go through any of the list following.
In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification of current requirements; therefore, there is no impact on the cost.

EB 56-15 : 705.1.13-KULIK3405

EB 57-15

802.1

Proponent: David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Subcommittee, National Council of Structural Engineers Associations (dbonowitz@att.net)

2015 International Existing Building Code

Delete without substitution:

~~**802.1 General.** *Alteration* of buildings classified as special use and occupancy as described in the *International Building Code* shall comply with the requirements of Section 801.1 and the scoping provisions of Chapter 1 where applicable.~~

Reason: This proposal improves clarity and makes application and enforcement easier.
"Special use and occupancy" buildings are addressed in IBC Chapter 4. IEBC Sections 902 and 1002 address these special occupancies in existing buildings undergoing Level 3 Alteration or Change of Occupancy. But this provision in Section 802 makes only an unnecessary reference to Section 801, and a vague reference to Chapter 1. In fact, Chapter 1 has no special "scoping provisions" for these occupancies (see Section 101.2).

If special provisions for any of these occupancies is needed in a Level 2 Alteration project, the place to make those requirements would be here in Section 802, not in Chapter 1. Currently, there are no such requirements, so Section 802 may be deleted without loss of substance.

Alternatively, Section 802 could be retained, parallel to Sections 902 and 1002, but its content would be changed to say only "Reserved."

Cost Impact: Will not increase the cost of construction
The proposal is an administrative or editorial clarification only, with no expected substantive impact.

EB 57-15 : 802.1-BONOWITZ5189

EB 58-15

804.2.2

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

804.2.2 Groups A, B, E, F-1, H, I, M, R-1, R-2, ~~R-4,~~ S-1 and S-2. In buildings with occupancies in Groups A, B, E, F-1, H, I, M, R-1, R-2~~, R-4~~, S-1 and S-2, work areas that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with automatic sprinkler protection where all of the following conditions occur:

1. The *work area* is required to be provided with automatic sprinkler protection in accordance with the *International Building Code* as applicable to new construction; and
2. The *work area* exceeds 50 percent of the floor area.

    Exception: If the building does not have sufficient municipal water supply for design of a fire sprinkler system available to the floor without installation of a new fire pump, work areas shall be protected by an automatic smoke detection system throughout all occupiable spaces other than sleeping units or individual dwelling units that activates the occupant notification system in accordance with Sections 907.4, 907.5 and 907.6 of the *International Building Code*.

Reason: This is a single exit building, and given the limit on the number of residents in Group R-4, will not ever have more than 30, therefore, Group R-4 should not be included since the requirement would never be applicable.
The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This eliminates a requirement that is never applicable.

EB 58-15 : 804.2.2-BALDASSARRA4284

EB 59-15

804.2.2

Proponent: Adolf Zubia, IAFC Fire & Life Safety Section, representing IAFC Fire & Life Safety Section

2015 International Existing Building Code

Revise as follows:

804.2.2 Groups A, B, E, F-1, H, I, M, R-1, R-2, R-4, S-1 and S-2. In buildings with occupancies in Groups A, B, E, F-1, H, I, M, R-1, R-2, R-4, S-1 and S-2, work areas that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with automatic sprinkler protection where all of the following conditions occur:

1. The *work area* is required to be provided with automatic sprinkler protection in accordance with the *International Building Code* as applicable to new construction; and
2. The *work area* exceeds 50 percent of the floor area.

    Exception: If the building does not have sufficient municipal water supply for design and installation of ~~a fire~~an automatic sprinkler system available~~ to~~ at the ~~floor without installation of a new fire pump~~site, work areas shall be protected by an automatic smoke detection system throughout all occupiable spaces other than sleeping units or individual dwelling units that activates the occupant notification system in accordance with Sections 907.4, 907.5 and 907.6 of the *International Building Code*.

Reason: This proposal is submitted by Fire and Life Safety Section of the International Association of Fire Chiefs.
The intent of this code change is to address the concern that the municipal water supply must be available at the floor level where the work area is located without the installation of a fire pump. The determining factor for an automatic fire sprinkler system should be whether there is adequate water, not whether a fire pump may be required when achieving an acceptable level of public safety.

This code change revises the text so that the adequacy of a municipal water supply at the building site is the determining factor. When the work area exceeds 50% of the floor area and a fire sprinkler system would be required. The possible installation of a fire pump to supplement the water flow and pressure is not the deciding factor when providing fire safety to the work area.

The revision to this exception will allow existing buildings to comply with this section by installing a smoke detection system in lieu of the fire sprinkler system where the volume and quantity of water at the site is not adequate to fulfill the fire sprinkler system requirements.

Cost Impact: Will increase the cost of construction
This code change will increase the cost of construction. The cost of fire pump will most likely exceed the cost of a smoke detection system. However, the same fire pump should be adequate for future fire sprinkler system installations in the building. Therefore, the fire pump will be a one-time cost for the building whereas future alterations would require the installation of additional smoke detection systems.

EB 59-15 : 804.2.2-ZUBIA4330

EB 60-15

804.2.3

Proponent: Adolf Zubia, IAFC Fire & Life Safety Section, representing IAFC Fire & Life Safety Section

2015 International Existing Building Code

Revise as follows:

804.2.3 Windowless stories. Work located in a windowless story, as determined in accordance with the *International Building Code*, shall be sprinklered where the work area is required to be sprinklered under the provisions of the *International Building Code* for newly constructed buildings and the building site has a sufficient municipal water supply ~~without~~for the design and installation of ~~a new fire pump.~~an automatic sprinkler system.

Reason: This proposal is submitted by Fire and Life Safety Section of the International Association of Fire Chiefs.
The intent of this code change is to address the concept that the minicipal water supply must be available at the floor level where the work area is located without the installation of a fire pump. The determining factor for an automatic fire sprinkler system should be whether there is adequate water, not whether a fire pump may be required when achieving an acceptable level of public safety.

This code change revises the text so that the adequacy of a municipal water supply at the building site is the determining factor. When the work area exceeds 50% of the floor area and a fire sprinkler system would be required. The possible installation of a fire pump to supplement the water flow and pressure is not the deciding factor when providing fire safety to the work area.

Cost Impact: Will increase the cost of construction
The cost of fire pump will be added to the cost of the fire sprinkler system. However, the same fire pump should be adequate for future fire sprinkler system installations in the building, therefore, the fire pump will be a one-time cost for the building and future alterations can take advantage of the fire pump supply.

EB 60-15 : 804.2.3-ZUBIA4554

EB 61-15

804.2.4

Proponent: Adolf Zubia, IAFC Fire & Life Safety Section, representing IAFC Fire & Life Safety Section

2015 International Existing Building Code

Revise as follows:

804.2.4 Other required automatic sprinkler systems. In buildings and areas listed in Table 903.2.11.6 of the *International Building Code*, *work areas* that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with an automatic sprinkler system under the following conditions:

1. The *work area* is required to be provided with an automatic sprinkler system in accordance with the *International Building Code* applicable to new construction; and
2. The building site has sufficient municipal water supply for design and installation of an automatic sprinkler system ~~available to the floor without installation of a new fire pump~~.

Reason: This proposal is submitted by Fire and Life Safety Section of the International Association of Fire Chiefs.
The intent of this code change is to address the concern that the minicipal water supply must be available at the floor level where the work area is located without the installation of a fire pump. The determining factor for an automatic fire sprinkler system should be whether there is adequate water at the site, not whether a fire pump may be required when achieving an acceptable level of public safety.

This code change revises the text so that the adequacy of a municipal water supply at the building site is the determining factor. When the work area exceeds 50% of the floor area and a fire sprinkler system would be required. The possible installation of a fire pump to supplement the water flow and pressure would not be the deciding factor when providing fire safety to the work area.

Cost Impact: Will not increase the cost of construction
The cost of fire pump will be added to the cost of the fire sprinkler system. However, the same fire pump should be adequate for future fire sprinkler system installations in the building, therefore, the fire pump will be a one-time cost for the building and future alterations.

EB 61-15 : 804.2.4-ZUBIA4550

EB 62-15

804.4.1.7

Proponent: Carl Baldassarra, P.E., FSFPE, Chair,Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

804.4.1.7 Group R-4. A manual fire alarm system shall be installed in *work areas* of Group R-4 residential care/ assisted living facilities as required by Section 1103.7.7 of the *International Fire Code* for existing Group R-4 occupancies.

Reason: This proposal is a clarification of requirements and correlation of requirements. Smoke alarms are addressed in Section 804.3.

There is a Group B proposal to remove this requirement from new Group R-4s to have fire alarm systems in IBC/IFC Section 907.2.10 and from mandatory retrofit from IFC 1103.7.7. If this is successful, this section will also be deleted. If that is not approved, this clarification is needed.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal is a clarification only.

EB 62-15 : 804.4.1.7-BALDASSARRA4285

EB 63-15

805.3, 805.3.1, 805.3.1.1, Table 805.3.1.1(1) (New), Table 805.3.1.1(2) (New)

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

805.3 Number of exits. The number of exits shall be in accordance with Sections 805.3.1 through 805.3.3.

805.3.1 Minimum number. Every story utilized for human occupancy on which there is a *work area* that includes exits or corridors shared by more than one tenant within the *work area* shall be provided with the minimum number of exits based on the occupancy and the occupant load in accordance with the *International Building Code*. In addition, the exits shall be permitted to comply with Sections 805.3.1.1 and 805.3.1.2.

805.3.1.1 Single-exit buildings. ~~Only one exit is required from spaces, of the following occupancies:~~ A single exit or access to a single exit shall be permitted from spaces, any story or any occupied roof where one of the following exist:

1. The occupant load, number of dwelling units and exit access travel distance do not exceed the values in Table 805.3.1.1(1) or 805.3.1.1(2).
~~1. In Group A, B, E, F, M, U and S occupancies, a single exit is permitted in the story at the level of exit discharge when the occupant load of the story does not exceed 50 and the exit access travel distance does not exceed 75 feet (22 860 mm).~~
~~2. Group B, F-2, and S-2 occupancies not more than two stories in height that are not greater than 3,500 square feet per floor (326 m^2), when the exit access travel distance does not exceed 75 feet (22 860 mm). The minimum fire-resistance rating of the exit enclosure and of the opening protection shall be 1 hour.~~
~~3. Open parking structures where vehicles are mechanically parked.~~
~~4. In Group R-4 occupancies, the maximum occupant load excluding staff is 16.~~
~~5. Groups R-1 and R-2 not more than two stories in height, when there are not more than four dwelling units per floor and the exit access travel distance does not exceed 50 feet (15 240 mm). The minimum fire-resistance rating of the exit enclosure and of the opening protection shall be 1 hour.~~
~~6. In multilevel dwelling units in buildings of occupancy Group R-1 or R-2, an exit shall not be required from every level of the dwelling unit provided that one of the following conditions is met:~~
~~6.1. The travel distance within the dwelling unit does not exceed 75 feet (22 860 mm); or~~
~~6.2. The building is not more than three stories in height and all third-floor space is part of one or more dwelling units located in part on the second floor; and no habitable room within any such dwelling unit shall have a travel distance that exceeds 50 feet (15 240 mm) from the outside of the habitable room entrance door to the inside of the entrance door to the dwelling unit.~~
2. In Group R-1 or R-2, non-sprinklered buildings, individual single-story or multistory dwelling or sleeping units shall be permitted to have a single exit or access to a single exit from the dwelling or sleeping unit provided one of the following criteria are met:
2.1. The occupant load is not greater than 10 and the exit access travel distance within the unit does not exceed 75 feet (22 860 mm).
2.2. The building is not more than three stories in height; all 3rd story space is part of dwelling with an exit access doorway on the 2nd story; and the portion of the exit access travel distance from the door to any habitable room within any such unit to the unit entrance doors shall not exceeds 50 feet (15 240 mm).
~~7. In Group R-2, H-4, H-5 and I occupancies and in rooming houses and child care centers, a single exit is permitted in a one-story building with a maximum occupant load of 10 and the exit access travel distance does not exceed 75 feet (22 860 mm).~~
~~8. In buildings of Group R-2 occupancy that are equipped throughout with an automatic fire sprinkler system, a single exit shall be permitted from a basement or story below grade if every dwelling unit on that floor is equipped with an approved window providing a clear opening of at least 5 square feet (0.47 m2) in area, a minimum net clear opening of 24 inches (610 mm) in height and 20 inches (508 mm) in width, and a sill height of not more than 44 inches (1118 mm) above the finished floor.~~
3.~~9.~~ In buildings of Group R-2 occupancy of any ~~height~~number of stories and with not more than four dwelling units per floor; served by an interior exit stairway with a smokeproof enclosure in accordance with Sections 909.20 and 1023.11 of the *International Building Code* or an exterior exit stairway ~~outside stairway as an exit; and with such exit located within 20 feet (6096 mm) of travel to the entrance doors to all dwelling units served thereby.~~where the portion of the exit access travel distance from the dwelling unit entrance door to the exit is a maximum of 20 feet (6096 mm).
~~10. In buildings of Group R-3 occupancy equipped throughout with an automatic fire sprinkler system, only one exit shall be required from basements or stories below grade.~~

TABLE 805.3.1.1(1)
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, First or second story above grade plane	R-2[2]	4 dwelling units	50 feet
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot=3048
NP=Not Permitted.
NA=Not Applicable.
a. Group R-2, non-sprinklered and provided with emergency escape and rescue openings in accordance with Section 1030 of the *International Building Code*.

TABLE 805.3.1.1(2)
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY	OCCUPANCY	MAXIMUM OCCUPANTS LOAD PER STORY	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
First story above or below grade plane	B, F-2, S-2[a]	35	75

Second story above grade plane	B, F-2, S-2[a]	35	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8mm.

NP=Not Permitted

NA=Not Applicable

a. The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet (30 480mm).

Reason: The current provisions are not keeping up with the allowances and changes in language for new buildings. This could be interpreted as existing buildings being more restrictive than new construction. Many items match IBC new construction allowances rather than allowing for additional options. To keep items correlated over time, the change to Section 805.3.1 is to allow for any option permitted in new construction. The reasons for the changes to Section 805.3.1.1 are found below. What can be put in tables similar to Table 1006.3.2(1) and Table 1006.3.2(2) has been made so to improve correlation and consistency over time.
Item 1 is permitted for new construction, IBC Table 1006.3.2(2); therefore, it is proposed to be deleted.

Item 2 - This is the new item 1 and the table. The area is translated to occupant load (3500 sq.ft/100 sq.ft. per occupant) and added in a table. This is consistent with the approach for new construction and should increase consistency over time. The last sentence is addressing exit stairway enclosures, which are already addressed in stairway provisions. Note a in the table is so that it is understood that this allowance will not override the allowance for 100 feet in open parking that is permitted in new construction.

Item 3 is for mechanical parking garages is permitted in IBC Section 1006.3.2 Item 3; therefore, it is proposed to be deleted.

Item 4 for Group R-4 is technically incorrect with the language using occupant load rather than number of residents; in addition a single exit is permitted in IBC Section 1006.3.2 Item 4; therefore, it is proposed to be deleted.

Item 5 is based on old travel distance allowances for single exit apartment buildings – so this limitation should be for only non-sprinklered buildings. Group R-1 does not typically have dwelling units, so this is not logical for a hotel. This item should be deleted in favor new construction allowances in Table 1006.3.2(1) for apartment buildings. The last sentence is addressing exit stairway enclosures, which are already addressed in stairway provisions; therefore, it is proposed to be deleted.

Item 6 is more restrictive than the multi-story dwelling units permitted in Section 1006.3.2, Item 5. Group R-1 does not typically have dwelling units, so terminology is not logical for a hotel. If this is needed for large sleeping unit, this allowance should be added to new construction in IBC. For sprinklered buildings this item should be deleted in favor new construction allowances in Section 1006.3.2 Item 5 for multi-story dwelling units. The revised item 2 is limited to non-sprinklered buildings and the terminology has been updated. The occupant load was added to be consistent with the previous limit on dwelling units and travel distance before sprinklers were added (2003 IBC Section 1013.3 and 1014.1). There is no intent to change to the technical criteria.

Item 7 – Rooming houses a limiting factor for Group R-2 in new construction – current text would apply this to all Group R-2. In addition, R-2 congregate residences are now 16 or more. To fit into the maximum of 10 occupants, you are a Group R-3 now. Group R-3 has always had single exit with no travel distance, so this would be more restrictive than new sprinklered or existing not sprinklered. Child care centers could be read as E and I-4. Group I-4 is part of Group I and is the same for new construction. This requirement exceeds Group E requirements for new construction and should not be applicable. The provisions for I, H-4 and H-5 match new construction in Table 1006.3.2(2). Therefore, it is proposed to be deleted.

Item 8 is addressed for new construction in Table 1006.3.2(2), including the emergency escape window requirement; therefore, it is proposed to be deleted.

Item 9 (new Item 3) allows for a different travel distance measurement and additional number of stories for apartment buildings with 4 of fewer per story. Since this is unlimited height, this would apply to sprinklered and non-sprinklered existing buildings. The change is intended to be editorial only to match new terminology.

Item 10 is addressed already permitted for new construction in Section 1006.3.2 Item 3; therefore, it is proposed to be deleted.

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction. The intent of the proposal is coordination and an update to new terminology. It is not intended to increase requirements.

EB 63-15 : 805.3.1-KULIK4904

EB 64-15

805.3.1.1

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

805.3.1.1 Single-exit buildings. Only one exit is required from buildings and spaces of the following occupancies:

1. In Group A, B, E, F, M, U and S occupancies, a single exit is permitted in the story at the level of exit discharge when the occupant load of the story does not exceed 50 and the exit access travel distance does not exceed 75 feet (22 860 mm).
2. Group B, F-2, and S-2 occupancies not more than two stories in height that are not greater than 3,500 square feet per floor (326 m^2), when the exit access travel distance does not exceed 75 feet (22 860 mm). The minimum fire-resistance rating of the exit enclosure and of the opening protection shall be 1 hour.
3. Open parking structures where vehicles are mechanically parked.
4. ~~In Group R-4 occupancies, the maximum occupant load excluding staff is 16.~~
4. Groups R-1 and R-2 not more than two stories in height, when there are not more than four dwelling units per floor and the exit access travel distance does not exceed 50 feet (15 240 mm). The minimum fire-resistance rating of the exit enclosure and of the opening protection shall be 1 hour.
5. In multilevel dwelling units in buildings of occupancy Group R-1 or R-2, an exit shall not be required from every level of the dwelling unit provided that one of the following conditions is met:
   5.1. The travel distance within the dwelling unit does not exceed 75 feet (22 860 mm); or
   5.2. The building is not more than three stories in height and all third-floor space is part of one or more dwelling units located in part on the second floor; and no habitable room within any such dwelling unit shall have a travel distance that exceeds 50 feet (15 240 mm) from the outside of the habitable room entrance door to the inside of the entrance door to the dwelling unit.
6. In Group R-2 occupancies consisting of sleeping units, H-4, H-5 and I occupancies ~~and in rooming houses and child care centers~~, a single exit is permitted in a one-story building with a maximum occupant load of 10 and the exit access travel distance does not exceed 75 feet (22 860 mm).
7. In buildings of Group R-2 occupancy that are equipped throughout with an automatic fire sprinkler system, a single exit shall be permitted from a basement or story below grade if every dwelling unit on that floor is equipped with an approved window providing a clear opening of at least 5 square feet (0.47 m^2) in area, a minimum net clear opening of 24 inches (610 mm) in height and 20 inches (508 mm) in width, and a sill height of not more than 44 inches (1118 mm) above the finished floor.
8. In buildings of Group R-2 occupancy of any height with not more than four dwelling units per floor; with a smokeproof enclosure or outside stairway as an exit; and with such exit located within 20 feet (6096 mm) of travel to the entrance doors to all dwelling units served thereby.
9. In buildings of Group R-3 occupancy equipped throughout with an automatic fire sprinkler system, only one exit shall be required from basements or stories below grade.

Reason: The terminology is old and many in the list are addressed by new construction. IEBC Section 805.3.1. already says any single exits scenarios in IBC are permitted here. The CTC Committee scope limits them to Items 4 and 7.

- Item 4 – Group R-4 is already addressed in new, so this is not needed. In addition, Group R-4 is based on the number of care recipients, not the occupant load, so the terminology is incorrect. If it is kept it should match the text in new construction – IBC Section 1006.3.2, Item 4. " Group R-3 and R-4 occupancies shall be permitted to have one exit or access to a single exit." However, to keep consistency over time, it is preferred that this be deleted.
- Item 7 – In new provisions this limit is for Group R-2 with sleeping units. This could be read to be all Group R-2. Child care centers could be read to be both Group E and I-4. In new construction this occupant load and travel distance is Group I-4.

The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This correlates IEBC with IBC for this extent of an alteration.

EB 64-15 : 805.3.1.1-BALDASSARRA4286

EB 65-15

906.2

Proponent: Dominic Marinelli, representing United Spinal Association (dmarinelli@accessibility-services.com)

2015 International Existing Building Code

Revise as follows:

906.2 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered, the requirements of Section 1107 of the *International Building Code* for Type B units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being altered.

> ~~**Exception:** Group I-1, I-2, R-2, R-3 and R-4 dwelling or sleeping units where the first certificate of occupancy was issued before March 15, 1991 are not required to provide Type B dwelling or sleeping units.~~

Reason: The purpose of this code change proposal is to eliminate a conflict in the IEBC between the requirements in the Prescriptive and Work Area methods. The deletion of the exception to Section 906.2 would coordinate with Section 410.8.8. The intent is to coordinate the requirements for Type B dwelling units within the options available in the IEBC.
In the prescriptive method, Section 906.2 requirement is found in the 2nd sentence of Section 410.8.8. (The first sentence matches IEBC Section 1105.4).

410.8.8 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the International Building Code for Type B units apply only to the quantity of the spaces being added.
Where Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered and where the work area is greater than 50 percent of the aggregate area of the building, the requirements of Section 1107 of the International Building Code for Type B units apply only to the quantity of the spaces being altered.

United Spinal does not support the exception to Section 906.2, and believes it should be deleted for several reasons.

The current exception to Section 906.2 includes a March 15, 1991 as a trigger date. This was inserted as a coordination item with Fair Housing Act (FHA) requirements. However, this is not quite correct. It will be extremely difficult for code officials to determine as the first certificate of occupancy date is different than the date of First Occupancy as defined by the Fair Housing Accessibility Guidelines (i.e., the date that tenants first occupied their apartments). Adding a trigger date would require additional research by the architect or code official to determine if these code requirements were applicable or not. While the jurisdiction does hold records of certificate of occupancy, they do not information on actual occupancy of a space.

In addition, even if this was a match, including the trigger date of the FHA could significantly reduce the number of buildings where these basic adaptability features are required. Remember that these are already major alterations, not minor fixes. In instances where existing structure would prevent compliance with Type B features, permit applicants can take advantage of the technical infeasibility exception offered in the IEBC. It should be noted that Section 410.7 Exception 5 and 705.2 Exception 5 already exempts the building from improving the accessible route, so this requirement is only for the element being altered.

The intent of the original requirement was to require adaptable Type B features in Level III alterations. This requirement will allow for basic adaptations to be made in the Type B unit in the future (but will not require accessible turning spaces, removable base cabinets, maneuvering clearance at bedroom and bathroom doors, or the installation of grab bars).

Cost Impact: Will not increase the cost of construction
This proposal as it will match current language in Section 410.8.8.

EB 65-15 : 906.2-ROETHER5445

EB 66-15

906.3 (New)

Proponent: Gene Boecker, representing Code Consultants, Inc. (geneb@codeconsultants.com)

2015 International Existing Building Code

Add new text as follows:

906.3 **Accessible means of egress** At least one accessible means of egress shall be provided from each story of each work area to the exit discharge in accordance with the requirements of Section 1009 of the *International Building Code* unless technically infeasible.

Exceptions:

1. Historic Buildings.
2. Buildings three stories or less in height where the building does not require an automatic sprinkler system throughout in accordance with Section 903 of the *International Building Code.*

Reason: The proposal seeks to add a requirement for an accessible means of egress (AMOE) in existing buildings. Changes are being proposed only for buidlings with a Level 3 alteration. This means that at least 50 percent of the buidling is involved in an alteration, based on the descriptions in Chapter 5. The proposal also includes langauge to exempt full compliance for the AMOE where it is technically infeasible. This might be the case where the elevator would normally be required as a part of the AMOE and the hoistway shaft would need to be modified on floors beyond the work area or where such an alteration could possibly leave the building structurally unsound. Section 906.1, within the same main Section where this new code language would be located, requires the alteration to comply with Section 705. Section 705.1 already addresses the concept of technically infeasible and how it works within existing buildings.
Two exceptions are offered to this new section. The first exempts historic buildings. The complexity with which these buildings must be addressed means that it is not practical to provide an AMOE in addition to the general requirements for acessibility in an historic building. The second exception recognizes the potential costs associated with trying to create an AMOE in smaller existing buildings. If the building is small enough that automatic fire sprinklers are not required, then the creation of fire rated areas of refuge could be a considerable cost imposition. However, if the smaller buidling is requried to be protected throughout with an automatic fire sprinkler system, then areas of refuge are not required and the existing and/or new stairways can be used as part of the AMOE.

The ICC is responsible for establishing what the minimum level of safety is for new and existing buildings. The codes contain requirements for "access" for everyone, including the disabled, for both new and existing buildings. However, for existing buildings, the codes seem lacking in concern for the safety of those in the disabled community with regard to building "egress." With over 25 years of the ADA and many more years of accessibility provisions in the legacy codes, it is now time that the ICC recognize this need and include language regarding accessible means of egress for existing buildings. To do otherwise is to ignore the life safety of an entire group of the public, as well as employees, in existing buildings undergoing substantial renovation.

Cost Impact: Will increase the cost of construction
The degree of cost increase is variable. For some Level 3 alterations, the cost would be neglible if not nonexistent since a larger building will be protected throughout with an automatic fire sprinkler system, the elevator will be required to be on standby power and tactile exit signs would be required. In some instances the cost could be greater, depending on where the alteration work areas are located within the buidling. Therefore, it is not possible to offer a specific range of what the possible cost increase could be. The exceptions included in the proposal and the concept of "technically infeasible" are also options which will temper any substantial costs. Additionally, the question must be asked what the apprpriate cost for the lives that can be saved if an accessible means of egress is provided.

EB 66-15 : 906.3 (New)-BOECKER5665

EB 67-15

Table 1012.4, Table 1012.5

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, Code Technology Committee, representing Code Technology Committee (CTC@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

TABLE 1012.4
MEANS OF EGRESS HAZARD CATEGORIES

RELATIVE HAZARD	OCCUPANCY CLASSIFICATIONS
1 (Highest Hazard)	H
2	I-2, I-3, I-4
3	A, E, I-1, M, R-1, R-2, R-4 Condition 2
4	B, F-1, R-3, R-4 Condition 1, S-1
5 (Lowest Hazard)	F-2, S-2, U

TABLE 1012.5
HEIGHTS AND AREAS HAZARD CATEGORIES

RELATIVE HAZARD	OCCUPANCY CLASSIFICATIONS
1 (Highest Hazard)	H
2	A-1, A-2, A-3, A-4, I, R-1, R-2, R-4 Condition 2
3	E, F-1, S-1, M
4 (Lowest Hazard)	B, F-2, S-2, A-5, R-3, R-4 Condition 1, U

Reason: The change in the table is consistent with the identification of different levels of hazards for the residents in a Group R-4. The conditions are based on the egress capability of the residents. Group R-4 Condition 1 is more consistent with Group R-3. Group R-2 Condition 2 is closer to a Group I-1.
The ICC Code Technology Committee (CTC) has just completed its 10th year. The ICC Board has decided to sunset the CTC. The sunset plan includes re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). The two remaining CTC Areas of Study are Care Facilities and Elevator Lobbies/WTC Elevator issues. This proposal falls under the Care Facilities Area of Study. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website at: http://www.iccsafe.org/cs/CTC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This is a reduction in requirements for Group R-4 Condition 1.

EB 67-15 : T1012.4-BALDASSARRA4287

EB 68-15

Part I:
1106 (New), 1106.1.1 (New), 1106.1.2 (New), 1106.1 (New), 1401.2.3.1 (New), 402.6 (New)
Part II:
423, 423.1.1, 423.4, 423.4.2 (New), 423.4.1 (New)

THIS IS A 2 PART CODE CHANGE PROPOSAL. BOTH PARTS WILL BE HEARD BY THE IEBC COMMITTEE. PLEASE SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

Proponent: Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org); Marc Levitan, National Institute of Standards and Technology (marc.levitan@nist.gov)

Part I

2015 International Existing Building Code

Add new text as follows:

SECTION1106 Storm Shelters

1106.1.1 Required occupant capacity The required occupant capacity of the storm shelter shall include all the buildings on the site, and shall be the greater of the following:

1. The total occupant load of the classrooms, vocational rooms and offices in the Group E occupancy.
2. The occupant load of any indoor assembly space that is associated with the Group E occupancy.

Exceptions:

1. Where an addition is being added on an existing Group E site, and where the addition is not of sufficient size to accommodate the required occupant capacity of the storm shelter for all the buildings on the site, the storm shelter shall at a minimum accommodate the required capacity for the addition.

2. Where approved by the code official, the required occupant capacity of the shelter shall be permitted to reduced by the occupant capacity of any existing storm shelters on the site.

1106.1.2 Location Storm shelters shall be located within the buildings they serve, or shall be located where the maximum distance of travel from at least one exterior door of each building to a door of the shelter serving that building does not exceed 1000 ft. (304.8 m)

1106.1 Addition to a Group E occupancy. Where an addition is added to an existing Group E Occupancy located in an area where the shelter design wind speed for tornados is 250 mph in accordance with Figure 304.2(1) of ICC500 and the occupant load in the addition is 50 or more, the addition shall have a storm shelter constructed in accordance with ICC500.

Exceptions:

1. Group E day care facilities.
2. Group E occupancies accessory to places of religious worship.
3. Additions meeting the requirements for shelter design in ICC500.

1401.2.3.1 Additions to Group E facilities. For additions to Group E occupancies, storm shelters shall be provided in accordance with Section 1106.1.

402.6 Additions to Group E facilities. For additions to Group E occupancies, storm shelters shall be provided in accordance with Section 1106.1.

Part II

2015 International Building Code

Revise as follows:

SECTION 423 STORM SHELTERS

423.1.1 Scope. This section applies to the construction of storm shelters constructed as separate detached buildings or constructed as ~~safe rooms~~ rooms or spaces within buildings for the purpose of providing ~~safe refuge~~protection from storms that produce high winds, such as tornados and hurricanes. Such structures shall be designated to be hurricane shelters, tornado shelters, or combined hurricane and tornado shelters.

423.4 Group E occupancies. In areas where the shelter design wind speed for tornados is 250 MPH in accordance with Figure 304.2(1) of ICC 500, all Group E occupancies with an aggregate occupant load of 50 or more shall have a storm shelter constructed in accordance with ICC 500. ~~The shelter shall be capable of housing the total occupant load of the Group E occupancy.~~

Exceptions:

1. Group E day care facilities.
2. Group E occupancies accessory to places of religious worship.
3. Buildings meeting the requirements for shelter design in ICC 500.

Add new text as follows:

423.4.2 Location. Storm shelters shall be located within the buildings they serve, or shall be located where the maximum distance of travel from at least one exterior door of each building to a door of the shelter serving that building does not exceed 1000 ft. (304.8 m)

423.4.1 Required occupant capacity The required occupant capacity of the storm shelter shall include all the buildings on the site, and shall be the greater of the following:

1. The total occupant load of the classrooms, vocational rooms and offices in the Group E occupancy.
2. The occupant load of any indoor assembly space that is associated with the Group E occupancy.

Exceptions:

1. Where a new building is being added on an existing Group E site, and where the new building is not of sufficient size to accommodate the required occupant capacity of the storm shelter for all the buildings on the site, the storm shelter shall at a minimum accommodate the required capacity for the new building.

2. Where approved by the code official, the required occupant capacity of the shelter shall be permitted to reduced by the occupant capacity of any existing storm shelters on the site.

Reason: This public proposal is submitted jointly by the National Institute of Standards and Technology and the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

As documented in the proposal that created the original requirements for installation of storm shelters in schools for the 2015 IBC, even schools built to modern building codes are susceptible to collapse during tornadoes. That proposal described a number of schools destroyed or severely damaged in several 2011 tornadoes in Missouri, Georgia, and Alabama. As documented in the National Institute of Standards and Technology's final report on its technical investigation of the Joplin, Missouri tornado of May 22, 2011, that one storm severely damaged or destroyed 10 of the 20 public schools in the City of Joplin, and several parochial schools.

In 2013, seven schoolchildren died in Oklahoma at the Plaza Towers Elementary School during the Newcastle-Moore tornado on May 20. They were taking refuge in the hallway of the New Main Classroom Building, in their designated tornado safety area, when the masonry hallway walls collapsed on them (see Figure 1). Several more students and teachers were injured in this and other buildings on the same campus. The Newcastle-Moore tornado also destroyed the Briarwood Elementary School, injuring several people, and collapsed the Gymnasium at Highland East Junior High School.

In recognition of the need to provide protection for schoolchildren from tornadoes, and that the existing school building stock is not capable of providing that protection, some states and communities have already begun to take action. Following the death of 8 students at Enterprise High School in a 2007 tornado, the State of Alabama enacted legislation in 2010 (Act 2010-746) requiring that all public schools incorporate tornado shelters built to ICC 500. Illinois recently became the second state to require ICC 500 tornado shelters in all new school building construction, when the Governor signed Public Act 098-0883 into law in August 2014.

Another positive trend in school shelter construction is that some of these facilities are also being made available as public shelters. For example, during the rebuilding following the 2011 tornado, the Joplin School District has been proactively outfitting its new and rebuilt schools with tornado shelters, and installing shelters at undamaged schools as well. These shelters, commonly in gymnasiums, are sized not only to handle the full daytime occupant load of the school but also the population of the surrounding neighborhoods within a quarter to half mile radius. The investment of public funds in these shelters is further leveraged to improve public safety by making them available whenever there is a threat from tornadoes, 24 hours a day and year-round. The shelter doors are automatically unlocked as soon as a tornado watch goes into effect. Tornado shelters at several school districts in Arkansas (Greenwood, Fort Smith, Alma, and Van Buren Public Schools) are also open to the public. At these shelters, the doors are automatically unlocked when the tornado siren sounds.

Explanation of Provisions.

• IBC Section 423.1.1 Scope. The 'safe refuge' has been revised to 'protection' so that this term will not be confused with other refuge areas already required in the code. The remainder of the change is for consistency with the revisions to the scoping language in the ICC 500-2014.

• IBC Section 423.4 Group E occupancies. The last sentence is removed and addressed in new Section 423.4.1. Section 303.1.3 states that assembly spaces associated with Group E occupancies are considered part of the Group E occupancy. However, many schools have assembly type facilities (e.g., gymnasiums with bleachers, multi-purpose rooms used for after school meetings or school registration, libraries used for school board meetings, theaters with concerts and shows open to the parents and public, gyms used for science fairs or intermural sports) that could include the public outside of normal school hours. The purpose of the storm shelter is to provide safety for the school occupants at the time of the emergency.

• IBC Section 423.4.1 Capacity. With those many uses of a school building, not all spaces will be fully occupied at the same time that all the classrooms are fully occupied. Worse case occupant load is used for all spaces for fire exiting, but total occupant load for the building is excessive for storm shelter design. The determination for the required capacity of the shelter is based on the number of staff and students that will be in the school during a typical school day or any indoor assembly space that would be fully utilized outside school hours, whichever is greater. Thus, rather than the total occupant load of the building, the capacity of the shelter is appropriately based on occupant load described in the two scenarios described in Item 1 and 2. It is not the intent of these provisions to require outdoor areas on the site (e.g., sports fields and bleachers) to be considered since that area is not a building.

In new construction, a fire wall creates a separate building. If a facility adds on with a fire wall or puts another building on an existing Group E site, this is another opportunity to provide a storm shelter for that school. The designer would be responsible for determining the required storm shelter capacity for both the new building and for the total facility on the site. Depending on what type of rooms are in the new building, what proportion of the space can be used for a shelter is information that can be calculated using the provisions in ICC 500, Chapter 5. If this is a small new building, the shelter within the building will be required to at least accommodate the students and staff within that new building. If the new building is large enough that a shelter could accommodate all the students and staff on the site, the shelter will be required to accommodate the students and staff on the site. It is not the intent of the provisions to require the new building to be made bigger just to meet the shelter provisions.

If there is an existing storm shelter on the site, that can be considered to reduce the capacity required for the new shelter. Due to travel distances and possible age of the existing shelter (perhaps built before ICC 500), the code official can have input into the decision.

The term site is currently defined in the codes:

SITE. A parcel of land bounded by a lot line or a designated portion of a public right-of-way.

• IBC Section 423.4.2 Location. The new language in IBC 423.4.2 requires the shelter to be within a building or within a distance of travel of a1000 feet or less. Where the shelter is remote, this would be approximately a 4 minute walk at 3 mph, which is an average speed that humans tend to walk. Add that to an assumed few hundred feet travel distance to first reach the exit of the building being served, and the total travel time is 5 minutes. This is consistent with current FEMA guidance for a maximum five minute walk time to reach the tornado shelter.

Figure 1. Damage to the New Main Classroom Building at Plaza Towers Elementary School. The seven schoolchildren died in the central hallway when the classroom walls collapsed on them. An additional two staff members and one student were injured in this building.

Bibliography:

Part I:[1] Final Report, National Institute of Standards and Technology (NIST) Technical Investigation of the May 22, 2011, Tornado in Joplin, Missouri. Erica D. Kuligowski; Franklin T. Lombardo; Long T. Phan; Marc L. Levitan; David P. Jorgensen; NIST NCSTAR-3. March 2014. Available at http://dx.doi.org/10.6028/NIST.NCSTAR.3

[2] Preliminary Reconnaissance of the May 20, 2013, Newcastle-Moore Tornado in Oklahoma. Erica D. Kuligowski; Long T. Phan; Marc L. Levitan; David P. Jorgensen. NIST SP 1164. December 2013. Available at http://www.nist.gov/manuscript-publication-search.cfm?pub_id=914721.

[3] See http://www.joplinschools.org/domain/635 for more information about Joplin community safe rooms.

[4] See for example http://www.greenwoodpd.org/Community/Storm-Shelters.

Part II:[1] Final Report, National Institute of Standards and Technology (NIST) Technical Investigation of the May 22, 2011, Tornado in Joplin, Missouri. Erica D. Kuligowski; Franklin T. Lombardo; Long T. Phan; Marc L. Levitan; David P. Jorgensen; NIST NCSTAR-3. March 2014. Available at http://dx.doi.org/10.6028/NIST.NCSTAR.3

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[3] See http://www.joplinschools.org/domain/635 for more information about Joplin community safe rooms.

[4] See for example http://www.greenwoodpd.org/Community/Storm-Shelters.

Cost Impact:

Part I: Will increase the cost of construction

This proposal will increase the cost of construction.

The most recent information on costs is available in FEMA P-361, Design and Construction Guidance for Community Safe Rooms (Second Edition, August, 2008). All of the values described below related to cost come from that publication. It should be noted that tornado shelters designed and constructed in accordance with FEMA P-361 guidelines are called safe rooms. FEMA's safe room guidelines are similar to ICC 500, but there are some differences. Where there are differences, in all cases, FEMA requirements are more stringent than ICC 500, as documented on page 1-2 of FEMA P-361, which states "All safe room criteria in this publication meet or exceed the shelter requirements of ICC 500." Shelters built to ICC 500 would therefore cost less, but there is no data available to quantify that cost reduction.

FEMA 361 describes safe room costs for new building projects as follows. "For large new building projects, however, the percent increase in the overall project cost is quite small. For example, many safe rooms protecting 200 to 300 occupants being constructed as part of a new school have added only 1 to 2 percent to the total project cost when the safe room was included in the design process at the beginning of the project."

Based on review of 36 safe room grant applications from 2008, the average safe room cost per square foot for projects considered technically feasible and effective for providing protection was $188/sf. From more expanded grant application data from years 2005 to 2008, the percent increase in building cost to harden a portion of a building to meet the safe room requirements ranged from 5-32 percent (cost increase per square foot of the safe room area being hardened). More information on safe room costs can be found in Chapter 2 of FEMA P-361.

Costs for storm shelters are anticipated to decrease as their use becomes more widespread. The adoption of requirements for storm shelters in tornado prone areas for Group E Occupancies and first responder facilities in the 2015 IBC will lead to installation of many more storm shelters than are currently being built. Subsequently, shelters will become less of a specialty item from a design and construction standpoint. As the market expands for specialty products needed in shelters, like tornado resistant doors, windows and shutters, economies of scale and new manufacturers joining the industry will also lead to cost reductions.

[5] Previous studies have shown that the premium for new-technology introduction costs disappear once the designer is satisfied with the technology's performance, the technology enters full implementation, and its application has become routine. See for example Ehlen, Mark A., and Harold E. Marshall. 1996. The Economics of New-Technology Materials: A Case Study of FRP Bridge Decking. NISTIR 5864. Gaithersburg, MD: National Institute of Standards and Technology.

Part II: Will increase the cost of construction

This proposal will increase the cost of construction.

The most recent information on costs is available in FEMA P-361, Design and Construction Guidance for Community Safe Rooms (Second Edition, August, 2008). All of the values described below related to cost come from that publication. It should be noted that tornado shelters designed and constructed in accordance with FEMA P-361 guidelines are called safe rooms. FEMA's safe room guidelines are similar to ICC 500, but there are some differences. Where there are differences, in all cases, FEMA requirements are more stringent than ICC 500, as documented on page 1-2 of FEMA P-361, which states "All safe room criteria in this publication meet or exceed the shelter requirements of ICC 500." Shelters built to ICC 500 would therefore cost less, but there is no data available to quantify that cost reduction.

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[5] Previous studies have shown that the premium for new-technology introduction costs disappear once the designer is satisfied with the technology's performance, the technology enters full implementation, and its application has become routine. See for example Ehlen, Mark A., and Harold E. Marshall. 1996. The Economics of New-Technology Materials: A Case Study of FRP Bridge Decking. NISTIR 5864. Gaithersburg, MD: National Institute of Standards and Technology.

EB 68-15 : 1106 (New)-KULIK4828

EB 69-15

1202.2, 1202.3

Proponent: David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Subcommittee, National Council of Structural Engineers Associations (dbonowitz@att.net)

2015 International Existing Building Code

Revise as follows:

~~1202.2~~1201.5 Unsafe conditions. *No change to text.*

~~1202.3~~1207.1 Relocated buildings. *No change to text.*

Reason: This editorial proposal reorganizes parts of Section 1202 for internal consistency within the Work Area method.
Section 1202.2, regarding unsafe conditions, does not necessarily apply only to repairs. It is a more general provision that belongs in Section 1201. (In Group B, Section 1206.2 may also be removed as redundant.)

Section 1202.3, for relocated buildings, has nothing to do with repairs. For consistency within the Work Area method, it should be in its own section, the same way Sections 1204 and 1205 are separate sections for specific project types. Ideally, 1202.3 would move to a new Section 1206: Relocated Buildings, but the proposal shows it as 1207 to clarify that the intent is NOT to make this part of the existing Section 1206: Structural.

Cost Impact: Will not increase the cost of construction
The proposal is entirely editorial.

EB 69-15 : 1202.2-BONOWITZ5192

EB 70-15

1203.5

Proponent: Daniel Nichols, New York State Division of Building Standards and Codes, representing New York State Division of Building Standards and Codes (dnichols@dos.state.ny.us)

2015 International Existing Building Code

Revise as follows:

1203.5 Interior finishes. The existing finishes ~~of walls and ceilings~~ shall be accepted when it is demonstrated that they are the historic finishes.

Reason: The definition of interior finishes includes interior floor finishes by the International Building Code. The scoping of only wall and ceiling finishes in IEBC Section 1203.5 does not allow the acceptance of historic floor finishes; such as would be found in historic homes or historic assembly occupancies. If the floor is part of the historic fabric, it should be regulated the same as the walls and ceiling interior finishes.
Just like wall and ceiling finishes, this does not provide an exception for floor finishes that are added, not back of the historic fabric of the interior, or the underlayment to removed finishes.

Cost Impact: Will not increase the cost of construction
This removes a requirement to remove or modify interior floor finishes in historic buildings.

EB 70-15 : 1203.5-NICHOLS5756

EB 71-15

1401.2

Proponent: Anthony Apfelbeck, City of Altamonte Springs Building/Fire Safety, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Existing Building Code

Revise as follows:

1401.2 Applicability. ~~Structures existing prior to [~~~~**DATE TO BE INSERTED BY THE JURISDICTION. Note: it is recommended that this date coincide with the effective date of building codes within the jurisdiction**~~~~]~~
Existing buildings, in which there is work involving *additions*, *alterations* or *changes of occupancy* shall be made to conform to the requirements of this chapter or the provisions of Chapters 5 through 13. The provisions of Sections 1401.2.1 through 1401.2.5 shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, I-2, M, R and S. These provisions shall not apply to buildings with occupancies in Group H or I-1, I-3 or I-4.

Reason: The "Structures existing prior to [**DATE TO BE INSERTED BY THE JURISDICTION. Note: it is recommended that this date coincide with the effective date of building codes within the jurisdiction**]" is language that is appropriate for Chapter 1 but is not appropriate for Chapter 14. By having this language in Chapter 14, it potentially creates a conflict with the Chapter 101.4 language and that definition of Existing Buildings. At the very least, the existing language in this section can create confusion and provides no additional value. The applicability language in Chapter 14 should focus on how the provisions of this specific chapter are applied. The issue of when the code is adopted is already covered in 101.4 and the model adoption language.
This proposal eliminates the potential conflict by defaulting to the Chapter 1 language and the definition of existing building.

Cost Impact: Will not increase the cost of construction
This is an editorial change and will not increase the cost of construction.

EB 71-15 : 1401.2-APFELBECK3718

EB 72-15

1401.2

Proponent: Kathleen Petrie, representing City of Seattle, Department of Planning and Development (kathleen.petrie@seattle.gov)

2015 International Existing Building Code

Revise as follows:

1401.2 Applicability. Structures existing prior to [**DATE TO BE INSERTED BY THE JURISDICTION. Note: it is recommended that this date coincide with the effective date of building codes within the jurisdiction**], in which there is work involving *additions*, *alterations* or *changes of occupancy* shall be made to conform to the requirements of this chapter, Chapter 4, or the provisions of Chapters 5 through 13. The provisions of Sections 1401.2.1 through 1401.2.5 shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, I-2, M, R and S. These provisions shall not apply to buildings with occupancies in Group H or I-1, I-3 or I-4.

Reason:
Section 1401.1 outright allows alterations, repairs, additions and changes of occupancy to existing structures to comply with the performance method provisions of chapter 14 or with one of the other methods provided in Section 301.1, which includes the work area and prescriptive compliance methods. However, Section 1401.2 then only directs the user back to the work area code chapters 5 though 13, so this proposal adds a Chapter 4 reference to ensure that the prescriptive compliance method is included as a compliance option.

Cost Impact: Will not increase the cost of construction
This proposal does not require the use of a specific method or construction component, so the cost of construction is not increased

EB 72-15 : 1401.2-PETRIE3478

EB 73-15

1401.2.3

Proponent: Edward Kulik, Chair, representing Building Code Action Committee(bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

1401.2.3 Additions. *Additions* to *existing buildings* shall comply with the requirements of the *International Building Code* and the ~~,~~ *International Residential Code*~~, and this code~~ for new construction. The combined height and area of the *existing building* and the new *addition* shall not exceed the height and area allowed by Chapter 5 of the *International Building Code*. Where a fire wall that complies with Section 706 of the *International Building Code* is provided between the *addition* and the *existing building*, the *addition* shall be considered a separate building.

Reason: For additions in this context we only need to refer back to the IBC and IRC. This code does not have provisions for new construction but is focused on existing buildings. These revisions are needed to correlate with the 2015 IBC that deleted Chapter 34 on existing buildings. This is considered a clarification of the application of the IEBC as it pertains to additions and will not change anything that is now required by the I Codes.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction as this revision is only a clarification of the current provisions.

EB 73-15 : 1401.2.3-KULIK4898

EB 74-15

1401.2.4

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

1401.2.4 Alterations and repairs. An *existing building* or portion thereof~~ that does not comply with the requirements of this code for new construction~~ shall not be altered or repaired in such a manner that results in the building being less safe or sanitary than such building is currently.~~ If, in the *alteration* or *repair*, the current level of safety or sanitation is to be reduced, the portion altered or repaired shall conform to the requirements of Chapters 2 through 12 and Chapters 14 through 33 of the *International Building Code.*~~

Reason: This section does not work within the IEBC as it did in the IBC. Generally we do not want an alteration or repair reducing the level of safety or sanitation. As currently written it says "this code" when in fact it was focused upon the IBC. Reference is not needed back to the IBC in this case. The last sentence is again sending the user of the code back to the IBC when we told them already that they could not reduce their level of safety or sanitation. As modified it will simply provide a baseline that the user of this chapter must meet. These revisions are needed to correlate with the 2015 IBC that deleted Chapter 34 on existing buildings. This is considered a clarification of the application of the IEBC as it applies to alterations and repairs and will not change anything that is now required by the I-Codes.
This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction as this revision is only a clarification of the current provisions.

EB 74-15 : 1401.2.4-KULIK4903

EB 75-15

1401.2.5

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

2015 International Existing Building Code

Revise as follows:

1401.2.5 Accessibility requirements.
Accessibility shall be provided in accordance with Section 410~~,or~~ 705, 806, 906, 1105,1204 and 1205.15 as applicable.

Reason: The current reference does not pick up the accessibility provisions for Level 2 and 3, additions or allowances for historic buildings when using the performance compliance method. The performance compliance method should be required to have the same level of access as any other alteration. Technical infeasibility and the 20% maximum rule for the accessible route costs would still be applicable.
In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification of current requirements; therefore, there is no impact on the cost.

Staff note: An errata was corrected to this section. The reference to Section 605 was revised to Section 705. It is shown as current code text.

EB 75-15 : 1401.2.5-KULIK3406

EB 76-15

1401.3.2

Proponent: Anthony Apfelbeck, City of Altamonte Springs Building/Fire Safety Division, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Existing Building Code

Revise as follows:

1401.3.2 Compliance with other codes. Buildings that are evaluated in accordance with this section shall comply with the *International Fire Code* and *International Property Maintenance Code*. Where provisions of the *International Fire Code* or *International Property Maintenance Code* conflict with the provisions of this section, the provisions of this section shall take precedence.

Reason: This section is proposed to be revised in order to be consistent with Chapter 3 General Provisions Section 302.2 Additional codes. Without the addition of the proposed language, a user could read the code to infer that even though a building complies fully with the points score evaluation of Chapter 14, the building would also have to comply with the prescriptive provisions of the IFC and the IPMC governing the same issues evaluated in Chapter 14. That is clearly not the intent of the IEBC. This proposed language clarifies how the associated codes are to apply in a manner consistent with Chapter 3 General Provisions Section 302.2 Additional codes.

Cost Impact: Will not increase the cost of construction
No cost impact or a savings as this code change does not provide for any more stringent provisions than that which are already listed.

EB 76-15 : 1401.3.2-APFELBECK3980

EB 77-15

1401.6

Proponent: Jeff Hugo, National Fire Sprinkler Association, representing National Fire Sprinkler Association (hugo@nfsa.org)

2015 International Existing Building Code

Revise as follows:

1401.6 Evaluation process. The evaluation process specified herein shall be followed in its entirety to evaluate *existing buildings* in Groups A, B, E, F, M, R, S and U. For existing buildings in Group I-2, the evaluation process specified herein shall be followed and applied to each and every individual smoke compartment. Table 1401.7 shall be utilized for tabulating the results of the evaluation. References to other sections of this code or other codes indicate that compliance with those sections is required in order to gain credit in the evaluation herein outlined. In applying this section to a building with mixed occupancies, where the separation between the mixed occupancies does not qualify for any category indicated in Section 1401.6.16, the score for each occupancy shall be determined, and the lower score determined for each section of the evaluation process shall apply to the entire building, or to each smoke compartment for Group I-2 occupancies.

Where the separation between the mixed occupancies qualifies for any category indicated in Section 1401.6.16, the score for each occupancy shall apply to each portion, or smoke compartment of the building based on the occupancy of the space.

Reason: This proposal adds "other codes" because other codes, such as the International Building Code besides the IEBC are referenced in Chapter 14.

Cost Impact: Will not increase the cost of construction
Editorial

EB 77-15 : 1401.6-HUGO4839

EB 78-15

Table 1401.6.4

Proponent: Anthony Apfelbeck, City of Altamonte Springs Building/Fire Safety, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Existing Building Code

Revise as follows:

TABLE 1401.6.4
SEPARATION VALUES

OCCUPANCY	CATEGORIES				
	a	b	c	d	e
A-1	0	0	0	0	1
A-2	-5	-3	0	1	3
R	~~-4~~ -6	~~-2~~ -4	0	2	4
A-3, A-4, B, E, F, M, S-1	-4	-3	0	2	4
I-2	0	1	2	3	4
S-2	-5	-2	0	2	4

Reason: Occupants of a Group R are subject to the highest risks of any occupancies. Residents are subject to the careless acts of others and such residents may be incapable of self-preservation or have reduced egress times. Obviously, residents are asleep for an average of on-third of every 24 hour period and during such time they are unaware of a developing fire. Fuel loads in Group R occupancies are often quite high so fires develop quickly and become very intense with a significant probability of impacting adjacent dwelling units.
This code change revised the Group R points to more accurately reflect the hazard relative to the other occupancies in the table.

Cost Impact: Will increase the cost of construction
Existing residential properties undergoing an alteration or change of use to residential and utilizing Chapter 14 may have additional costs as a result of the modification to the table if their fire separation is deficient.

EB 78-15 : 1401.6.4-APFELBECK3722

EB 79-15

1401.6.6, 1401.6.6.1

Proponent: Anthony Apfelbeck, City of Altamonte Springs Buiding/Fire Safety, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Existing Building Code

Revise as follows:

1401.6.6 Vertical openings. Evaluate the fire-resistance rating of interior exit stairways or ramps, hoistways, escalator openings, and other shaft enclosures within the building, and openings between two or more floors. Table 1401.6.6(1) contains the appropriate protection values. Multiply that value by the construction-type factor found in Table 1401.6.6(2). Enter the vertical opening value and its sign (positive or negative) in Table 1401.7 under Safety Parameter 1401.6.6, Vertical Openings, for fire safety, means of egress, and general safety. If the structure is a one-story building or if all the unenclosed vertical openings within the building conform to the requirements of Section 713 of the *International Building Code*, enter a value of 2. The maximum positive value for this requirement (VO) shall be 2.

1401.6.6.1 Vertical opening formula. The following formula shall be used in computing vertical opening value.

$VO = PV \times CF$ **(Equation 14-5)**

where:

VO	=	Vertical opening value. The calculated value shall not be greater than positive 2.0
PV	=	Protection value from Table 1401.6.6.(1).
CF	=	Construction-type factor from Table 1401.6.6.(2).

Reason: The last sentence of 1401.6.6 states "The maximum positive value for this requirement shall be 2." Since Table 1401.6.6(1) has a Value of 2, this application of this maximum positive value limit can create some confusion in the proper application of this section....Is the maximum positive value applicable to PV or VO? It appears that the intent of the "The maximum positive value for this requirement shall be 2" sentence is to apply to VO since the sentence above this one is discussion the VO score. This also makes senses from a scoring standpoint. If 2 was to apply to PV, then the formula would provide 14 points for a building of VB construction and 2.4 points for one of IA construction, which would make no logical sense.
This proposal clarifies the issue by providing a footnote to VO and modifies the text in 1401.6.6 to ensure that the maximum value of 2 applies to VO.

Cost Impact: Will not increase the cost of construction
Editorial change.

EB 79-15 : 1401.6.6-APFELBECK3752

EB 80-15

1401.6.8

Proponent: Anthony Apfelbeck, City of Altamonte Springs Buiding/Fire Safety, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Existing Building Code

Revise as follows:

1401.6.8 Automatic fire detection. Evaluate the smoke detection capability based on the location and operation of automatic fire detectors in accordance with Section 907 of the *International Building Code* and the *International Mechanical Code*. Under the categories and occupancies in Table 1401.6.8, determine the appropriate value and enter that value into Table 1401.7 under Safety Parameter 1401.6.8, Automatic Fire Detection, for fire safety, means of egress, and general safety. Facilities in Group I-2 occupancies meeting Category a, b or c shall be considered to fail the evaluation. <u>Single and multiple stations smoke alarms shall be installed in accordance with Section 1103.8 of the *International Fire Code* for Group R occupancies.</u>

Reason: The current language in 1401.6.8 could leave the user with the impression that achieving an overall passing score for FS, ME and GS on Table 1401.7 would result in no requirement for single- or multi-station smoke alarms in accordance with the IFC. Clearly, not providing single- or multi-station smoke alarms would result in an unsafe environment that should not be permitted under the I-Codes. This proposal clarifies that regardless of the category scored in table 1401.6.8, single- or multi-station smoke alarms must still be provided in accordance with the IFC.
There is similar langauge already contained in 403.10 but this language is limited to alterations under the prescriptive compliance method.

Cost Impact: Will increase the cost of construction
In this proponent's opinion, this proposal is consistent with the existing intent of the ICodes/IEBC. This proposal just provides added clarity to a provision that can potentially be misapplied.

EB 80-15 : T1401.6.8-APFELBECK3755

EB 81-15

Table 1401.6.8

Proponent: Anthony Apfelbeck, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Existing Building Code

Revise as follows:

TABLE 1401.6.8
AUTOMATIC FIRE DETECTION VALUES

OCCUPANCY	CATEGORIES					
	a	b	c	d	e	f
A-1, A-3, F, M, R, S-1	-10	-5	0	2	6	—NA
A-2	-25	-5	0	5	9	—NA
A-4, B, E, S-2	-4	-2	0	4	8	—NA
I-2	NP	NP	NP	4	5	2

NA=Not Appicable

Reason: Column f in Table 1401.6.8 is the only table in Chapter 14 that is populated with a "-" line. The dash line could be read two ways for occupancies other than an I-2: 1. As a "0", potentially conflicting with "category d" or; 2. As a Not Applicable indicator. The proponent believes that the intent of "-" is a not applicable indicator. Therefore, a new footnote has been proposed to Table 1401.6.8 to clarify that the "-" means not applicable to the other occupancies.

Cost Impact: Will not increase the cost of construction
This is an editorial change providing clarity to the code with no cost impact.

EB 81-15 : T1401.6.8-APFELBECK3756

EB 82-15

Table 1401.6.9

Proponent: Anthony Apfelbeck, City of Altamonte Springs Building/Fire Safety, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Existing Building Code

Revise as follows:

TABLE 1401.6.9
FIRE ALARM SYSTEM VALUES

OCCUPANCY	CATEGORIES			
	a	b[a]	c	d
A-1, A-2, A-3, A-4, B, E, R	-10	-5	0	5
F, M	-5	0	10	15
~~F, M,~~ S	0	5	10	15
I-2	-4	1	2	5

a. For buildings equipped throughout with an automatic sprinkler system, add 2 points for activation by a sprinkler water-flow device.

Reason: Currently, Table 1401.6.9 provides occupancies F, M and S within the same row. However, group M and F have fire alarm system requirements in the IBC/IFC while group S does not. The lack of a fire alarm system in group M and F should have adjusted values in categories a and b that are greater than a group S but not as much as A, B, E and R. In fact, the group M and F are arguably more hazardous than a group B which is in the first column with significant negative points assigned. This proposal creates a new row for group F and M with a greater loss of points than the current S but not as significant as the A, B, E and R.

Cost Impact: Will increase the cost of construction
There is a potential for a loss of points for group M and F occupancies that do not comply with catagories a and b. This may result in the need for additional compliance actions.

EB 82-15 : T1401.6.9-APFELBECK3842

EB 83-15

1401.6.12.1

Proponent: Anthony Apfelbeck, City of Altamonte Springs Building/Fire Safety, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Existing Building Code

Revise as follows:

1401.6.12.1 Categories. The categories for dead ends are:

1. Category a—Dead end of ≤ 35 feet (10 670 mm) but >20 feet in nonsprinklered buildings or ≤ 70 feet (21 340 mm) but > 50 feet in sprinklered buildings.
2. Category b—Dead end of ≤ 20 feet (6096 mm) in occupancies other than Group B; or ≤ 50 feet (15 240 mm) in Group B in accordance with Section 1020.4, Exception 2, of the *International Building Code*.
3. Category c—No dead ends; or ratio of length to width (l/w) is less than 2.5:1.
4. Category d—Dead ends exceeding Category a.

Reason: Categories a and b of 1401.6.12.1 currently state a fixed number such as "35 feet." The correct statement should be not a fixed number but a not to exceed number presented in ≤≥<> format. The proposal has added the less than or equal too symbols to clarify that the number is not a fixed number but is a maximum for each category and the transition from category a to b. In addition, category b has been revised to clarify that the 20 feet applies to all occupancies other than Group B.

Cost Impact: Will not increase the cost of construction
This proposal is editorial and improves readability.

EB 83-15 : 1401.6.12.1-APFELBECK3760

EB 84-15

1401.6.15.1

Proponent: Daniel Nichols, New York State Division of Building Standards and Codes, representing New York State Division of Building Standards and Codes (dnichols@dos.state.ny.us)

2015 International Existing Building Code

Revise as follows:

1401.6.15.1 Categories. The categories for means-ofegress emergency lighting are:

1. Category a—Means-of-egress emergency lighting and exit signs not provided with emergency power in accordance with Section 2702 of the *International Building Code*.
2. Category b—Means-of-egress emergency lighting and exit signs ~~provided with emergency power~~ powered by storage batteries or unit equipment in accordance with Section 2702 of the *International Building Code*.
3. Category c—~~Emergency power provided to means-of-egress~~Means of egress emergency lighting and exit signs~~, which provides protection~~ powered by an emergency generator in ~~the event~~accordance with Section 2702 of ~~power failure to~~ the ~~site or building~~International Building Code.

Reason: The difference between Category b and Category c is not well defined. According to the commentary, the intent of Category c is to give additional credit to those buildings with power systems that can provide long-term emergency power with minimal disruption to building systems. This would provide egress illumination at the regular levels rather than emergency illumination that is only required for 90 minutes.
The proposal language makes it more clear that Category c is requiring both Category b, as well as additional requirements for emergency power that mitigate building or site disruption. An example would be a 'whole-house' generator and campus-wide backup power arrangement.

The 2015 IBC revised Section 1008 to be split between general means of egress lighting under normal power, and means of egress emergency lighting provided when a building looses power. Revisions to Item 1 and 2 are coordination with that.

Cost Impact: Will not increase the cost of construction
This proposal is to provide better definition of existing code requirements.

EB 84-15 : 1401.6.15.1-NICHOLS5750

EB 85-15

1401.6.17

Proponent: Anthony Apfelbeck, City of Altamonte Springs Building/Fire Safety, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Existing Building Code

Revise as follows:

1401.6.17 Automatic sprinklers. Evaluate the ability to ~~suppress~~ control a fire based on the installation of an automatic sprinkler system in accordance with Section 903.3.1.1 of the *International Building Code*. "Required sprinklers" shall be based on the requirements of ~~this code~~the *International Fire Code*. Under the categories and occupancies in Table 1401.6.17, determine the appropriate value and enter that value into Table 1401.7 under Safety Parameter 1401.6.17, Automatic Sprinklers, for fire safety, means of egress divided by 2, and general safety. High-rise buildings defined in Chapter 2 of the *International Building Code* that undergo a *change of occupancy* to Group R shall be equipped throughout with an automatic sprinkler system in accordance with Section 403 of the *International Building Code* and Chapter 9 of the *International Building Code*. Buildings that undergo a *change of occupancy* to Group R shall be equipped throughout with an automatic sprinkler system in accordance with Chapter 9 of the *International Fire Code*. Facilities in Group I-2 occupancies meeting Category a, b, c or f shall be considered to fail the evaluation.

Reason: Fire sprinkler protection in new Group R occupancies is basic level of protection that is expected in the IBC in order to establish a minimum level of life safety. The IEBC should continue with that expectation due to the fact that residential occupancies house occupants with a wide range of capabilities that may not be capable of self-preservation, fuel loads are high, occupants are sleeping for approximately 1/3 of their time in Group R and a fire in a adjacent tenant can easily endanger occupants in other tenant spaces.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction in some buildings that undergo a change of occupancy to a Group R due to the need to install a fire sprinkler system. However, value of the sprinkler system will also be reflected in additional points from Table 1401.6.17 so there is a potential for a cost savings offset.

EB 85-15 : 1401.6.17-APFELBECK3762

EB 86-15

1401.6.17, Table 1401.6.17, 1401.6.17.1

Proponent: Jeff Hugo, representing National Fire Sprinkler Association (hugo@nfsa.org)

2015 International Existing Building Code

Revise as follows:

1401.6.17 Automatic sprinklers. Evaluate the ability to suppress or control a fire based on the installation of an automatic sprinkler system in accordance with Section ~~903.3.1.1~~903.3.1 of the *International Building Code*. "Required sprinklers" shall be based on the requirements of ~~this code.~~ the *International Building Code.* Under the categories and occupancies in Table 1401.6.17, determine the appropriate value and enter that value into Table 1401.7 under Safety Parameter 1401.6.17, Automatic Sprinklers, for fire safety, means of egress divided by 2, and general safety. High-rise buildings defined in Chapter 2 of the *International Building Code* that undergo a *change of occupancy* to Group R shall be equipped throughout with an automatic sprinkler system in accordance with Section 403 of the *International Building Code* and Chapter 9 of the *International Building Code*. Facilities in Group I-2 occupancies meeting Category a, b, c or f shall be considered to fail the evaluation.

TABLE 1401.6.17
SPRINKLER SYSTEM VALUES

OCCUPANCY	CATEGORIES					
	a[a]	b[a]	c	d	e	f
A-1, A-3, F, M, R, S-1	-6	-3	0	~~2~~4	~~4~~6	6
A-2	-4	-2	0	~~1~~2	~~2~~4	4
A-4, B, E, S-2	-12	-6	0	~~3~~6	~~6~~12	12
I-2	NP	NP	NP	8	10	NP

NP = not permitted.

a. These options cannot be taken if Category a in Section 1401.6.18 is used.

1401.6.17.1 Categories. The categories for automatic sprinkler system protection are:

1. Category a—Sprinklers are required throughout the building; sprinkler protection is not provided. ~~or the sprinkler system desing is not adequate for the hazard protected in accordance with Section 903 of the *International Building Code.*~~
2. Category b—Sprinklers are required in *fire area*s or compartments ~~a portion of the building~~; sprinkler protection is not provided in *fire area*s or compartments, or the sprinkler system design is not adequate for the hazard protected in accordance with Section 903 of the *International Building Code*.
3. Category c—Sprinklers are not required; none are provided.
4. Category d—Sprinklers are required in ~~a portion of the building~~ *fire area*s or compartments; sprinklers are provided in *fire area*s or compartments~~such portion; the system is one that complied with the code at the time of installation and is maintained and supervised in accordance with Section 903 of the *International Building Code.*~~
5. Category e—Sprinklers are required throughout; sprinklers are provided throughout in accordance with Chapter 9 of the *International Building Code*.
6. Category f—Sprinklers are not required throughout; sprinklers are provided throughout in accordance with Chapter 9 of the *International Building Code*.

Reason: History and Summary

Fire sprinkler values was added to the BOCA version of Fire Safety Evaluation System (FSES) in the 1990 edition by code change number B270-89 (attached). This proposal created a table with two categories with the occupancy rows arranged the same as in the current IEBC. The first category (a) gave no credit for buildings without a sprinkler system and no credit for partial systems. The second category (b) provided values for fully sprinklered buildings according to the BOCA fire protection chapter (Article 10) which referenced NFPA 13 and NFPA 13R. Fully sprinklered buildings were given 4 points (A-2), 6 points (A-1, A-3, F, M, R, S-1) or 12 points (A-4, E, B, S-2). The values in the second category were established by other FSES processes (NFPA and NYC). These values were justified by the proponent as being equal to automatic alarm values.

In the 1996 BOCA, code change number B213-95 (attached), increased the two category value table to the current IEBC six category value table. The values in each of the six categories have been unchanged since this edition, with the exception of adding values for I-2 occupancies for the 2015 edition. The higher category values appear similar as the above version in 1990, with lower values in lower categories, however, this proposal discusses that the arrangement of the values do not do a fully sprinklered building justice as originally intended in the 1990 version.

Each proposed change is explained in detail below, however, to summarize, there was a significant and fundamental change on how these values were applied in the 1996 BOCA code. The 1990 values were for fully sprinklered buildings, but the 1996 values demoted these values for fully sprinklered buildings required to be sprinklered by the code (Category e). The full values, as intended by the 1990 text, was only given to buildings that were fully sprinklered voluntarily (Category f). The practice of constructing buildings as unsprinklered, (without any trade-offs) then adding a sprinkler system is virtually non-existent. The values in Category e and f of the 1996 BOCA to the 2015 IEBC are unjust and are not equal to the 1990 proponents' intent. This proposal adjusts the table accordingly.

Proposed Changes in Text

"...or control..."

This change correctly addresses automatic fire sprinkler systems for the majority of installations. Fire sprinkler systems designed according to NFPA 13, NFPA 13R and NFPA 13D are designed to control fires. There are a few instances in the NFPA 13 standard where the fire sprinkler is designed to suppress fires, such as in storage occupancies. It is appropriate to have "control" more than suppression in the code text, but this proposal leaves suppression in to accommodate the suppression in storage occupancies.

" ...Section 903.3.1.~~1~~..."

This change removes the limitation of the values to be used just on a NFPA 13 system. The values cannot be limited to just NFPA 13 systems. The intent of the proposal that expanded the values for 1996 BOCA did not prohibit NFPA 13R systems (B213-95), likewise, the values table has occupancies that are permitted to use NFPA 13R (R-1, R-2) and NFPA 13D (R-3, R-4) systems. When a building is sprinklered according to any of the sprinkler standards, they are considered fully sprinklered.

" ...the *International Building Code*~~this code~~...'"

When this section was located in the IBC it also stated "this code". This section wasn't revised when it moved from the IBC to the IEBC. Every other section in Chapter 14 of the IEBC that has similar language refers to the IBC. For example, IEBC Section 1401.6.18 refers the requirements back to the IBC.

" Category a - Sprinklers are required throughout the building; sprinkler protection is not provided~~. or the sprinkler system design is not adequate for the hazard protected in accordance with Section 903 of the International Building Code.~~".

This change updates and clarifies where sprinklers are throughout to make the user aware of the extent of sprinklers protection. The latter portion of the text is removed. The value assigned to this is extreme and is redundant with Category b. Having no sprinklers and an under-designed system is not equal. Both are detrimental, but one has no protection, the other has some form of protection. The penalty for an under-designed system should a Category b and keep the unsprinklered building as the highest penalty.

"Category b - Sprinklers are required in *fire area*s or compartments ~~a portion of the building~~; sprinkler protection is not provided in *fire area*s or compartments..."
This change provides a negative value when a fire area or compartment that is required to have sprinklers, but doesn't. Fire areas are defined in the IBC and "compartments" are used and qualified in Section 1401.6.3. These terms are concrete and have definite passive fire protection boundaries than the subjective term "portion". By using fire area and compartments, the code official and the user can be clear where sprinklers are supposed to be installed.

"Category d - Sprinklers are required in *fire areas* or compartments ~~a portion of the building~~; sprinklers are provided in *fire areas* or compartments.~~such porton;the system is one that complied with the code at the time of installation and is maintained and supervised in accordance with Section 903 of the *International Building Code*.~~"

This change assigns the partial system for a fire area with a value. It also removes the undefined term "portion". Fire areas are defined in the IBC and "compartments" are used and qualified in Section 1401.6.3. These terms are concrete and have definite passive fire protection boundaries than the subjective term "portion" which will have differing boundaries by every user for every building that is evaluated. By using fire area and compartments, the code official and the user can be clear where sprinklers are supposed to be installed.

There are some occupancies, such as A-1, A-2, A-3 and A-4, that are only required to have sprinklers in the fire area. Other fire areas may not need fire sprinklers. This change would provide buildings with sprinklered fire areas some credit. The value would not apply to a partial systems for incidental uses or other partial or limited-area system installation. The value would only be applied when the fire areas that are supposed to have sprinklers are installed according to the appropriate standard, or when the compartment is sprinklered.

This proposal also removes the value that is assigned for the maintenance of the system according to the edition of the standard when it was installed. The IBC and IFC along with NFPA 13 require the sprinkler system to be maintained according to NFPA 25. This may not have been clear when the proposal was drafted for the 1996 BOCA. NFPA 25 was a new standard in 1992 and while it was referenced by the BOCA Fire Prevention Code, the scope may not have been fully understood and enforcement was difficult if the BOCA Fire Prevention Code was not specifically adopted. Furthermore, a system that is currently maintained according to the NFPA 25 (as referenced by current IFC) should receive points in a higher category.

Changes to the Table

Values in Category d
The changes to Category d provide one half of the value for a (proposed) fully sprinklered building. These values would be applied when the required fire areas are sprinklered. As explained above, the term fire area is defined and have definite fire rated boundaries within the building.

Values in Category e

The changes to the values in Category e show a fully sprinklered building with the maximum value as it is in Category f. It should make no difference that a sprinkler system was required or voluntarily installed. A fully sprinklered building is installed with the same installation standards whether it was a required system or a non-required system. There are other values in Chapter 14 of the IEBC that gives "bonus" points when the code was exceeded. However, a fully sprinklered building can be "upgraded" beyond the minimum standard, but that is hard to quantify and justify when additional points are awarded. When a fire rating is increased it is easier to identify and view the upgrade.

When the sprinkler values were introduced in the 1990 BOCA they were for fully sprinklered buildings. There was no "bonus" points. The reduced values in the current IEBC Category e penalizes buildings that have required sprinkler systems.

Cost Impact: Will not increase the cost of construction
Updating values may descrease the need to upgrade other construction features to meet the FSES.

EB 86-15 : 1401.6.17-HUGO4760

EB 87-15

Table 1401.6.17

Proponent: Anthony Apfelbeck, City of Altamonte Springs Building/Fire Safety Division, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Existing Building Code

Revise as follows:

TABLE 1401.6.17
SPRINKLER SYSTEM VALUES

OCCUPANCY	CATEGORIES					
	a[a]	b[a]	c	d	e	f
A-1, A-3, F, M, ~~R,~~ S-1	-6	-3	0	2	4	6
R	-14	-8	0	3	6	12
A-2	-4	-2	0	1	2	4
A-4, B, E, S-2	-12	-6	0	3	6	12
I-2	NP	NP	NP	8	10	NP

NP = not permitted.

a. These options cannot be taken if Category a in Section 1401.6.18 is used.

Reason: This proposal creates a new stand-alone row for group R occupancies. Currently, Group R occupancies are considered a similar hazard classification to M, F, S-1, A-3, and A-1. Group R are clearly not equivalent to these occupancies as the lack of a fire sprinkler system in a Group R will increase the risk dramatically because of occupant characteristics (elderly and very young), sleeping, fuel load and potential for impact from adjacent tenants. As Group R carries a greater risk than these other categories, a new row is created with numericals that better reflect the risk in Group R occupancies due to the presence or lack of fire sprinklers.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction in those Group R properties utilizing Chapter 14 that are not fire sprinkler protected. For those that are fire sprinkler protected, the greater value of sprinklers will be reflected in the potential to reduce costs.

EB 87-15 : T1401.6.17-APFELBECK3761

EB 88-15

Table 1401.6.17

Proponent: Jeff Hugo, National Fire Sprinkler Association, representing National Fire Sprinkler Association (hugo@nfsa.org)

2015 International Existing Building Code

Revise as follows:

TABLE 1401.6.17
SPRINKLER SYSTEM VALUES

OCCUPANCY	CATEGORIES					
	a[a]	b[a]	c	d	e[b]	f[b]
A-1, A-3, F, M, R, S-1	-6	-3	0	2	4	6
A-2	-4	-2	0	1	2	4
A-4, B, E, S-2	-12	-6	0	3	6	12
I-2	NP	NP	NP	8	10	NP

NP = not permitted.

a. These options cannot be taken if Category a in Section 1401.6.18 is used.

b. Increase values by 2 when fast or quick response sprinklers are used throughout or 3 when these sprinklers are used as part of an early suppression design method.

Reason: This proposal increases the values in category e and f by two when quick response or fast response sprinklers are used. This section has not been updated for almost 20 years. Since then use of quick response sprinklers has increased and is required by the IBC and NFPA 13. This technology has reduced the sprinkler response time dramatically but may not have been as widely known or used today as it was when these sections were introduced over 25 years ago in the BOCA code. Increasing the values for these type of sprinklers is common and consistent with the other FSES used, such as NFPA 101A.

Fast response sprinklers are defined in NFPA 13. Sprinklers that are considered fast have a quick response thermal element. These sprinklers are as follows: Quick Response (QR), Extended Coverage Quick Response (QREC), Residential, Early Suppression Quick Response (ESFR), and Quick Response Early Suppression (QRES) sprinklers.

This proposal also proposes to increase the value by three when quick response or fast response sprinklers are used in a early suppression design method. Many storage buildings today utilize fire sprinkler designs that use the ESFR (Early Suppression Fast Response) or QRES (Quick Response Early Suppression) sprinkler to extinguish building fires. These arrangements use large amounts of water to put out the fire rapidly.

The early suppression design method is also used in performance based designs that use fast response sprinklers to suppress fires rather than control fires. This option would be available to users who are using fire modeling and performance codes, such as ICC's Performance Code for Buildings and Facilities. In general, the area consumed by the fire is smaller in a suppression scenario than in a control mode scenario. Of course, both options apply water to a fire automatically, limiting the area of the fire.

Cost Impact: Will not increase the cost of construction
The cost of the fast or quick response sprinklers may cost more in the intial phase of construction but reduces the need for other construction features.

EB 88-15 : T1401.6.17-HUGO5104

EB 89-15

Table 1401.6.17, Table 1401.6.18

Proponent: Frank Lasaga, City of Stuart Fire Rescue, representing City of Stuart Fire Rescue (flasaga@ci.stuart.fl.us)

2015 International Existing Building Code

Revise as follows:

TABLE 1401.6.17
SPRINKLER SYSTEM VALUES

OCCUPANCY	CATEGORIES					
	a[a]	b[a]	c	d	e	f
~~A-1, A-3, F, M, R, S-1~~ B, F, M, S	-6	-3	0	2	4	6
~~A-2~~	~~-4~~	~~-2~~	~~0~~	~~1~~	~~2~~	~~4~~
~~A-4, B, E, S-2~~ A, E, R	-12	-6	0	3	6	12
I-2	NP	NP	NP	8	10	NP

NP = not permitted.

a. These options cannot be taken if Category a in Section 1401.6.18 is used.

TABLE 1401.6.18
STANDPIPE SYSTEM VALUES

OCCUPANCY	CATEGORIES			
	a[a]	b	c	d
~~A-1, A-3, F, M, R, S-1~~ A, E, R	-6	0	4	6
~~A-2~~ B, F, M, S	-4	0	2	4
~~A-4, B, E, S-2~~	~~-12~~	~~0~~	~~6~~	~~12~~
I-2	-2	0	1	2

a. This option cannot be taken if Category a or Category b in Section 1401.6.17 is used.

Reason: The changes give more weight to lifesafety considerations in buildings with high occupant loads and where evacuation may be slowed by age, noise and low light, or sleeping. Also, removing the second tier simplies the table, placing all sub-classifications together. Table 1401.6.18 is modified to reflect the greater hazard mitigation impact of sprinklers versus standpipes (See Table 1401.6.17). Intuitively, a fire that can be controlled in its incipient stage by 1 or 2 sprinkler heads in a properly designed and maintained system is less hazardous than one that develops over the several minutes it will take for the hoses connected to the standpipe system to be deployed and flowing water.

Cost Impact: Will increase the cost of construction
In several of the occupancies, the value assignments will increase the penalties for lower category ratings, limiting alternatives. Several, such as S-2, will see values that will make alternatives easier to have approved.

EB 89-15 : T1401.6.17-LASAGA5334

EB 90-15

Table 1401.6.18

Proponent: Jeff Hugo, National Fire Sprinkler Association, representing National Fire Sprinkler Association (hugo@nfsa.org)

2015 International Existing Building Code

Revise as follows:

TABLE 1401.6.18
STANDPIPE SYSTEM VALUES

OCCUPANCY	CATEGORIES			
	a[a]	b	c	d
A-1, A-3, F, M, R, S-1	-6	0	~~4~~ 6	6
A-2	-4	0	~~2~~ 4	4
A-4, B, E, S-2	-12	0	~~6~~ 12	12
I-2	-2	0	~~1~~ 2	2

a. This option cannot be taken if Category a or Category b in Section 1401.6.17 is used.

Reason: This proposal adjusts the values of Category c. and with the current values in Category d. The negative "value" of not having a required standpipe in Category a. is not equal to the positive value of having the required standpipe in Category c. A building with a standpipe system has the same value whether is required or installed voluntarily. The same standard is used for the installation.

Cost Impact: Will not increase the cost of construction
Adjusted values for standpipes may decrease the need to add other measures to increase the FSES score.

EB 90-15 : T1401.6.18-HUGO4832

EB 91-15

Table 1401.6.18

Proponent: Anthony Apfelbeck, City of Altamonte Springs Building/Fire Safety Division, representing City of Altamonte Springs (ACApfelbeck@altamonte.org)

2015 International Existing Building Code

Revise as follows:

TABLE 1401.6.18
STANDPIPE SYSTEM VALUES

OCCUPANCY	CATEGORIES			
	a[a]	b	c	d
A-1, A-3, F, M, R, S-1	-6	0	2~~4~~	3~~6~~
A-2	-4	0	1~~2~~	2~~4~~
A-4, B, E, S-2	-12	0	3~~6~~	6~~12~~
I-2	-2	0	1	2

a. This option cannot be taken if Category a or Category b in Section 1401.6.17 is used.

Reason: Currently, the value of a standpipe system in Table 1401.6.18 is equivalent to the value of a sprinkler system in Table 1401.6.17 with similar points assigned across all occupancy groups with the exception of the recently added I-2. This is counter intuitive. The value of a sprinkler system in providing safe egress and fire control is significantly greater than a standpipe system in almost every fire scenario. This value should be reflected in the points within the tables. it does appear that the group I-2 changes from last cycle did take this into consideration as the value of a standpipe system in an I-2 is 12 to 20% of a sprinkler system in I-2. While this proposal does not go that far, it reduces the value of a standpipe system to 50% of the value of a sprinkler system. Arguably, it could be significantly less than the proposed number but the 50% value certainly passes the legitimacy test to a greater extent than the current equal valuations.

Cost Impact: Will increase the cost of construction
The reduced awarded points for a standpipe system will result in some buildings needing to impliment additional measures to achieve compliance with Chapter 14.

EB 91-15 : T1401.6.18-APFELBECK3847

EB 92-15

Table 1401.7

Proponent: Anthony Apfelbeck, City of Altamonte Springs Building/Fire Safety, representing City of Altamonte Springs (ACApfelbeck@altamonte.org); Janet Washburn, City of Hollywood Fire Rescue and Beach Safety, representing City of Hollywood Fire Rescue and Beach Safety (jwashburn@hollywoodfl.org)

2015 International Existing Building Code

Revise as follows:

1401.6.18 Standpipes. Evaluate the ability to initiate attack on a fire by a making supply of water available readily through the installation of standpipes in accordance with Section 905 of the *International Building Code*. "Required Standpipes" shall be based on the requirements of the *International Building Code*. Under the categories and occupancies in Table 1401.6.18, determine the appropriate value and enter that value into Table 1401.7 under Safety Parameter 1401.6.18, Standpipes, for fire safety, means of egress, and general safety.

TABLE 1401.7
SUMMARY SHEET-BUILDING CODE

Existing occupancy: ____			Proposed occupancy:______________________	
Year building was constructed: ________________________________			Number of stories:______ Height in feet:______	
Type of construction: ____			Area per floor:____________________________	
Percentage of open perimeter increase:______%				
Completely suppressed:		Yes ____ No ____	Corridor wall rating:_______________________	
Compartmentation:		Yes ____ No ____	Required door closers:	Yes ______ No ______
Fire-resistance rating of vertical opening enclosures ____				
Type of HVAC system:________________________________, serving number of floors:_______________________				
Automatic fire detection:		Yes _____ No _____	Type and location:________________________	
Fire alarm system:		Yes _____ No _____	Type:___________________________________	
Smoke control:		Yes _____ No _____	Type:___________________________________	
Adequate exit routes:		Yes _____ No _____	Dead ends:__________	Yes ______ No ______
Maximum exit access travel distance:________________________			Elevator controls:	Yes ______ No ______
Means of egress emergency lighting: Yes ______ No ______			Mixed occupancies:	Yes ______ No ______
Standpipes		Yes_______No_______	Patient ability for self-preservation _________________________	
Incidental use		Yes_______ No_______	Patient concentration ____________________________________	
Smoke compartmentation less				
than 22,500 sq. feet (2092 $m^{2)}$		Yes_______ No_______	Attendant-to-patient ratio _________________________________	

SAFETY PARAMETERS	FIRE SAFETY (FS)	MEANS OF EGRESS (ME)	GENERAL SAFETY (GS)
1401.6.1 Building Height 1401.6.2 Building Area 1401.6.3 Compartmentation			
1401.6.4 Tenant and Dwelling Unit Separations 1401.6.5 Corridor Walls 1401.6.6 Vertical Openings			
1401.6.7 HVAC Systems 1401.6.8 Automatic Fire Detection 1401.6.9 Fire Alarm System			
1401.6.10 Smoke control 1401.6.11 Means of Egress 1401.6.12 Dead ends	* * * * * * * * * * * *		

1401.6.13 Maximum Exit Access Travel Distance 1401.6.14 Elevator Control 1401.6.15 Means of Egress Emergency Lighting	* * * * * * * *		
1401.6.16 Mixed Occupancies 1401.6.17 Automatic Sprinklers 1401.6.18 Standpipes 1401.6.19 Incidental Use 1401.6.20 Smoke compartmentation 1401.6.21.1 Patient ability for self-preservation 1401.6.21.2 Patient concentration 1401.6.21.3 Attendant-to-patient Ratio	 * * * * * * * * * * * *	* * * * ÷2 = * * * *	
Building score—total value			

* * * *No applicable value to be inserted.

Reason: Anthony Apfelbeck:. This proposal revises Table 1401.7 to provide for "****" "No applicable value to be inserted" in the "Means of Egress" column for the "1401.6.18 Standpipes" row. It is very difficult to conceive of a fire scenario where standpipes would provide direct value to the "Mean of Egress" capability in a building. In fact, the exact opposite is the case. In fire scenarios with standpipes, there have been numerous situations where the FD operations have compromised the integrity of the stairwell or have impeded the exist capacity due to smoke intrusion into the exit stairwell or hose lines creating egress impediments. Therefore, there appears to be no or very minimum value for standpipes as a "Means of Egress" value.
Janet Washburn. I'm submitting a proposal to revised Table 1401.7 to provide **** "No applicable value to be inserted" in the Means of Egress colum for the 1401.6.18 Standpipes row. I do not believe there would be a scenario which would provide value to the Means of Egress in a building resulting from the presence of standpipes. Actually, the presence of standpipe may impede egress due the FD extending hose lines into an area from a protection exit. This could create tripping hazards and cause smoke to be permitted to enter a protected exit. Regardless, this section appears to have no value for standpipes as a "Means of Egress" value and should therefore be modified as such.

Cost Impact: Will increase the cost of construction
Anthony Apfelbeck. The eliminations of "Standpipes" as a "Means of Egress" value may cause some limited buildings to make additional improvements under the IEBC when utilizing Chapter 14.
Janet Washburn. It will increase the cost of construction. The elimination of Standpipes as a means of egress value may cause some limited buildings to make additional improvements under the IEBC when using Chapter 14.

EB 92-15 : T1401.7-APFELBECK3776

EB 93-15

[BE] 1508.1

Proponent: Edward Kulik, Chair, representing Building Code Action Committee (bcac@iccsafe.org)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEE.

2015 International Existing Building Code

Revise as follows:

[BE] 1508.1 Construction sites. Structures, sites, and equipment directly associated with the actual process of construction, including but not limited to scaffolding, bridging, material hoists, material storage, or construction trailers are not required to ~~be accessible.~~comply with Chapter 11 of the IBC.

Reason: The intent is to coordinate IEBC Section 1508.1 with the new language in IBC Section 1103.2.5.
IBC Section 1103.2.5 reads as follows:

1103.2.5 Construction sites. Structures, sites and equipment directly associated with the actual processes of construction including, but not limited to, scaffolding, bridging, materials hoists, materials storage or construction trailers are not required to comply with this chapter.

In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled IBC Coordination with the New ADAAG. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

This public proposal is submitted by the ICC Building Code Action Committee (BCAC). The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 13 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification of current requirements; therefore, there is no impact on the cost.

EB 93-15 : [BE] 1508.1-KULIK3356

EB 94-15

705.1.2

Proponent: andrew cid, representing Private Citizen, for : The Initiative for Emergency Elevator Communication Systems for the Deaf, Hard of Hearing and Speech Impaired (andycid99@gmail.com)

2015 International Existing Building Code

Add new text as follows:

705.1.2 Elevators. Altered elements of existing elevators shall be provided with an emergency two-way communication system in accordance with the following system criteria:

1. Is a visual text-based and a video-based live interactive system,
2. Is fully accessible by the deaf and hard of hearing and speech impaired, and
3. Is located between the elevator car and the local emergency authorities at a point outside of the hoistway.

Such elements shall also be altered in elevators programmed to respond to the same hall call control as the altered elevator.

Reason: Reason for Change to the Language of Chapter 7 - Section 705. 1.2 Elevators :
The addition of the terms "visual, text-based and video-based live interactive communication systems" is strongly recommended to emphasize the need for totally accessible communication in elevators between emergency authorities and individuals who are: Deaf, Hard of Hearing, and Speech Impaired. This type of system is recommended for installation in public elevators in existing buildings and for new construction.

Current code under Section 705.1.2 Elevators - does not permit nor provide two-way live interactive visual and total accessibility for the Deaf / Hard of Hearing community in the United States and internationally. Current code requires only one or two-way audible, auditory or telephone / push button response communication systems for the hearing community. This IEBC proposal (and previously submitted IBC proposal) aims to change the current code to enable the communication systems be accessible to all, not just to the hearing individuals.

(The following information, originally submitted as a proposal to the A117.1 Standard for the 2015 Cycle, is submitted as supporting documentation to the IEBC proposal due by January 12, 2015.

The IEBC submission is proposing to amend IEBC Chapter 7 – Section 705.1.2 Elevators, to comply with the A117.1 proposal as outlined below)

ICC A117.1 Standard Proposal
Submitted by
Andrew Cid, Amherst, NH – December 8, 2014

"Elevator Code Change to ANSI A117.1 - Elevators / Section 407.4.10"

To Implement An:
Emergency Elevator Communication System For The Deaf & Hard of Hearing
(EECSDHOH)

Reason for Change to the Language of 407.4.10:

The addition of the terms "visual, text-based and video-based live interactive communication systems" is strongly recommended to emphasize the need for totally accessible communication in elevators between emergency authorities and individuals who are: Deaf, Hard of Hearing, and Speech Impaired. This type of system is recommended for installation in public elevators in existing buildings and for new construction.

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The Problem with the Current Code under Building Elevators – Section 407.4.10

Current code under Section 407.4.10 does not permit nor provide two-way live interactive visual and total accessibility for the Deaf / Hard of Hearing community in the United States and internationally. Current code requires only one or two-way audible, auditory or telephone / push button response communication systems for the hearing community.

What Needs To Be Accomplished

Current code needs to be amended to reflect the needs of the Deaf / Hard of Hearing community and of the speech impaired community in the U.S. and internationally. Simply stated, the ultimate goal is to have local, state, federal laws amend current building code in accordance with ICC codes to mandate all commercial, residential and public buildings install live interactive two-way real time communication systems in passenger elevators that are fully accessible to all individuals within the Deaf / HOH community. Currently, all commercial, public and residential elevators in the world are not accessible for these particular individuals.
Rationale of Amending Current Code

The rationale behind this proposal to amend code 407.4.10 is to permit the Deaf / Hard of Hearing and the Speech Impaired to, efficiently and seamlessly, utilize an emergency communication system in the event of an emergency (e.g., regional black outs, local power outage, "a national event", brown outs, etc.). Health and safety concerns are also severely compromised in the event of an elevator mechanical breakdown of this nature. Without accessible two-way communication assistance equipment installed, an elevator can be a dangerous place for a single occupant who happens to be Deaf / HOH. This is especially perilous if the individual happens to have a heart condition or a medical condition. Without knowing what is taking place beyond those doors, an individual in this circumstance may suffer a panic attack or a heart attack. This common form of transport could cause serious harm to the health and safety of the people who ride them. Elderly and disabled passengers who happen to be Deaf / HOH suffer most when elevators malfunction. They can become entrapped for hours. Please note that an incident occurred in October 2014 in Norfolk, Virginia when two Deaf adults were trapped in a hotel elevator due to a local power outage. Hotel personnel did not know they were in there. The occupants had to text a friend via smartphone who lived nearby and ask them to alert hotel management. They were eventually rescued by the local fire department by passing handwritten notes through the cab doors .
What Is Currently Being Done

Various committees, elevator advisory groups, and a task force have already been formed to study this deficiency. The parties above include various representatives from: federal agencies, American Society of Mechanical Engineers (ASME), national Deaf / Hard of Hearing advocacy organizations, architects, state, local and federal first-responder emergency authorities, elevator industry consultants, Deaf activists, etc. It is expected that an agreement or MOU will be prepared outlining the steps that need to be taken to accomplish this goal. An unofficial general consensus is that amended code is needed to address this deficiency. The issue of communication responsibilities between emergency authorities and building owners need to be clarified. This proposal hopefully serves notice to the various telecommunications firms in the U.S. and globally to commence work on a working and competitive design and, possibly, a prototype between 2015 and 2018. The MOU will be an example of what can be accomplished when diverse groups work together to achieve a common goal. The result in this case will benefit literally millions of individuals globally.

Social Media is being utilized to create awareness of this issue and to garner global support. A public Facebook (FB) page was set up to support this endeavor. In the FB search bar, type in: Emergency Elevator Communication System for The Deaf / Hard of Hearing

The page has daily or weekly updates or posts entered by the moderator to keep the community apprised of progress.
Benefits

The Deaf / Hard of Hearing and the Speech Impaired communities will benefit greatly from increased access and an assurance of safety. Subsequent beneficiaries of code change success are the various large and small businesses that will be created and the thousands of jobs in support of these businesses.
Other beneficiaries of job creation will be the various firms within the socio-economic categories under the Small Business Administration's (SBA) definition of disadvantaged businesses, such as: Small Disadvantaged Business (SDB), Women-Owned Small Business (WOSB), Veteran-Owned Small Business (VOSB), Small Disabled Veteran-Owned (SDVO), Hub-Zone businesses, and

American Native-Owned businesses. Sourcing work out to these small firms will inevitably have a trickle effect among the communities in which they are located. By fostering competition among all of these various firms, local, state, and federal tax revenue will increase exponentially. Unemployment rates will also be reduced, as well.

New Construction / Existing Buildings

It is recommended that the amended code will need to be applied to all new construction of buildings over three floors. In addition, existing buildings will need to comply with the amended code at the next major elevator repair or alteration. Accessible communication systems for the Deaf/HOH must be installed during all Level 1 and Level 2 alterations for all existing and historic buildings because the International Existing Building Code (IEBC) will need to comply with A117.1. These communication systems will not change the SF or space configuration of existing buildings. Also, in accordance with IEBC 705.1.2 Elevators - Altered elements of existing elevators shall comply with ASME A17.1/CSA B44 and ICC A117.1.

What Type of Communication Systems are Recommended?

Some possible alternatives for sources of interactive two-way systems are, but not limited to: Pre-programmed, vandal-proof (flush into the wall) Wi-Fi tablets for emergency communication use, and / or LCD screens typed by remote contract CART or contract Captioners listening to emergency authority personnel, or through Live-interactive video-conferencing screens, etc. Placement of these systems is not considered to be a major deterrent as there is ample space in an elevator cab via the front or side panel walls. Several private firms were contacted for research purposes for this initiative. A general consensus declares that the technology is already out there but just have not been implemented into elevators as of yet because there is no market for it or demand for it, per se, for this type of device because code does not call for it. These are all high-technology driven firms and may require design and consulting input from electrical design engineers in the federal and private sectors in order to obtain a working consensus on a functional design prototype that enables all users to contact the authorities for emergency assistance. They are ready to work on a design if code requires it.

What Are The Costs To Building Owners and Operators?

The owners and operators can apply cost upgrades and retrofits to the various cost incentives and

Tax write-offs available from local, state or Federal Governments for complying with this amended code. In view of this approach, there is no need for dissent to this code proposal among the public, commercial, industrial, residential building owners/operators and the hotel / lodging industries.

Win-Win

The Deaf / HOH and Speech Impaired communities are not the only parties who will benefit from the amended code. All building owners / operators will benefit with the knowledge that their facilities are up to code and may avoid litigation stemming from potential lawsuits from said parties trapped in inaccessible elevators and who are unable to communicate with building or external emergency personnel.

Conclusion

Approval of this code amendment proposal is essential and long overdue. If the ICC adopts the code change proposal to 407.4.10 as part of the 2015 ICC Standard Code, the updated code would provide the global Deaf / Hard of Hearing and Speech impaired communities an assurance of safety, which is a higher standard than mere safety. In addition, as stated previously, this will be a win-win for both building owners and the people who visit, live and work in these buildings, and this will create thousands of new jobs.

Cost Impact: Will not increase the cost of construction

Cost Impact - The cost impact, to a recommended 70% of the existing building inventory for public and commercial buildings that are three (3) stories or higher with elevators, is expected to be negligible or minimal to the building owner / operator.

A full comprehensive version of the system is recommended for new construction and an alternative or lower cost version of the system is recommended for existing buildings.

Any costs incurred is anticipated to be alleviated wth the use of various incentives such as tax write offs for complying with new accessibility standards. In addition, for new construction, it is expected that there will be no significant additional costs involved because it will be built into the design / build. For existing buildings, the cost is built into the next alteration or major repair projects, and estimated to be approximately $2,500. For new construction, the system will cost approximately $5,000. Personal research indicates that these estimates are at the higher end of the cost range, so the actual cost may be much lower.

Note: The technology is on the market, it just has not been put into use yet for this type of requirement because code does not exist for it. This proposal aims to make this a required code and to comply with the amended A117.1 ICC Standard.

EB 94-15 : 705.1.2 (New)-CID5233

2015 GROUP A – PROPOSED CHANGES TO THE INTERNATIONAL FUEL GAS CODE

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TENTATIVE ORDER OF DISCUSSION
2015 PROPOSED CHANGES TO THE
INTERNATIONAL FUEL GAS CODE

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

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

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FG 1-15

202 (New)

Proponent: Donald Jones, None, representing Self

2015 International Fuel Gas Code

Add new definition as follows:

SECTION 202 DEFINITIONS

TOILET, GAS-FIRED An appliance, comprised of a toilet and an incinerator that is manufactured and installed as one complete unit, and is used to reduce human fecal matter to ash

Reason: Water heater, boilers, and furnaces are defined in this code. Less common appliances such as gas-fired air conditioners and log lighters are also defined in this code. Gas-fired toilets are referenced in 626.1and 626.2, but they are not defined in this code.

Cost Impact: Will not increase the cost of construction
This is a definition only. It will not increase the cost of construction.

FG 1-15 : 202-TOILET, GAS-FIRED (New)-JONES5202

FG 2-15

202

Proponent: James Ranfone, American Gas Association, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Revise as follows:

SECTION 202 DEFINITIONS

[M] APPLIANCE. Any apparatus or device that utilizes a fuel or a raw material as a fuel to produce light, heat, power, refrigeration or air conditioning. Also, an apparatus that compresses fuel gases.

Reason: A new generation of residential CNG fueling systems are under development that would be design certifited to a new ANSI standard. These appliances would not be considered an appliance under the current definition. They will consume electricity to compress fuels. The revision will ensure that all of the IFGC's general appliance installation requirements are also applied to residential CNG equipment. The change would also correct an inconsistency in the current IFGC where Sections 413.2.3 and 413.4 currently refers to this equipment as appliances.

Cost Impact: Will not increase the cost of construction
The change does not impact appliance installation costs for those already covered by the deffintion.

FG 2-15 : 202 [M] APPLIANCE-RANFONE4933

FG 3-15

202

Proponent: Curtis Dady, Viega, LLC, representing Viega, LLC (curtis.dady@viega.us)

2015 International Fuel Gas Code

Revise as follows:

SECTION 202 DEFINITIONS

JOINT, MECHANICAL. A general form of gas-tight joints obtained by the joining of metal parts through a positiveholding mechanical construction, such as ~~press~~press-connect joint, flanged joint, threaded joint, flared joint or compression joint.

Reason: Harmonize the designation and definition of PRESS-CONNECT fittings and joints throughout the code.
Both referenced standards (ANSI LC-4/CSA 6.32 and ASME B16.51) listed in the code use the designation "press-connect" in the title and body of the standard as well as code sections IPC 605.14.5, IRC P2906.18 and IRC G2414.10.2.

Cost Impact: Will not increase the cost of construction
Change is editorial and has no affect on installation.

FG 3-15 : 202-JOINT, MECHANICAL-DADY3655

FG 4-15

202

Proponent: James Ranfone, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Revise as follows:

SECTION 202 DEFINITIONS

FURNACE, CENTRAL

A self-contained *appliance* for heating air by transfer of heat of combustion through metal to the air, and designed to supply heated air through ducts to spaces remote from or adjacent to the *appliance* location.

~~**Downflow furnace.** A furnace designed with airflow discharge vertically downward at or near the bottom of the furnace.~~

~~**Forced air furnace with cooling unit.** A single-package unit, consisting of a gas-fired forced-air furnace of one of the types listed below combined with an electrically or fuel gas-powered summer air-conditioning system, contained in a common casing.~~

~~**Forced-air type.** A central furnace equipped with a fan or blower that provides the primary means for circulation of air.~~

~~**Gravity furnace with booster fan.** A furnace equipped with a booster fan that does not materially restrict free circulation of air by gravity flow when the fan is not in operation.~~

~~**Gravity type.** A central furnace depending primarily on circulation of air by gravity.~~

~~**Horizontal forced-air type.** A furnace with airflow through the *appliance* essentially in a horizontal path.~~

~~**Multiple-position furnace.** A furnace designed so that it can be installed with the airflow discharge in the upflow, horizontal or downflow direction.~~

~~**Upflow furnace.** A furnace designed with airflow discharge vertically upward at or near the top of the furnace. This classification includes "highboy" furnaces with the blower mounted below the heating element and "lowboy" furnaces with the blower mounted beside the heating element.~~

Reason: The IFGC code requirements do not differentiate between the various furnace types proposed to be deleted and the terms do not appear in the code. Definitions for Central Furnace and Forced-air type will remian in the code.

Cost Impact: Will not increase the cost of construction
Furnaces described by the deleted definitions are covered under the remianing two definitions and their installation are not impacted by this change.

FG 4-15 : 202-DOWNFLOW FURNACE-RANFONE4943

FG 5-15

202

Proponent: James Ranfone, American Gas Association, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Revise as follows:

SECTION 202 DEFINITIONS

[M] PIPING. Where used in this code, "*piping*" refers to either pipe or tubing, or both.

Pipe. A rigid conduit of iron, steel, copper, ~~brass~~ copper-alloy or plastic.

Tubing. Semirigid conduit of copper, aluminum, plastic or steel.

Reason: The term brass was replaced with copper alloy througout the IFGC (S) extracted sections. The definition revision coordinates with those changes. The copper industry no longer refers to brass using the term copper alloy.

Cost Impact: Will not increase the cost of construction
Same material - different name.

FG 5-15 : 202-PIPE-RANFONE4957

FG 6-15
202

Proponent: James Ranfone, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Revise as follows:

SECTION 202 DEFINITIONS

REGULATOR, GAS APPLIANCE.
A pressure regulator for controlling pressure to the manifold of the *appliance*. ~~Types of *appliance* regulators are as follows:~~

~~**Adjustable.**~~

1. ~~Spring type, limited adjustment. A regulator in which the regulating force acting upon the diaphragm is derived principally from a spring, the loading of which is adjustable over a range of not more than 15 percent of the outlet pressure at the midpoint of the adjustment range.~~
2. ~~Spring type, standard adjustment. A regulator in which the regulating force acting upon the diaphragm is derived principally from a spring, the loading of which is adjustable. The adjustment means shall be concealed.~~

~~**Multistage.** A regulator for use with a single gas whose adjustment means is capable of being positioned manually or automatically to two or more predetermined outlet pressure settings. Each of these settings shall be adjustable or nonadjustable. The regulator may modulate outlet pressures automatically between its maximum and minimum predetermined outlet pressure settings.~~

~~**Nonadjustable.**~~

1. ~~Spring type, nonadjustable. A regulator in which the regulating force acting upon the diaphragm is derived principally from a spring, the loading of which is not field adjustable.~~
2. ~~Weight type. A regulator in which the regulating force acting upon the diaphragm is derived from a weight or combination of weights.~~

Reason: The IFGC code requirements do not differentiate between the various appliance regulator types and the terms do not appear in the code.

Cost Impact: Will not increase the cost of construction
The regulator whose definitions are deleted are covered by the general definition without chage in installation requirements.

FG 6-15 : 202-REGULATOR, GAS APPLIANCE-RANFONE4945

FG 7-15

202 (New)

Proponent: James Ranfone, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Add new definition as follows:

SECTION 202 DEFINITIONS

<u>**Regulator, Monitoring** A pressure regulator set in series with another pressure regulator for the purpose of automatically taking control of the pressure downstream of the monitored regulator when that pressure exceeds a set minimum.</u>

Reason: Add a definition for the term monitoring regulator that was added into Section 416.5.

Cost Impact: Will not increase the cost of construction
The term is currently undefined but code requirements exist. The new definition does not impact the cost of installation.

FG 7-15 : 202-REGULATOR, MONITORING (New)-RANFONE4950

FG 8-15

202 (New)

Proponent: James Ranfone, American Gas Association, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Add new definition as follows:

SECTION 202 DEFINITIONS

Regulator, Series A pressure regulator in series with one or more other pressure regulators.

Reason: Add a definition for the term series regulator that was added into Section 416.5.

Cost Impact: Will not increase the cost of construction
The new definition for a term used within the code does not change the installation requirements and therefore has no impact on installation cost.

FG 8-15 : 202-REGULATOR, SERIES (New)-RANFONE4953

FG 9-15

202

Proponent: James Ranfone, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Revise as follows:

SECTION 202 DEFINITIONS

THERMOSTAT.

Electric switch type.
A device that senses changes in temperature and controls electrically, by means of separate components, the flow of gas to the burner(s) to maintain selected temperatures.

~~**Integral gas valve type.** An automatic device, actuated by temperature changes, designed to control the gas supply to the burner(s) in order to maintain temperatures between predetermined limits, and in which the thermal actuating element is an integral part of the device.~~

1. ~~Graduating thermostat. A thermostat in which the motion of the valve is approximately in direct proportion to the effective motion of the thermal element induced by temperature change.~~
2. ~~Snap-acting thermostat. A thermostat in which the thermostatic valve travels instantly from the closed to the open position, and vice versa.~~

Reason: The term integral gas valve type thermostat does not appear in the IFGC.

Cost Impact: Will not increase the cost of construction
There are no specific code requirements for this type of thermostat.

FG 9-15 : 202-THERMOSTAT-RANFONE4947

FG 10-15

202

Proponent: James Ranfone, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Delete and substitute as follows:

SECTION 202 DEFINITIONS

UNIT HEATER.

~~**High-static pressure type.** A self-contained, automatically controlled, vented *appliance* having integral means for circulation of air against 0.2 inch (15 mm H_2O) or greater static pressure. Such *appliance* is equipped with provisions for attaching an outlet air duct and, where the *appliance* is for indoor installation remote from the space to be heated, is also equipped with provisions for attaching an inlet air duct.~~

~~**Low-static pressure type.** A self-contained, automatically controlled, vented *appliance*, intended for installation in the space to be heated without the use of ducts, having integral means for circulation of air. Such units are allowed to be equipped with louvers or face extensions made in accordance with the manufacturer's specifications.~~

A self-contained, automatically controlled, vented, fuel-gas-burning space-heating appliance, intended for installation in the space to be heated without the use of ducts, and having integral means for circulation of air.

Reason: The IFGC code requirements do not differentiate between high- and low-static unit heaters and the terms do not appear in the code. The revised simplified definition is taken from the revised definition in the 2015 *National Fuel Gas Code*, ANSI Z223.1/NFPA 54. This proposal is offered solely for the purpose of coordinating the IFGC with ANSI Z223.1 (NFGC). This text is offered "as is" for the IFGC and it is not intended that such text be modified from a technical standpoint. The subject text was revised in the 2015 NFGC (ANSI Z223.1) and this proposal will cause the IFGC text to be consistent with such revised text in ANSI Z223.1 (NFGC).

Cost Impact: Will not increase the cost of construction
The definition does not change the installation requirements for unit heaters.

FG 10-15 : 202-UNIT HEATER (New)-RANFONE4938

FG 11-15

303.3

Proponent: Timothy Manz, representing Association of Minnesota Building Officials (tmanz@ci.blaine.mn.us)

2015 International Fuel Gas Code

Revise as follows:

303.3 Prohibited locations. Appliances shall not be located in sleeping rooms, bathrooms, toilet rooms, storage closets or surgical rooms, or in a space that opens only into such rooms or spaces, except where the installation complies with one of the following:

1. The *appliance* is a direct-vent *appliance* installed in accordance with the conditions of the listing and the manufacturer's instructions.
2. Vented room heaters, wall furnaces, vented decorative appliances, vented gas fireplaces, vented gas fireplace heaters and decorative appliances for installation in vented solid fuel-burning fireplaces are installed in rooms that meet the required volume criteria of Section 304.5.
3. A single wall-mounted unvented room heater is installed in a bathroom and such unvented room heater is equipped as specified in Section 621.6 and has an input rating not greater than 6,000 Btu/h (1.76 kW). The bathroom shall meet the required volume criteria of Section 304.5.
4. A single wall-mounted unvented room heater is installed in a bedroom and such unvented room heater is equipped as specified in Section 621.6 and has an input rating not greater than 10,000 Btu/h (2.93 kW). The bedroom shall meet the required volume criteria of Section 304.5.
5. The *appliance* is installed in a room or space that opens only into a bedroom or bathroom, and such room or space is used for no other purpose and is provided with a solid weather-stripped door equipped with an *approved* self-closing device. All *combustion air* shall be taken directly from the outdoors in accordance with Section 304.6.
6. <u>A gas clothes dryer is installed in a bathroom or toilet room and a permanent opening having an area of not less than 100 square inches is provided that allows the toilet room or bathroom to communicate with a common hallway or common space.</u>

Reason: In older homes the electrical service is not large enough for an electric dryer, so installing a gas dryer is the only option. In many homes it is desirable to have the gas dryer in an over-sized bathroom or toilet room on an upper floor. This provision provides a safe installation by requiring a minimum 100 square inch opening to a common space that ensures adequate natural ventilation is provided.

Cost Impact: Will not increase the cost of construction
This provision will not increase the cost of construction since it provides flexibility in the dryer installation.

FG 11-15 : 303.3-MANZ5820

FG 12-15

303.3.1 (New)

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Fuel Gas Code

Add new text as follows:

303.3.1 Fireplaces and decorative appliances in Group I-2 Condition 2 occupancies. Gas fireplace appliances and decorative gas appliances shall be prohibited in Group I-2, condition 2 occupancies except in public lobby and waiting areas that are not within smoke compartments containing patient sleeping areas. Such fireplace appliances and decorative appliances shall be installed in accordance with all of the following:

1. The appliances shall be vented to the outdoors.
2. The appliances be of the direct-vent type.
3. The appliances shall automatically shut off upon activation of the fire alarm system serving the occupancy.
4. The appliance controls shall be located where they can be accessed only by facility staff.
5. A carbon monoxide detector with a local alarm shall be provided and installed in accordance with Section 915 of the *International Fire Code*.

Reason: The AHC committee is recommending limitations for the use of fuel gas-fired fireplaces and decorative equipment and the restriction of solid-fuel burning fireplaces and appliances in the Group I-2, Condition 2 occupancy. Please note: these are not new requirements for the Group I-2 Occupancy facilities but are needed in the I-Codes for coordination of the long-standing provision of the construction and operational requirements for healthcare facilities.

It is standard practice and operational procedure to control the ignition sources in healthcare occupancies that can contain combustible, flammable (and sometimes even explosive) material. Fire risks need to be limited to the maximum extent feasible and specific requirements for these facilities are not currently or are not completely addressed in the I-Codes.

The language proposed in the IFGC prescribes limitations and conditions to provide the necessary safety and limitations of hazards from within the healthcare environments to the fire and ignition sources inherent to all gas-fired fireplaces and appliances. Combustion air has been restricted from being drawn from healthcare environments extending beyond the last decade and is not a new requirement.

The physical separation of the combustion chambers of gas-fired fireplaces and equipment is required to separate and provide a barrier between the ignition sources and the environmental air within healthcare occupancies. All combustion air is required to be taken directly from the exterior of the building in accordance with an existing exception that is provided for in IFGC Section 303.3.

The placement of solid fuel burning fireplaces and appliances, both decorative and heating, creates conditions where open flames that are not otherwise able to be controlled or extinguished like the similar gas-fed and fired appliances. This is why the Adhoc Healthcare Committee is proposing their restriction instead of a limitation with operational and special control equipment.

The code sections that address the installation limitations of fuel gas-fired fireplaces and appliances will also provide alternative means for compliance for existing facilities. Given the hazards present with these appliances in the Group I-2, Condition 2 Occupancies, the proposed IFC requirements will be 'retro-active' requirements for healthcare occupancies (Group I-2);

The proposals to the IFC that are being put forth by the Adhoc Healthcare Committee have been drafted to clarify, restrict and limit the ignition source hazards in healthcare occupancies and also will reference similar requirements being proposed in the IBC, IMC AND IFGC. For instance, solid fuel heating appliances are limited by other requirements of the IMC which is why heating appliances are not needed to be referenced in this section of the *IFGC.*

There was a concern mentioned during testimony at the code hearings for the 2012 I-codes that the AHC code change proposals placing restrictions on solid fuel burning fireplaces and appliances and fuel gas-fired fireplaces and appliances might be misinterpreted to prohibit mechanical heating equipment elsewhere regulated in the IMC.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website.http://www.iccsafe.org/cs/AHC/Pages/default.aspx

Cost Impact: Will not increase the cost of construction
Wood burning fireplaces are not permitted by the federal CMS regulations, therefore, there is no change in cost of construction.

FG 12-15 : 303.3.1 (New)-WILLIAMS4239

FG 13-15

303.7

Proponent: Guy McMann, Jefferson County Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Fuel Gas Code

Revise as follows:

303.7 Pit locations. Appliances installed in pits or excavations shall not come in direct contact with the surrounding soil and shall be installed not less than 6 inches above the pit or excavation floor. The sides of the pit or excavation shall be held back a minimum of 12 inches (305 mm) from the *appliance*. Where the depth exceeds 12 inches (305 mm) below adjoining grade, the walls of the pit or excavation shall be lined with concrete or masonry, such concrete or masonry shall extend a minimum of 4 inches (102 mm) above adjoining grade and shall have sufficient lateral load-bearing capacity to resist collapse. Excavation on the control side of the appliance shall extend not less than 30 inches (762 mm) horizontally from the appliance. The *appliance* shall be protected from flooding in an *approved* manner.

Reason: This section lacks some detail in floor and control side language. This modification completes this section and has all the information necessary for a code compliant installatoin.

Cost Impact: Will not increase the cost of construction
There will be no additional cost as this is only a correlation between codes to make them consistent with each other.

FG 13-15 : 303.7-MCMANN3367

FG 14-15

304.13(IFGS) (New)

Proponent: James Ranfone, American Gas Association, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Add new text as follows:

304.13(IFGS) Existing appliances. Where an existing appliance is located within the conditioned space of an existing building envelope and where a building envelope component, other than roofiing material, is replaced or altered, the appliance installation shall be inspected to verify compliance with the provisions of Section 304 and Chapter 5. Where an appliance installation does not comply with Section 304 and Chapter 5, it shall be altered as necessary to be in compliance with such.

Reason: AGA is proposing an extract of section 9.1.24 from ANSI Z223.1, National Fuel Gas Code.
The code requirement would address renovations to existing buildings that could impact the supply of combustion air and the performance of venting systems. AGA is aware of weatherization programs that fail to consider the importance of ensuring that existing gas appliance installations continue to meet the IFGC combustion air and venting requirements when efforts to reduce air infiltration are undertaken. This proposal is offered solely for the purpose of coordinating the IFGC with ANSI Z223.1 (NFGC). This text is offered "as is" for the IFGC and it is not intended that such text be modified from a technical standpoint. The subject text was revised in the 2015 NFGC (ANSI Z223.1) and this proposal will cause the IFGC text to be consistent with such revised text in ANSI Z223.1 (NFGC).

Cost Impact: Will increase the cost of construction
The cost to inspect appliances will be added to projects that alter exterior building components. There may be additional costs to bring the appliance installation up to compliance with the IFGC. These are necessary costs to ensure the life-safety of the building occupants.

FG 14-15 : 304.13 (IFGS) (New)-RANFONE4964

FG 16-15

401.9

Proponent: James Ranfone, American Gas Association, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Revise as follows:

401.9 Identification. Each length of pipe and tubing and each pipe fitting, utilized in a fuel gas system, shall bear the identification of the manufacturer.

Exceptions:

1. Steel pipe fittings one inch and less in size.
2. Steel pipe sections that are: two feet and less in length, cut from longer sections of pipe in the field and threaded in the field.

Reason: The first exception would allow short lenghts of steel pipe that are cut from longer pipe stock containing the required identification markings. Is is common practice to cut short lenghts of pipe from longer pipe stock and threading them in the field. The cuts may result in the manufacturer's identification marking not appearing on the finished cut pipe. The second exception would allow small pipe fittings not to have manufacturer's markings. Small fittings used in low pressure gas piping installations represent an extremely low risk of failure and therefore manufacturer identification would serve no purpose.

Cost Impact: Will not increase the cost of construction
No new code requirements that would result in increased cost are proposed.

FG 16-15 : 401.9-RANFONE4971

FG 17-15

401.9

Proponent: James Ranfone, American Gas Association, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Revise as follows:

401.9 Identification. Each length of pipe and tubing and each pipe fitting, utilized in a fuel gas system, shall bear the identification of the manufacturer.

Exceptions:

1. Steel pipe sections that are: two feet and less in length, cut from longer sections of pipe in the field and threaded in the field.
2. Steel pipe fittings 2 inch and less in size.
3. Where identification is provided on the product packaging or crating.
4. Where other approved documentation is provided.

Reason: The new exceptions would allow the following:

1. Short lengths of steel pipe that are cut from longer pipe stock where the stock has identification markings. It is common practice to cut short lengths of pipe from longer pipe stock. In those cases the identification marks may not appear on the cut pieces.

2. Small fittings such as bushings and couplings where markings have not been traditionally been included. These small diameter fittings are commonly used in low pressure gas piping systems rand represent an extremely low risk of failure.

3. Where the packaging or documentation for the part has the manufacturer's identification but the part does not. Very small fittings and accessories often come in packaging that have the manufacturer's identification. At least one State, Georgia, has amended the IFGC to allow such an exception. The GA text states "401.9 Identification. Each length of pipe and tubing utilized in a fuel gas system shall bear the identification of the manufacturer.   It not provided on the packaging or crating or by other approved documentations, each pipe fitting, utilized in a fuel gas system shall bear the identification of the manufacturer. "

Cost Impact: Will not increase the cost of construction
The proposal provides alternate methods to meat current code requirements.

FG 17-15 : 401.9-RANFONE5638

FG 18-15

401.9

Proponent: Bruce Swiecicki, representing National Propane Gas Association (bswiecicki@npga.org)

2015 International Fuel Gas Code

Revise as follows:

401.9 Identification. Each length of pipe and tubing~~ and each pipe fitting,~~ utilized in a fuel gas system, shall ~~bear~~ be marked with the identification of the manufacturer.

Reason: Many fittings are not capable of being marked, such as the "all-thread" nipple. To NPGA's knowledge, no fitting manufacturer currently marks every fitting produced and there is no safety benefit to doing so. This is an example of a costly requirement that appears to have no value to either the code official, the installer, the building owner or the emergency responder.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because it is removing an onerous requirement for marking pipe fittings. Manufacturing costs will decrease as a result of not having to include an additional step by using machinery to put the manufacturer's mark on the pipe fittings it manufactures. This cost savings is expected to be passed on to the purchaser of the pipe fittings.

FG 18-15 : 401.9-SWIECICKI5660

FG 19-15

401.10

Proponent: James Ranfone, American Gas Association, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Revise as follows:

401.10 Third-party testing and certification. Piping, tubing and fittings shall comply with the applicable referenced standards, specifications and performance criteria of this code and shall be identified in accordance with Section 401.9. ~~Piping, tubing~~ Tubing and tubing fittings shall either be tested by an approved third-party testing agency or certified by an approved third-party certification agency.

Reason: There is no evidence that third-party testing and certification of schedule 40 steel piping and fittings is necessary to help ensure safety. This material has a long history of being manufactured in accordance with long standing material standards and has been safety used for fuel gas distrubution going back over 100 years.

Cost Impact: Will not increase the cost of construction
The proposal does not create new installation requirements for schedule 40 pipe.

FG 19-15 : 401.10-RANFONE4974

FG 20-15

401.10

Proponent: Bruce Swiecicki, representing National Propane Gas Association (bswiecicki@npga.org)

2015 International Fuel Gas Code

Delete and substitute as follows:

401.10 ~~Third-party testing and certification.~~Piping materials standards. ~~Piping, tubing and fittings shall comply with the applicable referenced standards, specifications and performance criteria of this code and shall be identified in accordance with Section 401.9. Piping, tubing and fittings shall either be tested by an approved third-party testing agency or certified by an approved thirdparty certification agency.~~
Piping, tubing and fittings shall be manufactured to the applicable referenced standards, specifications and performance criteria listed in Section 403 of this code and shall be identified in accordance with Section 401.9.

Reason: This requirement in the International Fuel Gas Code has far ranging impact that wasn't anticipated at the code development hearings. In many cases, there are no certification or testing requirements to use for flare nuts, tees, pipe nipples, etc.
The current requirement in section 401.10 is extremely onerous to the fuel gas industry with very little, if any, benefit to society. Piping, tubing and fittings are fabricated to various materials standards, such as those published by the American Society for Testing and Materials (ASTM) and the American Society of Mechanical Engineers (ASME). The material standards are shown in Section 403 of the IFGC. Third party testing or certification is a needless and unjustified expense to the industry. There has been no data presented to indicate that piping and fittings have been failing in the field.

Cost Impact: Will not increase the cost of construction
This proposal will markedly decrease the cost of construction without affecting the safety of the piping installation. The reason is that manufacturers will not be required to pay for a needless excercise of obtaining a third party certification to verify that their manufactured products comply with the appropriate material standards.

FG 20-15 : 401.10-SWIECICKI5663

FG 21-15

404.6

Proponent: Guy McMann, Jefferson County, Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Fuel Gas Code

Revise as follows:

404.6 Underground penetrations prohibited. Gas *piping* shall not penetrate building foundation walls at any point ~~below grade~~<u>underground</u>. ~~Gas~~ <u>Buried gas</u> *piping* shall enter and exit a building at a point above grade and the annular space between the pipe and the wall shall be sealed.

Reason: This is a clarification that gas piping in meter vaults is not considered buried piping and does not need to rise above grade to enter a building because the vaults are not air tight.

Cost Impact: Will not increase the cost of construction
There will be no additional cost as this is a simple clarification.

FG 21-15 : 404.6-MCMANN3545

FG 22-15

404.6

Proponent: James Ranfone, American Gas Association, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Revise as follows:

404.6 ~~Underground penetrations prohibited.~~Piping through foundation wall. ~~Gas~~ *Underground piping* ~~shall not penetrate building~~installed through the outer foundation ~~walls at any point below grade. Gas~~ ~~*piping*~~ ~~shall enter and exit~~or basement wall of a building~~ at~~, shall be encased in a ~~point above grade and the annular~~protective sleeve or protected by an approved device or method. The space between the ~~pipe~~gas pipiing and the sleeve and between the sleeve and the wall shall be sealed to prevent entry of gas and water.

Reason: A change adopted into the 2015 edition prohibits gas piping from penetrating a foundation or basement wall below grade. This change was adoped without evidence that such penetrations have resulted in a safety concern. Below grade penetrations have a long been permitted and have proven to be a safe installation method. The revised language would reinstate this allowance. At least one State, Georgia, has amendedthe IFGC to delete the prohibition and allow below grade pentration similar to the proposed text. GA test is as follows: "404.6 Piping through foundation wall. Underground piping where installed below grade through the foundation or basement wall of a building, shall be encased is a protective pipe sleeve. The annular space between the gas piping and the sleeve shall be sealed."

Cost Impact: Will not increase the cost of construction
The reinstated installation practice will decrease installation costs.

FG 22-15 : 404.6-RANFONE4976

FG 23-15

404.6

Proponent: Bob Torbin, representing Omega Flex, Inc. (bob.torbin@omegaflex.net)

2015 International Fuel Gas Code

Revise as follows:

404.6 Underground penetrations prohibited. Gas *piping* shall not penetrate building foundation walls at any point below grade. Gas *piping* shall enter and exit a building at a point above grade and the annular space between the pipe and the wall shall be sealed.

> **Exception:** Penetration of the building foundation at a point below grade shall not be prohibited where the point of penetration is not less than 10 feet measured horizontally from any piping upstream of the point of delivery. Gas piping installed through the foundation wall below grade shall be sleeved and the annular space between the sleeve and wall and between the sleeve and piping shall be sealed.

Reason: The current restriction on underground penetration has little impact on single family homes and is intended to remain in effect. However, there are several disadvantages when this retriction is applied to inner city locations and multi-family buildings where difficult access and far greater distances could significantly impact both cost and safety. There can be many penetrations of the foundation wall already permitted including water line(s), sewer/water drains, and electrical service. Any fugitive gas could penetrate the foundation wall at any of these locations (if not properly sealed) whether or not the gas service is restricted to above grade penetrations. By separating the wall penetration of the gas service away from the source of any potential leakage (i.e. the plastic service line), the probability of seepage through the foundation wall at a distant penetration point is significantly reduced. The likelihood of such an event is already small, and the proposed revision to this code requirement attempts to balance the need for safety while recognizing the wide range of conditions associated with different building applications, construction style and siting issues.

Cost Impact: Will not increase the cost of construction
On single family construction, the general labor and materials will be the same whether the piping goes above or below grade and then through the foundation wall. However, on multi-family construction (such as townhouses) significant cost savings can be realized by allowing the individual unit piping (from a single meter bank) to be placed underground around the perimeter of the foundation, and then allowed to penetrate the foundation wall below grade rather than rise above grade.

FG 23-15 : 404.6-TORBIN4969

FG 24-15

404.11, 404.11.1 (New), 404.11.2 (New), 404.11.2, 404.11.3 (New), 404.11.4 (New), 404.11.1

Proponent: James Ranfone, American Gas Association, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Revise as follows:

404.11 Protection against corrosion. ~~Metallic~~ Steel pipe or tubing exposed to corrosive action, such as soil condition or moisture, shall be protected in ~~an *approved* manner. Zinc coatings (galvanizing) shall not be deemed adequate protection for gas *piping* underground. Where dissimilar metals are joined underground, an insulating coupling or fitting shall be used. *Piping* shall not be laid in contact~~accordance with ~~cinders~~Sections 404.11.1 through 404.11.5.

Add new text as follows:

404.11.1 Galvanizing Zinc coating shall not be deemed adequate protection for underground gas piping.

404.11.2 Protection methods. Underground piping shall comply with one or more of the following:

1. The piping shall be made of corrosion-resistant material that is suitable for the environment in which it will be installed.
2. Pipe shall have a factory-applied, electrically-insulating coating. Fittings and joints between sections of coated pipe shall be coated in accordance with the coating manufacturer's instructions.
3. The piping shal have a cathodic protection system installed and the system shall be monitored and maintained in accordance with an approved program.

Delete without substitution:

~~**404.11.2 Protective coatings and wrapping.** Pipe protective coatings and wrappings shall be *approved* for the application and shall be factory applied.~~

> ~~**Exception:** Where installed in accordance with the manufacturer's instructions, field application of coatings and wrappings shall be permitted for pipe nipples, fittings and locations where the factory coating or wrapping has been damaged or necessarily removed at joints.~~

Add new text as follows:

404.11.3 Dissimilar metals. Where dissimilar metals are joined underground, an insulating coupling or fitting shall be used.

404.11.4 Protection of risers. Steel risers connected to plastic piping shall be cathodically protected by means of a welded anode, except where such risers are anodeless risers.

Revise as follows:

~~**404.11.1**~~**404.11.5 Prohibited use.** *No change to text.*

Reason: The proposal replaces approved manner with additional enforceable code requirements and reorganizes the material for clarity based on new requirements adopted into the 2015 National Fuel Gas Code, ANSI Z223.1/NFPA 54. The reasons for the changes are as follows:

1. Corrosion protection will be required for steel piping. Previously, the section applied to all metallic piping. Copper is the other metallic material that can be used but it is less susceptible to corrosion. Both steel and copper are less often used for low pressure underground piping. Plastic pipe is now the preferred material for underground installations.

2. Unprotected steel piping is allowed where approved. There are some arid environments where corrosion projection may not be needed.

3.The approved projective means allows for materials that are suitable for the environment that they are installed in such as stainless steel.

4. All steel piping must be factory coated since field application often is incomplete containing holidays It is these holidays that can focus corrosive activity in one spot. Fittings and portions of steel pipe that is striped for installation would be required to be coated using manufacturer's specified materials and methods. This is similar coverage in existing 404.11.2.

5. An approved cathodic protective system is allowed. The NFGC did adopt extensive requirements for these systems but they are not proposed for the IFGC since the IFGC's focus is more on residential and light commercial.

6. New requirement that risers (other than anodeless) be projected. Failures of these risers have been reported to the NFGC committee.

Cost Impact: Will not increase the cost of construction
Most of the revisions are a reorganization of existing requirements.

FG 24-15 : 404.11.1-RANFONE5038

FG 25-15

404.14, Chapter 8

Proponent: Bob Torbin, Omega Flex, Inc., representing Omega Flex, Inc. (bob.torbin@omegaflex.net)

2015 International Fuel Gas Code

Revise as follows:

404.14 Piping underground beneath buildings. *Piping* installed underground beneath buildings is prohibited except where the *piping* is encased in a conduit of wrought iron, plastic pipe, steel pipe, a listed sleeve system or other *approved* conduit material designed to withstand the superimposed loads. The conduit shall be protected from corrosion in accordance with Section 404.11 and shall be installed in accordance with Section 404.14.1 or 404.14.2.

Reason: Reason: The ICC Evaluation Service has issued a listing criteria for polyetrhylene sleeved CSST (LC 1023) dated May 2009. The use of listed encasement systems (such as polyethylene sleeved CSST) has been included in the National Fuel Gas Code (NFPA 54) since the 2012 edition. One such product listed to LC 1023 is the Omega Flex PS-II CSST system. This product has been used underground without failure or damage for approximately ten years with thousands of installations. Use of pre-assembled encasement systems streamline the installation of gas piping beneath buildings and concrete slabs, and eliminates underground joints on both the conduit and the internal gas piping. This will improve safety when installing such systems by eliminating potential underground leakage sites while providing effective corrosion protectrion for the piping.

Bibliography: ICC LC-1023: PMG Listing Criteria for Polyethylene Sleeved Corrugated Stainless Steel Tubing: May 2009
ANSI LC-1-2014: Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing

Cost Impact: Will not increase the cost of construction
The proposed code change will not increase the cost of construction. The use of a pre-engineered encasement system will result in cost savings because the piping and conduit are installed simultaneously. This avoids the labor cost of separately installing and joining the conduit segments and the pulling the piping through the conduit. In addition, the sealing and venting methods (when required) are also integrated within the encasement system, and thus eliminating the need to separately assemble and inject non-standardized sealing/venting components and sealing materials into open-ended conduit around the existing piping.

FG 25-15 : 404.14-TORBIN4623

FG 26-15

404.17.3

Proponent: James Ranfone, American Gas Association, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Revise as follows:

404.17.3 Tracer. A yellow insulated copper tracer wire or other *approved* conductor, or a product specifically designed for that purpose, shall be installed adjacent to underground nonmetallic *piping*. *Access* shall be provided to the tracer wire or the tracer wire shall terminate above ground at each end of the nonmetallic *piping*. The tracer wire size shall be not less than 18 AWG and the insulation type shall be suitable for direct burial.

Reason: There are products specifically designed as a tracer locator. Several gas utilities have allowed these products to be used in place of the traditional wire. The 2015 National Fuel Gas Code, ANSI Z223.1/NFPA 54, in section 7.1.7.3 was revised to allow these products.

Cost Impact: Will not increase the cost of construction
Provides an optional method, the standard method is still allowed.

FG 26-15 : 404.17.3-RANFONE5051

FG 27-15

408.4

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Fuel Gas Code

Revise as follows:

408.4 Sediment trap. Where a sediment trap is not incorporated as part of the appliance, a sediment trap shall be installed downstream of the appliance shutoff valve as close to the inlet of the appliance as practical. The sediment trap shall be ~~either~~ a tee fitting having a capped nipple of any length installed vertically in the bottommost opening of the <u>run of the</u> tee as illustrated in Figure 408.4~~ or other device approved as an effective sediment trap~~. Illuminating appliances, ranges, clothes dryers, decorative vented appliances for installation in vented fireplaces, gas fireplaces and outdoor grills need not be so equipped.

Reason: The option for an "other device approved as an effective sediment trap" has been misinterpreted to allow configurations of tees that allow debris to pass over a nipple and cap installed in the branch opening of a tee. The current option was meant to address factory-built sediment trap devices, but they are not known to exist. This proposal clarifies the intent by referring to the run of tee which is consistent with the current FIGURE 408.4 of the code. The intent is not to allow the nipple cap to be connected to the branch opening of a tee because debris can simply jump over the branch opening.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

FG 27-15 : 408.4-SNYDER3279

FG 28-15

408.4

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Fuel Gas Code

Revise as follows:

408.4 Sediment trap. Where a sediment trap is not incorporated as part of the appliance, a sediment trap shall be installed downstream of the appliance shutoff valve as close to the inlet of the appliance as practical. The sediment trap shall be either a tee fitting having a capped nipple of any length installed vertically in the bottommost opening of the tee as illustrated in Figure 408.4 or other device approved as an effective sediment trap. Illuminating appliances, ranges, ~~clothes dryers,~~ decorative vented appliances for installation in vented fireplaces, gas fireplaces and outdoor grills need not be so equipped.

Reason: The list of exempt appliances in this section is supposed to address those appliances that are attended while in use. The logic is that if the appliance is attended while in use, the operator would be aware of a malfunction and would act accordingly. It is arguable that such appliances are actually attended the entire time that they are used, but, it is obvious that clothes dryers are turned on and left unattended. Occupants often turn on clothes dryers and leave their home while the dryer operates. Clothes dryers are not attended while operating. Clothes dryers should have the same protection from debris in the gas line as furnaces, boilers, water heaters, etc.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because a sediment trap will be required where it was not previously required.

FG 28-15 : 408.4-SNYDER3280

FG 29-15

409.5.1

Proponent: James Ranfone, American Gas Association, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Revise as follows:

409.5.1 Located within same room. The shutoff valve shall be located in the same room as the *appliance*. The shutoff valve shall be within 6 feet (1829 mm) of the *appliance*, and shall be installed upstream of the union, connector or quick disconnect device it serves. Such shutoff valves shall be provided with *access*. <u>Shutoff valves serving movable appliances, such as cooking appliances and clothes dryers, shall be considered to be provided with access where installed behind such appliances.</u> *Appliance* shutoff valves located in the firebox of a *fireplace* shall be installed in accordance with the *appliance* manufacturer's instructions.

Reason: To clarify that an appliance shutoff valve installed behind or beside a movable appliance is allowed as long as the valve can be accessed by moving the appliance. There is some field confusion on the term "access" which is being misinterpreted as requiring the valve to be located in sight and readily accessible. At least one State, Georgia, has amended the IFGC to clarify that appliance shutoff valves can be installed in such locations. The State amendment reads: "409.5.4 Appliance valves, Shutoff valves located behind appliances such as range/ovens and clothes dryers shall be considered accessible."

Cost Impact: Will not increase the cost of construction
Clarifies the code intent.

FG 29-15 : 409.5.1-RANFONE5055

FG 30-15

409.5.3

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Fuel Gas Code

Revise as follows:

409.5.3 Located at manifold. Where the *appliance* shutoff valve is installed at a manifold, such shutoff valve shall be located within 50 feet (15 240 mm) of the *appliance* served, shall be located on the same floor level as the appliance served and shall be readily accessible and permanently identified. The *piping* from the manifold to within 6 feet (1829 mm) of the *appliance* shall be designed, sized and installed in accordance with Sections 401 through 408.

Reason: Section 409.5.3 allows the appliance shutoff valve to be located up to 50 feet from the appliance served. The code does not specify how the 50 foot limit is to be measured, therefore, it could be a straight line passing through walls and floors. This allowance could mean that a furnace in an attic could have its shutoff valve on a manifold that is located in the basement in a one, two or even 3 story building. Not only is this terribly inconvenient for the service personnel, but it could also be hazardous. In such cases, the service personnel would likely have to install a second shutoff valve at the appliance to save the hassle of running back and forth between the basement and the attic. There is no justification for allowing the only service shutoff valve to be so remote. The required shutoff valve is recognized as being there for servicing the appliance, however, it is not useful for servicing an appliance if it is located where it is impractical to access.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

FG 30-15 : 409.5.3-SNYDER3281

FG 31-15

409.7 (New)

Proponent: James Ranfone, American Gas Association, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Add new text as follows:

<u>**409.7** **Shutoff valves in tubing systems.** Shutoff valves installed in tubing systems shall be rigidly and securely supported independently of the tubing.</u>

Reason: Shutoff valves require independent support to prevent the possible twisting of the tubing when operating the valve. CSST systems already have this requirement in their installation instructions. Valves used in copper tubing systems should also be required to be secured. A similar requirement was added to the 2015 National Fuel Gas Code, ANSI Z223.1/NFPA 54, in section 7.3.6.

Cost Impact: Will increase the cost of construction
Minimum cost increase to secure the valve using low cost brackets to building members.

FG 31-15 : 409.7 (New)-RANFONE5059

FG 32-15

410.2

Proponent: Brent Ursenbach, Salt Lake County, representing Utah Chapter ICC (bursenbach@slco.org)

2015 International Fuel Gas Code

Revise as follows:

410.2 MP regulators. MP pressure regulators shall comply with the following:

1. The MP regulator shall be *approved* and shall be suitable for the inlet and outlet gas pressures for the application.
2. The MP regulator shall maintain a reduced outlet pressure under lock-up (no-flow) conditions.
3. The capacity of the MP regulator, determined by published ratings of its manufacturer, shall be adequate to supply the *appliances* served.
4. The MP pressure regulator shall be provided with *access.* Where located indoors, the regulator shall be vented to the outdoors or shall be equipped with a leaklimiting device, in either case complying with Section 410.3.
5. A tee fitting with one opening capped or plugged shall be installed between the MP regulator and its upstream shutoff valve. Such tee fitting shall be positioned to allow connection of a pressure-measuring instrument and to serve as a sediment trap.
6. A tee fitting with one opening capped or plugged shall be installed not less than 10 pipe diameters downstream of the MP regulator outlet. Such tee fitting shall be positioned to allow connection of a pressure-measuring instrument.<u> A gas pressure test port on the inlet side of the gas control of an appliance served by the MP regulator is an alternative to the downstream tee fitting, where such appliance is located in the same room as the MP regulator.</u>
7. Where connected to rigid piping, a union shall be installed within 1 foot (304 mm) of either side of the MP regulator.

Reason: The purpose of the tee fitting in item 6 is to test the regulator outlet/applinace inlet pressure. As virtually every gas appliance has an inlet pressure test plug, integral within the appliance, it is redundent to add a tee at the regulator, when an appliance is nearby. Further, the integral appliance test ports are 1/8" pipe thread, ready to accept the identical sized fitting on testing gages.

Cost Impact: Will not increase the cost of construction
This proposal will actually reduce cost as it will eliminate the material cost and labor required to install an unneccessary tee fitting and cap, when test ports are available within nearby gas appliances.

FG 32-15 : 410.2-URSENBACH5796

FG 33-15

410.4, Chapter 8

Proponent: James Ranfone, American Gas Association, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Revise as follows:

410.4 Excess flow valves. Where automatic *excess flow valves* are installed, they shall be listed ~~for the application~~ <u>in accordance with ANSI Z21.93/CSA 6.30,</u> and shall be sized and installed in accordance with the manufacturer's instructions.

Add new standard(s) as follows:
<u>ANSI Z21.93/CSA 6.30 - 2013 Excess Flow Valves for Natural and LP Gas with Pressures Up To 5 psig</u>

Reason: A new ANSI standard for excess flow valves has been approved and published. EFVs should be required to meet that standard to help ensure minimum performance.

Cost Impact: Will increase the cost of construction
Listed EFVs may be more expensive than unlisted units. EFV performance can be a critical life safety issue. Therefore, more expensive valves that help ensure they perform as planned is justified.

Analysis: A review of the standard proposed for inclusion in the code, ANSI Z21.93/CSA 6.30 , with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

FG 33-15 : 410.4-RANFONE5065

FG 34-15

411.1, 411.4 (New)

Proponent: James Ranfone, American Gas Association, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Revise as follows:

411.1 Connecting appliances. Except as required by Section 411.1.1, *appliances* shall be connected to the *piping* system by one of the following:

1. Rigid metallic pipe and fittings.
2. Corrugated stainless steel tubing (CSST) where installed in accordance with the manufacturer's instructions.
3. Semirigid metallic tubing and metallic fittings. Lengths shall not exceed 6 feet (1829 mm) and shall be located entirely in the same room as the *appliance*. Semirigid metallic tubing shall not enter a motor-operated *appliance* through an unprotected knockout opening.
4. *Listed* and *labeled appliance* connectors in compliance with ANSI Z21.24 and installed in accordance with the manufacturer's instructions and located entirely in the same room as the *appliance*.
5. *Listed* and *labeled* quick-disconnect devices used in conjunction with *listed* and *labeled appliance* connectors.
6. *Listed* and *labeled* convenience outlets used in conjunction with *listed* and *labeled appliance* connectors.
7. Listed and *labeled* outdoor *appliance* connectors in compliance with ANSI Z21.75/CSA 6.27 and installed in accordance with the manufacturer's instructions.
8. Listed outdoor gas hose connectors in compliance with ANSI Z21.54 used to connect portable outdoor appliances. The gas hose connection shall be made only in the outdoor area where the appliance is used, and shall be to the gas *piping* supply at an appliance shutoff valve, a listed quick-disconnect device or listed gas convenience outlet.
9. <u>Gas hose connectors for use in laboratories and educational facilities in accordance with Section 411.4</u>

Add new text as follows:

<u>**411.4** **Injection Bunsen-type burners** Injection Bunsen-type burners used in laboratories and educational facilities shall be connected to the gas supply system by either a listed or unlisted hose.</u>

Reason: The IFGC is currently silent on the use of unlisted connectors for injection burners commonly referred to as Bunsen burners. Unlisted hoses are the only readily available product for such installations and their use is common place. The new code requirement will allow the use of unlisted hoses approved by the AHJ. The revision is based on similar code requirement adopted into the 2015 National Fuel Gas Code, ANSI Z223.1/NFPA 54.

Cost Impact: Will not increase the cost of construction
Recongonizes a product that is already used.

FG 34-15 : 411.1-RANFONE5075

FG 35-15

411.2

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Fuel Gas Code

Revise as follows:

411.2 Manufactured home connections. <u>The connection between the gas distribution piping system for a manufactured home and the gas service shall be located outside of the footprint of the home.</u> Manufactured homes shall be connected to the distribution *piping* system by one of the following materials:

1. Metallic pipe in accordance with Section 403.4.
2. Metallic tubing in accordance with Section 403.5.
3. *Listed* and *labeled* connectors in compliance with ANSI Z21.75/CSA 6.27 and installed in accordance with the manufacturer's instructions.

Reason: Current Section 404.6 expresses the concern for gas piping entering a building at some point below grade. Likewise there is a concern for gas service piping running underground to a point underneath a manufactured home. Such homes will have skirting that creates what is, in effect, a crawl space. Any gas leakage from an underground lateral and riser pipe will collect under the home. If there is no underground riser and connection is made directly to a meter setting, the meter and service regulator should not be under the home. Also, having the gas service riser outside of the footprint of the home will help protect it from damage when a home is moved in or out.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

FG 35-15 : 411.2-SNYDER3282

FG 36-15

502.1

Proponent: Larry Gill, representing IPEX USA LLC (larry.gill@ipexna.com)

2015 International Fuel Gas Code

Revise as follows:

502.1 General. Vents, except as provided in Section 503.7, shall be *listed* and *labeled* . Type B and BW vents shall be tested in accordance with UL 441. Type L vents shall be tested in accordance with UL 641. Vents for Category II, III and ~~III~~IV appliances shall be tested in accordance with UL 1738.~~ Plastic vents for Category IV appliances shall not be required to be *listed* and *labeled* where such vents are as specified by the *appliance* manufacturer and are installed in accordance with the *appliance* manufacturer's instructions.~~

Reason: UL 1738 is the Standard for Safety for Venting Systems for Gas-Burning Appliances, Categories II, III, and IV and should be referenced in the IFGC for all venting materials included in scope of the standard. The current exception not requiring plastic venting to be listed and labelled should be removed as recent changes to UL 1738 now allow PP, PVC and CPVC venting to be tested and listed to the 1738 standard. Further, appliance standards do not adequately address venting and only list plumbing DWV products. Plumbing products are not adequate for venting of appliances. UL 1738 is a system standard and does not permit the mixing of different pipe, fittings or joining methods from different manufacturers. This along with a listed and labelled system specifically designed for appliance venting will provide for a safer installation and home environment.

Cost Impact: Will increase the cost of construction
The proposed change may increase the cost of construction depending on the cost of a listed and labeled venting system.

FG 36-15 : 502.1-GILL3902

FG 37-15

618.2

Proponent: Guy McMann, Jefferson County, Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Fuel Gas Code

Delete without substitution:

~~**618.2 Forced-air furnaces.** The minimum unobstructed total area of outdoor and return air ducts or openings to a forcedair warm-air furnace shall be not less than 2 square inches for each 1,000 Btu/h (4402 mm^2/W) output rating capacity of the furnace and not less than that specified in the furnace manufacturer's installation instructions. The minimum unobstructed total area of supply ducts from a forced-air warm-air furnace shall be not less than 2 square inches for each 1,000 Btu/h (4402 mm^2/W) output rating capacity of the furnace and not less than that specified in the furnace manufacturer's installation instructions.~~

> ~~**Exception:** The total area of supply air ducts and outdoor and return air ducts shall not be required to be larger than the minimum size required by the furnace manufacturer's installation instructions.~~

Reason: This is outdated legacy code language that was removed from the IMC and IRC last cycle and is not consistent with currant practice. It's up to the design professional, the requirements from Manual D or the manufacturer of the appliance to determine minimum sizes of ducts and transfer openings, not the code. If these numbers were to be applied, then the code could be condoning an undersized system. IMC 603.2 spells it out. There are too many variables and different situations for just one minimum to work for everything.

Cost Impact: Will not increase the cost of construction
This deletion is editorial in nature.

FG 37-15 : 618.2-MCMANN3369

FG 38-15

618.4

Proponent: Guy McMann, Jefferson County, Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Fuel Gas Code

Revise as follows:

618.4 Prohibited sources. Outdoor or return air for forcedair heating and cooling systems shall not be taken from the following locations:

1. Closer than 10 feet (3048 mm) from an *appliance* vent outlet, a vent opening from a plumbing drainage system or the discharge outlet of an exhaust fan, unless the outlet is 3 feet (914 mm) above the outside air inlet.
2. Where there is the presence of objectionable odors, fumes or flammable vapors; or where located less than 10 feet (3048 mm) above the surface of any abutting public way or driveway; or where located at grade level by a sidewalk, street, alley or driveway.
3. A hazardous or insanitary location or a refrigeration machinery room as defined in the *International Mechanical Code*.
4. A room or space, the volume of which is less than 25 percent of the entire volume served by such system.Where connected by a permanent opening having an area sized in accordance with Section 618.2, adjoining rooms or spaces shall be considered as a single room or space for the purpose of determining the volume of such rooms or spaces.

    Exception: The minimum volume requirement shall not apply where the amount of return air taken from a room or space is less than or equal to the amount of supply air delivered to such room or space.
5. A room or space containing an *appliance* where such a room or space serves as the sole source of return air.

    Exception: This shall not apply where:
    1. The *appliance* is a direct-vent *appliance* or an *appliance* not requiring a vent in accordance with Section 501.8.
    2. The room or space complies with the following requirements:
        - 2.1. The return air shall be taken from a room or space having a volume exceeding 1 cubic foot for each 10 Btu/h (9.6L/W) of combined input rating of all fuel-burning appliances therein.
        - 2.2. The volume of supply air discharged back into the same space shall be approximately equal to the volume of return air taken from the space.
        - 2.3. Return-air inlets shall not be located within 10 feet (3048 mm) of a draft hood in the same room or space or the combustion chamber of any atmospheric burner *appliance* in the same room or space.
    3. Rooms or spaces containing solid fuel-burning appliances, provided that return-air inlets are located not less than 10 feet (3048 mm) from the firebox of such appliances.
6. A closet, bathroom, toilet room, kitchen, garage, boiler room, furnace room or unconditioned attic.

    Exceptions:
    1. Where return air intakes are located not less than 10 feet (3048 mm) from cooking appliances and serve only the kitchen area, taking return air from a kitchen area shall not be prohibited.
    2. Dedicated forced air systems serving only a garage shall not be prohibited from obtaining return air from the garage.
7. A crawl space by means of direct connection to the return side of a forced-air system. Transfer openings in the crawl space enclosure shall not be prohibited.
8. <u>Indoor swimming pool enclosures and associated deck areas except where such spaces are dehumidified.</u>

Reason: It's not desireable to pull return air from swimming pull areas due to the negitive affects it would have on the system from humidity to chemical odors associated with such places. A dedicated system would be required, a combination of supply and exhaust or the air should be dehumidified. This senerio is consistent with the same dwelling unit built under the IMC.

Cost Impact: Will not increase the cost of construction

No cost impact provided dehumidification isnt required.

FG 38-15 : 618.4-MCMANN3560

FG 39-15

621.4

Proponent: Craig Conner, representing selff (craig.conner@mac.com)

2015 International Fuel Gas Code

Revise as follows:

621.4 Prohibited locations. Unvented room heaters shall not be installed within occupancies in Groups A, E and I. <u>Unvented room heaters shall not be installed within new dwelling units.</u> The location of unvented room heaters shall comply with Section 303.3.

Reason: Unvented heaters in the newer, more airtight homes present a serious health issue. The solution is simple. Use a vented heater. New homes are much tighter due to the increased stringency in energy codes. Between the 2009 IECC and the 2015 IECC the required air tightness roughly doubled. As homes get rapidly tighter, air quality concerns grow.

Which codes and standards already prohibit unvented room heaters? The IFGC prohibits unvented heaters in occupancy groups A, E and I in Section 621.4. Minnesota and California prohibit them. Wisconsin prohibits them in houses built after 1980. Houston Texas, New York City, and many other cities prohibit unvented heaters. The ASHRAE ventilation standard excludes unvented heaters from its scope, presumably because the ASHRAE ventilation standards are not sufficient for unvented heaters (Section 3.2 , ASHRAE 62.2-2013). Furthermore, many large builders will not install unvented heaters, in part out of concern for liability.

In the last code cycle the IFGC committee disapproved a proposal similar to this. The ICC Report of the Hearing gave three reasons. Each reason is quoted below and responded to:
Committee- "The proposal would prohibit unvented heaters in older homes that have greater air infiltration."
Response- This proposal only applies to new dwelling units, units required to be much more airtight by the new energy code.
Committee- "The nitrogen dioxide levels discussed are more stringent than recommended by the CPSC."
Response- This reason statement notes both the Consumer Products Safety Commission (CPSC) nitrogen dioxide limits and the more recent US EPA National Ambient Air Quality Standards1 limit. Both standards were exceeded in the measurements cited in the paragraph below.
Committee- "No substantiation was given to demonstrate that the current restrictions for these appliances are inadequate. "
Response- The next two paragraphs cite a study of unvented heaters in actual use.

A study by the Building Research Council (BRC study) at the University of Illinois measured the air quality in 30 homes with unvented heaters2. In the short monitoring period (3 to 4 days) several combustion products exceeded health limits in some of the houses. Of greatest concern is the nitrogen dioxide level inside the home. About 40% of the homes exceeded the Consumer Product Safety Council's nitrogen dioxide limit of 0.300 ppm. About 80% of the homes exceeded the US EPA National Ambient Air Quality Standards of 0.100 ppm. The BRC study concluded excessive nitrogen dioxide was inherently associated with unvented heaters: "Levels of NO2 that exceeded health-based guidelines occurred regardless of usage patterns, so should be considered inherent in the fireplace performance".

Unvented heaters operate like humidifiers, but without humidity controls. Combustion of methane, the main component of natural gas, produces one part carbon dioxide and two parts water. Depending on the heater size and use duration the water produced could be a fraction of a cup (small heater, limited use) to more than a gallon (large heater, 4+ hours). The BRC study shows that some use unvented heaters for 4 hours or more.

ASHRAE's position pager on unvented heaters drew these conclusions from the BRC study: "This study found that 20% of homes exceeded the EPA and WHO threshold for an 8-hour average CO level of 9 ppm, primarily when they were used for continuous, extended periods of time. This usage pattern is contrary to industry recommendations, which state that unvented heaters should be used as supplemental heaters, not primary heaters or for excessive periods of time." As the ASHRAE position paper noted, the BRC study calls into question industry assumptions of only 2-hour usage periods in their safety studies. "Of the 30 homes, one used the fireplace as the sole source of heat for the home." And "… five were used continuously at least once for longer than 4 hours." The BRC study found longer period of use were associated with pollutant levels that exceeded health standards. Industry safety analysis usage assumptions need to be revised to include longer periods of use.

Yes, the unvented heaters have an "oxygen depletion sensor" (ODS). It is perhaps stating the obvious, but an oxygen sensor monitors oxygen, but not nitrogen dioxide or carbon monoxide. This sensor does not protect against other pollutants, such as the nitrogen dioxide and carbon monoxide levels the BRC study measured as exceeding the CSPC and EPA standards1 in real homes.

In conclusion, the Consumer Product Safety Commission3 suggests removing air quality issues at the source: "Usually the most effective way to improve indoor air quality is to eliminate individual sources of pollution or to reduce their emissions." The CPSC recommends unvented heater users reduce the exposure to unvented heater combustion products in homes with unvented heaters- "While a space heater is in use, open a door from the room where the heater is located to the rest of the house and open a window slightly." This would seem antithetical to good energy efficiency practice. Building codes cannot and should not require doors or windows to be open to let in extra air to address health concerns.

Using a vented heater in a new, airtight home is a simple solution.

References:
1. US. EPA National Ambient Air Quality Standards (NAAQS)
http://www.epa.gov/air/criteria.html
2. "Measured concentrations of combustion gases from the use of unvented gas fireplaces". Francisco, P. W., Gordon, J. R. and Rose, B. (2010), Indoor Air, volume 20: pages 370-378.

3. "The Inside Story: A Guide to Indoor Air Quality" http://www.cpsc.gov/en/safety-education/safety-guides/home/the-inside-story-a-guide-to-indoor-air-quality/

Bibliography: "Measured concentratoins of combustion gases from the use of unvented gas fireplaces". P. W. Francisco, J. R. Gordon, B. Rose. 2010. Indoor Air journal. Volume 20. Pages 370-379.

Cost Impact: Will increase the cost of construction
Vented heaters require a vent and are more limited in the practical locations where they can be placed. Vented heaters cost more to purchase.
Using these devices as heaters, as is sometimes recommended by the "vent-free" industry, is not an acceptable trade of health/safety for $$ savings.

FG 39-15 : 621.4-CONNER5303

FG 40-15

623.2

Proponent: James Ranfone, American Gas Association, representing American Gas Association (jranfone@aga.org)

2015 International Fuel Gas Code

Revise as follows:

623.2 Prohibited location. Cooking appliances designed, tested, *listed* and *labeled* for use in commercial occupancies shall not be installed within dwelling units or within any area where domestic cooking operations occur.

> **~~Exception~~Exceptions:**
> 1. Appliances that are also listed as domestic cooking appliances.
> 2. Where the installation is designed by a licensed Professional Engineer.

Reason: There are large residential properties that contain kitchens meant to be used for extensive entertaining purposes. These kitchens are often designed by professional engineers similar to commercial cooking installations. The IFGC currently allow such installations under 105.2 Alternate materials, methods, appliances and equipment. The proposed change would specifically permit these often requested installations. At least on State, Georgia, has amended the IFGC to permit such installation as follows: "Exception: Listed and labeled commercial cooking appliances may be installed in dwelling units and domestic kitchens when designed and accepted by a Georgia licensed Professional Engineer."

Cost Impact: Will not increase the cost of construction
These installations currently do occur under 105.2 and therefore no new code requirement is being proposed that would increase the cost of installation.

FG 40-15 : 623.2-RANFONE5077

FG 41-15

624.3 (New)

Proponent: Guy McMann, Jefferson County, Colorado, representing Colorado Associatoin of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Fuel Gas Code

Add new text as follows:

624.3 Location. Water Heaters shall be located in accordance with Section 303.

Reason: This is just a user friendly pointer to direct the user to the proper section for water heater installion.

Cost Impact: Will not increase the cost of construction
There will be no additional cost as this is editorial in nature.

FG 41-15 : 624.1.2 (New)-MCMANN3546

FG 42-15

Part I:
624.2
Part II:
P2803.1, M2004.1
Part III:
1002.2

THIS IS A 3 PART CODE CHANGE. PART I WILL BE HEARD BY THE IFGC COMMITTEE. PART II WILL BE HEARD BY THE IRC-MECHANICAL COMMITTEE. PART III WILL BE HEARD BY THE IMC COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Fuel Gas Code

Revise as follows:

624.2 Water heaters utilized for space heating. Water heaters utilized both to supply potable hot water and provide hot water for space-heating applications shall be *listed* and *labeled* for such applications by the manufacturer and shall be installed in accordance with the manufacturer's instructions and the *International Plumbing Code*. Water heaters shall not be utilized solely for space heating purposes.

Part II

2015 International Residential Code

Revise as follows:

P2803.1 Protection of potable water. Piping and components connected to a water heater for space heating applications shall be suitable for use with potable water in accordance with Chapter 29. Water heaters ~~that will be used to supply potable water~~ shall not be connected to a heating system or components previously used with nonpotable-water heating *appliances*. Chemicals for boiler treatment shall not be introduced into the water heater. Water heaters shall not be utilized solely for space heating purposes.

M2004.1 General. Water heaters used to supply both potable hot water and hot water for space heating shall be installed in accordance with this chapter, Chapter 24, Chapter 28 and the manufacturer's instructions. Water heaters shall not be utilized solely for space heating purposes.

Part III

2015 International Mechanical Code

Revise as follows:

1002.2 Water heaters utilized for space heating. Water heaters utilized both to supply potable hot water and provide hot water for space-heating applications shall be *listed* and *labeled* for such applications by the manufacturer and shall be installed in accordance with the manufacturer's instructions and the *International Plumbing Code*. Water heaters shall not be utilized solely for space heating purposes.

Reason: The current code recognizes that water heaters can have a dual role of spacing heating and domestic water heating, however, the code is silent on whether a water heater can be used only for space heating. If a water heater is used solely for space heating, it would no longer meet the definition of water heater in the code and would likely violate the listing of the water heater. If a water heater does not meet the definition of water heater, then what is it? It is certainly not a boiler. Hot water boilers are evaluated to entirely different standards than water heaters. A water heater must first be used to supply hot water to the potable water distribution system, and secondarily it can be used for space heating. By definition, a water heater always provides potable hot water.
The second sentence of Section P2803.1 of the IRC is nonsensical because it suggests that there are water heaters that are not used to supply potable water.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof.

This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

Part II: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

Part III: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

FG 42-15 : 624.2-SNYDER3283

FG 43-15

202 (New)

Proponent: Pennie L Feehan, representing Copper Development Association (penniefeehan@me.com)

2015 International Fuel Gas Code

Revise as follows:

SECTION 202 DEFINITIONS

[M] PIPING. Where used in this code, "*piping*" refers to either pipe or tubing, or both.
Pipe. A rigid conduit of iron, steel, copper, ~~brass~~copper-ally or plastic.
Tubing. Semirigid conduit of copper, copper-alloy, aluminum, plastic or steel.

Reason: The proposal removes brass because brass is a copper-alloy and copper-alloy is the term used to identify materials manufactured where copper is the base metal and includes brass and bronze.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction as this change is only to update the name of a material that is already in the code.

FG 43-15 : R202-PIPE-FEEHAN4027

2015 GROUP A – PROPOSED CHANGES TO THE INTERNATIONAL MECHANICAL CODE

MECHANICAL CODE COMMITTEE

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Mechanical Inspector
Safebuilt/City of Troy Building Department
Troy, MI

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Country Club Hill, IL

TENTATIVE ORDER OF DISCUSSION
2015 PROPOSED CHANGES TO THE
INTERNATIONAL MECHANICAL CODE

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

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

Number(s) Not Used:
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M16-15
M74-15

M1-15
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M3-15
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M69-15 Part I
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    FG42-15 Part III
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M 1-15

202

Proponent: Steven Ferguson, representing ASHRAE (sferguson@ashrae.org)

2015 International Mechanical Code

Revise as follows:

SECTION 202 DEFINITIONS

OCCUPATIONAL EXPOSURE LIMIT (OEL). The ~~timeweighted~~time-weighted average (TWA) concentration for a normal ~~eighthour~~eight-hour workday and a 40-hour workweek to which nearly all workers can be repeatedly exposed without adverse effect, based on the OSHA PEL, ACGIH TLV-TWA, ~~AIHA~~ TERA OARS WEEL, or consistent value.

Reason: The WEEL values were previously issued by the American Industrial Hygiene Association. These values are now issued by the Toxicology Excellence for Risk Assessment (TERA) Occupational Alliance for Risk Science (OARS).
Please visit this website to view the WEEL database: http://www.tera.org/OARS/WEEL.html

This change is consistent with addendum d to ASHRAE Standard 34-2013 which can be found here: https://www.ashrae.org/standards-research--technology/standards-addenda

Bibliography: http://www.tera.org/OARS/WEEL.html
https://www.ashrae.org/standards-research--technology/standards-addenda

Cost Impact: Will not increase the cost of construction
This proposal simply updates a definition to indicate what organization is responsible for WEEL values, which has no impact on construction cost.

M 1-15 : 202-OCCUPATIONAL EXPOSURE LIMIT (OEL)-FERGUSON4853

M 2-15

202

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Revise as follows:

SECTION 202 DEFINITIONS

ACCESS (TO). That which enables a device, *appliance* or *equipment* to be reached by ready access or by a means that first requires the removal or movement of a panel, ~~door~~ or similar obstruction [see also "Ready access (to)"].

READY ACCESS (TO). That which enables a device, *appliance* or *equipment* to be directly reached, without requiring the removal or movement of any panel, ~~door~~ or similar obstruction [see "Access (to)"].

Reason: The term "door" has caused confusion because one must pass through one or more egress doors before reaching any object inside of a building. For example, if an emergency control must be readily accessed, personnel would likely pass through one or more egress/ingress doors before reaching the emergency control, and that is the reality of the situation. The term "door" as used in the definitions was referring to "access doors" similar to panels. The term "access door" might be an alternative to the term "door" because "access door" clearly differentiates between access doors/panels and egress doors. This proposal intends to distinguish egress doors from cabinet doors, access doors and alcove doors and intends to prevent these definitions from being misinterpreted as prohibiting room and closet doors.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

M 2-15 : 202-ACCESS (TO)-SNYDER3614

M 3-15

202

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Revise as follows:

SECTION 202 DEFINITIONS

COMMERCIAL COOKING APPLIANCES. Appliances used in a commercial food service establishment for heating or cooking food ~~and which produce grease vapors, steam, fumes, smoke or odors that are required to be removed through a local exhaust ventilation system. Such appliances include deep fat fryers; upright broilers; griddles; broilers; steam-jacketed kettles; hot-top ranges; under-fired broilers (charbroilers); ovens; barbecues; rotisseries; and similar appliances~~. For the purpose of this definition, a commercial food service establishment ~~shall include any building~~is where food is prepared for sale or is prepared on a ~~portion thereof used for the preparation~~scale that is by volume and ~~serving~~frequency not representative of ~~food~~domestic household cooking.

Reason: 1) The current definition is circular in that Chapter 5 uses the term and dictates where a hood is required for such appliances, yet this definition says that a commercial cooking appliance is something that requires a hood (local exhaust system). The current definition is flawed because if Chapter 5 does not require a hood for a particular cooking appliance, then this definition would say that it is no longer a commercial cooking appliance.
2) The laundry list of appliances in this definition is incomplete and is redundant with and overlaps the definitions of light-, medium- and heavy-duty cooking appliances. The overlap among the definitions creates confusion.

3) There is no accepted definition for "commercial" therefore this proposal attempts to reunite the term with its roots. "Commercial" means commerce which means money exchanging hands, buying and selling. Clearly the cooking of food for sale is commercial, however, it becomes muddy when the cooking is large scale and frequent, but food is not sold. Consider charity kitchens, some church kitchens and some institutional occupancies. If food is not being sold, then other considerations such as volume and frequency of cooking must dictate what is commercial, because as the volume and frequency increase, so too do the hazards associated with such cooking.
4) The current definition says that ANY building or portion thereof used for preparing food is a food service establishment. This is extremely broad and could include, for example, a kitchenette (lunch/break room) in an office building. Food service establishments include, but are not limited to: restaurants, cafeterias, institutional kitchens, charity kitchens, dormitory and barrack kitchens, cooking schools, church kitchens, school cafeteria kitchens, mercantile kitchens, banquet and catering facilities, bakeries, wholesale production kitchens, and similar occupancies. The volume and frequency of cooking in these occupancies is not representative of domestic household cooking.

The revised definition dumps the appliance laundry list and describes what would be considered as commercial food service establishments, which is the intent of the definition. Chapter 5 determines where hoods are required, not this definition. The revised text nails down what is commercial by tying it to sales, and attempts to categorize the non-sales cooking facilities by contrasting them with domestic cooking. This is as close as we can get to defining "commercial." If the cooking looks, smells, sounds and tastes like domestic cooking, then the code does not intend to treat it as commercial because the fire and health hazards just aren't there.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

M 3-15 : 202-COMMERCIAL COOKING APPLIANCES-SNYDER3259

M 4-15

202 (New)

Proponent: Vickie Lovell, InterCode Incorporated, representing RectorSeal Corp. (vickie@intercodeinc.com)

2015 International Mechanical Code

Add new definition as follows:

SECTION 202 DEFINITIONS

LOCKING-TYPE TAMPER-RESISTANT CAP. A cap that is designed to prevent its removal by means of hand-loosening or by means of commonly available tools. Such caps can be removed only by means of a unique key that is specifically designed for the locking cap.

Reason:

Section 1101.10 was a new section in the 2009 IMC and IRC that addresses the locking access of refrigerant port caps. New code sections in both the 2015 IMC and IRC require that access ports for refrigerants be contained in a secure location or, if located outside a locked, controlled area, be secured with a tamper-resistant locking cap. This code change was approved during the 2009, 2012 and 2015 cycles to help reduce unauthorized access to refrigerants, and to help AC system efficiency from the accidental mixing of refrigerant gases.

This proposal is intended to expand on the intent and purpose of the new code section in the IMC and the IRC by defining the primary safeguard: the locking-type tamper-resistant cap.

Refrigerant gas theft has become increasingly problematic in recent years. Some of this is due to the rising costs of these gases; however, stealing refrigerant for the act of "huffing" is increasing at an alarming rate. "Sniffing" or "huffing" refrigerant gas is extremely dangerous, causing brain damage or even death. Inhalants are the fourth most abused substance. According to the Inhalant Statistics and Reports, "59% of children are aware of friends huffing at age 12." In the U.S., the 2006 National Survey on Drug Use and Health, found that 1.1 million youths aged 12 to 17 had used inhalants in the past year. "Sniffing" or "huffing" can begin at age 10 or younger. 22% of inhalant abusers who died of Sudden Sniffing Death Syndrome had no history of previous inhalant abuse--they were first-time users.

Some port caps are designed to be removed with a set bit, Allen wrench, Schrader valve tool or screwdriver. The use of such tools to remove a cap could be considered just an annoying delay to a determined thief because such port caps are not truly LOCKED. The majority of the victims of huffing are teens and pre-teens, many of whom could easily tamper with a port cap using such readily available tools. This definition clarifies that the cap should be a truly tamper-resistant lock to be effective, that is, can only be opened with a specially designed key.

This clarification of the definition of a specially designed "lock and key" will reduce theft and help to safeguard youngsters from serious injury or death resulting from the inhalation of dangerous refrigerants.

Cost Impact: Will increase the cost of construction
THIS CODE CHANGE PROPOSAL MAY HAVE A MINIMAL COST IMPACT DURING CONSTRUCTION.

M 4-15 : 202-LOCKING-TYPE TAMPER-RESISTANT CAP (New)-LOVELL3953

M 5-15

202

Proponent: Jeffrey Shapiro, International Institute of Ammonia Refrigeration, representing International Institute of Ammonia Refrigeration (jeff.shapiro@intlcodeconsultants.com)

2015 International Mechanical Code

Revise as follows:

SECTION 202 DEFINITIONS

MACHINERY ROOM. ~~A room meeting prescribed safety~~An enclosed space that, where required by Chapter 11 to contain refrigeration equipment, must comply with the requirements ~~and~~set forth in~~ which refrigeration systems or components thereof are located (see~~ Sections 1105 and 1106~~)~~.

Reason: The proposed definition is consistent with the definition in IIAR 2 and resolves a problem with the current definition. The current definition implies that any room with refrigeration equipment is a machinery room, which is incorrect. Only those rooms that are required to contain certain refrigeration machinery and refrigerant quantities are classified as machinery rooms.

Cost Impact: Will not increase the cost of construction
This proposal is a clarification that should have no impact on the cost of construction.

M 5-15 : 202-MACHINERY ROOM-SHAPIRO4843

M 6-15

202

Proponent: Pennie L Feehan, representing Copper Development Association (penniefeehan@me.com)

Part

2015 International Mechanical Code

Revise as follows:

SECTION 202 DEFINITIONS

PIPING.
Where used in this code, "piping" refers to either pipe or tubing, or both.
Pipe. A rigid conduit of iron, steel, copper, ~~brass~~copper-alloy, or plastic.
Tubing. Semirigid conduit of copper, copper-alloy, aluminum, plastic or steel.

Reason:

The proposal removes brass because brass is a copper-alloy and copper-alloy is the term used to identify materials manufactured where copper is the base metal and includes brass and bronze. Copper-alloy tubing is manufactured ASTM B135 & ASTM B251.

Cost Impact:

Will not increase the cost of construction
This proposal will not increase the cost of construction as this change is only to update the name of a material that is already in the code.

M 6-15 : 202-PIPE-FEEHAN4012

M 8-15

202

Proponent: Jay Peters, representing Cerro Flow Products (peters.jay@me.com)

2015 International Mechanical Code

Revise as follows:

SECTION 202 DEFINITIONS

~~PRESS~~PRESS-CONNECT JOINT.

No change to text.

Reason: The only change in this proposal is to replace the term "PRESS" with the industry recognized term "PRESS-CONNECT". The ASTM standard, as well as the industry, refer to this technology as ***press-connect joints*** and ***press-connect fittings***. This proposed edit to the definition was created to bring the IMC and other related standards into alignment and to prevent potential confusion in the industry. The IPC currently utilizes the term *press-connect* and this small edit would bring uniformity to the ICC Codes. A proposal to Section 1107.5 also uses the term *press-connect* and this would correlate with that proposal.

Cost Impact: Will not increase the cost of construction
This change is merely replacing a term, and is not a substantive technical change.

M 8-15 : 202-PRESS JOINT-PETERS4914

M 9-15

202

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Revise as follows:

SECTION 202 DEFINITIONS

VENTILATION. The natural or mechanical process of ~~supplying~~ introducing conditioned or unconditioned outdoor air to~~, or removing such~~ a space and removing air from~~, any~~ such space at an approximately equal rate.

Reason: The current definition dates back to when ventilation involved recirculation and has caused confusion because it still implies that ventilation involves recirculated air, when in fact, it does not. In the IMC, ventilation is by means of outdoor air only. There is no recognition of ventilation by recirculated indoor air. The revised definition makes this clear and also states a fundamental principal that ventilation does not occur without a balance of supplied air and removed air. If a system supplies 1000 cfm of outdoor ventilation air to a space, then it must exhaust, relieve or otherwise remove air at an equal rate or else the space will positively or negatively pressurize and the ventilation rate will not be realized. The revised definition is open such that it will recognize any means of supplying the outdoor air, such as by supply fans with relief fans or gravity openings and by means of exhaust fans and supply fans or gravity intake openings.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction

This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

M 9-15 : 202-VENTILATION-SNYDER3253

M 10-15

313 (New), Chapter 15

Proponent: Ronald George, Self, representing Self (Ron@Plumb-TechLLC.com)

2015 International Mechanical Code

Add new text as follows:

SECTION 313
SYSTEM DESIGN CONSIDERATIONS

313.1 Design of Building Water Systems The design of building water systems shall be in accordance with ASHRAE 188.

Add new standard(s) as follows:
ASHRAE 188 - DRAFT_4th Public Review_09262014 Legionellosis: Risk Management for Building Water Systems

Reason: There are many design considerations in the ASHRAE standard that will help minimize Legionella bacteria growth in building water systems which can lead to Legionnaires Disease when water droplets are aerosolized and breathed in. Following the ASHRAE Standard will minimize the risk of a person contracting Legionnaires' disease or Legionellosis by having the design team consider system maintenance proceedures to control the risk of legionellosis associated with plumbing & mechanical systems.

Bibliography: See the folowing websites for more information:
www.LegionellaPrevention.org.

http://www.cdc.gov/legionella/about/,

www.Legionella.com, www.hcinfo.com

http://www.who.int/water_sanitation_health/emerging/legionella.pdf

Cost Impact: Will increase the cost of construction
Buildings without a history of Legionella and not fitting the requirements will not need to add to the cost of construction. A water management plan will need to be done if a building meets certain minimum requirements. The cost of construction to address temperature, stagnation and water treatment will slightly increase the cost of construction and maintenance. Any building that is operating without growing Legionella should already has these processes in place, this will simply require documentation as part of a water management plan. This will provide for system design, operation and treatment that will minimize legionella bacteria growth and help prevent Leginnaires Disease.

Analysis: A review of the standard proposed for inclusion in the code, ASHRAE 188, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 10-15 : 313 (New)-GEORGE5826

M 11-15

303.7

Proponent: Guy McMann, Jefferson County, Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Mechanical Code

Revise as follows:

303.7 Pit locations. Appliances installed in pits or excavations shall not come in direct contact with the surrounding soil and shall be installed not less than 6 inches above the pit floor. The sides of the pit or excavation shall be held back not less than 12 inches (305 mm) from the *appliance*. Where the depth exceeds 12 inches (305 mm) below adjoining grade, the walls of the pit or excavation shall be lined with concrete or masonry. Such concrete or masonry shall extend not less than 4 inches (102 mm) above adjoining grade and shall have sufficient lateral load-bearing capacity to resist collapse. Excavation on the control side of the appliance shall extend not less than 30 inches (762mm) horizontally. The *appliance* shall be protected from flooding in an *approved* manner.

Reason: This Section lacks some detail in floor and control side language found in the other codes. This modification completes this section and has all the information necessary for a complete and code compliant installation.

Cost Impact: Will not increase the cost of construction
THis proposal is just for correlation between codes for consistency.

M 11-15 : 303.7-MCMANN3565

M 12-15

303.9 (New), 901.5 (New)

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee

2015 International Mechanical Code

Add new text as follows:

303.9 Fireplaces in Group I-2 Condition 2 occupancies. Fuel burning appliances and fireplaces in Group I-2 condition 2 occupancies shall be in accordance with Section 901.5.

901.5 Solid fuel-burning fireplaces and appliances in Group I-2 Condition 2. In Group I-2 Condition 2 occupancies, solid fuel-burning fireplaces and appliances are prohibited.

Reason: The AHC committee is recommending limitations for the use of gas-fired fireplaces and decorative equipment and the restriction of solid-fuel burning fireplaces and appliances in the Group I-2, Condition 2 occupancy. Please note: these are not new requirements for the I-2 Occupancy facilities but are needed in the I-Codes for coordination of the long-standing provision of the construction and operational requirements for healthcare facilities.

It is standard practice and operational procedure to control the ignition sources in healthcare occupancies that can contain combustible, flammable (and sometimes even explosive) material. Fire risks need to be limited to the maximum extent feasible and specific requirements for these facilities are not currently or are not completely addressed in the I-Codes.

The language proposed in the IFGC prescribes limitations and conditions to provide the necessary safety and limitations of hazards from within the healthcare environments to the fire and ignition sources inherent to all gas-fired fireplaces and appliances. Combustion air has been restricted from being drawn from healthcare environments extending beyond the last decade and is not a new requirement.

The physical separation of the combustion chambers of gas-fired fireplaces and equipment is required to separate and provide a barrier between the ignition sources and the environmental air within healthcare occupancies. All combustion air is required to be taken directly from the exterior of the building in accordance with an existing exception that is provided for in IFGC Section 303.3.

The placement of solid fuel burning fireplaces and appliances, both decorative and heating, creates conditions where open flames that are not otherwise able to be controlled or extinguished like the similar gas-fed and fired appliances. This is why the Adhoc Healthcare Committee is proposing their restriction instead of a limitation with operational and special control equipment.

The code sections that address the installation limitations of fuel gas-fired fireplaces and appliances will also provide alternative means for compliance for existing facilities. Given the hazards present with these appliances in the Group I-2, Condition 2 Occupancies, the proposed IFC requirements will be 'retro-active' requirements for healthcare occupancies (I-2);

The proposals to the IFC that are being put forth by the Adhoc Healthcare Committee have been drafted to clarify, restrict and limit the ignition source hazards in healthcare occupancies and also will reference similar requirements being proposed in the IBC, IMC AND IFGC. For instance, solid fuel heating appliances are limited by other requirements of the IMC which is why heating appliances are not needed to be referenced in this section of the IFGC.

There was a concern mentioned during testimony at the code hearings for the 2012 I-codes that the AHC code change proposals placing restrictions on solid fuel burning fireplaces and appliances and fuel gas-fired fireplaces and appliances might be misinterpreted to prohibit mechanical heating equipment elsewhere regulated in the IMC.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
Wood burning fireplaces are not permitted by the federal CMS regulations, therefore, there is no change in cost of construction.

M 12-15 : 303.9 (New)-WILLIAMS4240

M 13-15

Table 305.4

Proponent: Mike Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservnet.com)

2015 International Mechanical Code

Revise as follows:

TABLE 305.4
PIPING SUPPORT SPACING[a]

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (feet)	MAXIMUM VERTICAL SPACING (feet)
PE-RT <u>one inch and smaller</u>	$2^{2}/3$ (32 inches)	10c
PE-RT > $1^{1}/_{4}$ inches	4	10c
PEX tubing <u>one inch and smaller</u>	$2^{2}/3$ (32 inches)	10c
<u>PEX tubing 1 1/4 inch and larger</u>	<u>4</u>	<u>10c</u>

(Portions of table not shown remain unchanged)

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. See Section 301.18.

b. The maximum horizontal spacing of cast-iron pipe hangers shall be increased to 10 feet where 10-foot lengths of pipe are installed.

c. Mid-story guide.

Reason: The 2015 code cycle for the IRC included updates to the PE-RT tubing for sizes larger than 1". The IRC-P Table P2605.1 is current and correct and should be used as the base template for all other tables within the ICC codes as identified in this amendment proposal. The horizontal support spacing for both PEX and PE-RT tubing (piping) up to and including 1" size is 32" (2-2/3Ft) and 48" (4Ft) for sizes 1- 1/4" and larger. These dimensions are consistent with all published PEX literature and manufacture's installation instructions. This would have been included in the IPC and IMC had it been in the same code cycle as the IRC for 2015.

Cost Impact: Will not increase the cost of construction
This proposal modifies the spacing for piping material support into the code and thus the code with this proposal added will not cause the cost of construction to increase, and could decrease the cost as less support is required for larger pipe.

M 13-15 : T305.4-CUDAHY4742

M 14-15

305.4

Proponent: Pennie L Feehan, representing Copper Development Association (penniefeehan@me.com)

2015 International Mechanical Code

Revise as follows:

TABLE 305.4
PIPING SUPPORT SPACING[a]

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (feet)	MAXIMUM VERTICAL SPACING (feet)
ABS pipe	4	10[c]
Aluminum pipe and tubing	10	15
~~Brass pipe~~	~~10~~	~~10~~
~~Brass tubing, $1\frac{1}{4}$-inch diameter and smaller~~	~~6~~	~~10~~
~~Brass tubing, $1\frac{1}{2}$-inch diameter and larger~~	~~10~~	~~10~~
Cast-iron pipe[b]	5	15
Copper or copper-alloy pipe and tubing	~~12~~ 8	10
~~Copper or copper-alloy tubing, $1\frac{1}{4}$-inch diameter and smaller~~	~~6~~	~~10~~
~~Copper or copper-alloy tubing, $1\frac{1}{2}$-inch diameter and larger~~	~~10~~	~~10~~
CPVC pipe or tubing, 1 inch and smaller	3	10[c]
CPVC pipe or tubing, $1\frac{1}{4}$-inch and larger	4	10[c]
Lead pipe	Continuous	4
PB pipe or tubing	$2\frac{2}{3}$ (32 inches)	4
PE-RT	$2\frac{2}{3}$ (32 inches)	10[c]
PE-RT > $1\frac{1}{4}$ inches	4	10[c]

PEX tubing	$2^2/3$ (32 inches)	10c
Polypropylene (PP) pipe or tubing, 1 inch or smaller	$2^2/3$ (32 inches)	10c
Polypropylene (PP) pipe or tubing, $1^1/4$ inches or larger	4	10c
PVC pipe	4	10c
Steel tubing	8	10
Steel pipe	12	15

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. See Section 301.18.

b. The maximum horizontal spacing of cast-iron pipe hangers shall be increased to 10 feet where 10-foot lengths of pipe are installed.

c. Mid-story guide.

Reason: Brass is a copper alloy and the supporting requirements are covered under the Copper and Copper Alloy Pipe and Tubing line. The 6 foot requirement is to restrictive. The Copper Tubing Handbook written by Copper Development Association recommends horizontal support every 8 feet.

Cost Impact: Will not increase the cost of construction
The proposal will not impact the cost of construction as it is only changing the material terminology and combining it this the copper section of this table.

M 14-15 : T305.4-FEEHAN3723

M 15-15

Part I:
306.1.1
Part II:
M1305.1.1

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Mechanical Code

Delete without substitution:

~~**306.1.1 Central furnaces.** Central furnaces within compartments or alcoves shall have a minimum working space *clearance* of 3 inches (76 mm) along the sides, back and top with a total width of the enclosing space being not less than 12 inches (305 mm) wider than the furnace. Furnaces having a firebox open to the atmosphere shall have not less than 6 inches (152 mm) working space along the front *combustion* chamber side. *Combustion air* openings at the rear or side of the compartment shall comply with the requirements of Chapter 7.~~

> ~~**Exception:** This section shall not apply to replacement appliances installed in existing compartments and alcoves where the working space clearances are in accordance with the *equipment* or *appliance* manufacturer's installation instructions.~~

Part II

2015 International Residential Code

Delete without substitution:

~~**M1305.1.1 Furnaces and air handlers.** Furnaces and air handlers within compartments or alcoves shall have a minimum working space clearance of 3 inches (76 mm) along the sides, back and top with a total width of the enclosing space being not less than 12 inches (305 mm) wider than the furnace or air handler. Furnaces having a firebox open to the atmosphere shall have not less than a 6-inch (152 mm) working space along the front combustion chamber side. Combustion air openings at the rear or side of the compartment shall comply with the requirements of Chapter 17.~~

> ~~**Exception:** This section shall not apply to replacement *appliances* installed in existing compartments and alcoves where the working space clearances are in accordance with the *equipment* or *appliance* manufacturer's installation instructions.~~

Reason: Part I (IMC): This section is antiquated and has apparently lost its purpose. There is no reason to single out central furnaces. Clearances for working spaces are already covered by the manufacturer's instructions and Section 306.1. The requirement for a 3 inch clearance around the sides, back and top has no apparent justification. What work could personnel perform in a 3 inch space? What is the 12 inch extra width supposed to accomplish? Section 306.1 covers this adequately. There is nothing in Chapter 7 regarding combustion air openings on the sides and rear of the furnace. If these requirements are really necessary, then why does the exception negate them for subsequent (replacement) installations?
Part II (IRC): This section is antiquated and has apparently lost its purpose. There is no reason to single out central furnaces. Clearances for working spaces are already covered by the manufacturer's instructions and Sections M1307.1, M1401.1 and M1402.2. The requirement for a 3 inch clearance around the sides, back and top has no apparent justification. What work could personnel perform in a 3 inch space? What is the 12 inch extra width supposed to accomplish? Section M1305.1 covers this adequately. There is nothing in Chapter 17 regarding combustion air openings on the sides and rear of the furnace. If these requirements are really necessary, then why does the exception negate them for subsequent (replacement) installations?

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond

what is currently required by the code nor are the code requirements made more stringent.

Part II: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

M 15-15 : 306.1.1-SNYDER3276

M 17-15

307.2.2

Proponent: Pennie L Feehan, Copper Development Association, representing Copper Development Association (penniefeehan@me.com)

2015 International Mechanical Code

Revise as follows:

307.2.2 Drain pipe materials and sizes. Components of the condensate disposal system shall be cast iron, galvanized steel, copper and copper alloy, cross-linked polyethylene, polyethylene, ABS, CPVC, PVC, or polypropylene pipe or tubing. Components shall be selected for the pressure and temperature rating of the installation. Joints and connections shall be made in accordance with the applicable provisions of Chapter 7 of the *International Plumbing Code* relative to the material type. Condensate waste and drain line size shall be not less than $^{3}/_{4}$-inch (19.1 mm) internal diameter and shall not decrease in size from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized in accordance with Table 307.2.2.

Reason: Copper alloys fittings and pipe are used regularly in condensate waste disposal systems and were missing from the list of approved materials. As an example, nipples and unions.

Cost Impact: Will not increase the cost of construction
This proposal is adding a material use in the field and will not impact the cost of construction.

M 17-15 : 307.2.2-FEEHAN3789

M 18-15

308.1

Proponent: Guy McMann, Jefferson County, Colorado, representing Colorado Associatoin of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Mechanical Code

Revise as follows:

308.1 Scope. This section shall govern the reduction in required *clearances* to combustible materials, including gypsum wallboard, and combustible assemblies for *chimneys,* vents, kitchen exhaust equipment, mechanical appliances, and mechanical devices and *equipment*.

Reason: This is a similar change that was approved in theIFGC last cycle. It's important to note that the IMC considers gypsum wallboard to be combustible even when the IBC does not. Nowhere in the IMC is it stated so clearly. Even though there is a definition of non-combustible, addisng these words will clarifythe intentof the code for the user.

Cost Impact: Will not increase the cost of construction
There will be no additional cost as this is a clarification of current intent.

M 18-15 : 308.1-MCMANN3563

M 19-15

401.2

Proponent: Luis Escobar, representing Air Conditioning Contractors of America (luis.escobar@acca.org)

2015 International Mechanical Code

Revise as follows:

401.2 Ventilation required. Every occupied space shall be ventilated by natural means in accordance with Section 402 or ~~by mechanical means in accordance with Section 403. Where the air infiltration rate in a dwelling unit is less than 5 air changes per hour when tested with a blower door at a pressure of 0.2-inch water column (50 Pa) in accordance with Section R402.4.1.2 of the *International Energy Conservation Code*, the dwelling unit shall be ventilated~~ by mechanical means in accordance with Section 403. Ambulatory care facilities and Group I-2 occupancies shall be ventilated by mechanical means in accordance with Section 407.

Reason: This proposal is intended to clarify a current point of contention in the code.
Section 401.2 begins by allowing either natural or mechanical ventilation in the design. It then goes on to require mechanical ventilation if the infiltration rate is less than 5 air changes per hour (ACH) when tested per IECC section R402.4.1.2. However, IECC section R402.4.1.2 contains the procedures for verifying that the air leakage rate not exceed 5 ACH (climate zones 1 and 2) or 3 ACH (climate zones 3 - 8). This effectively allows the designer to pick natural ventilation up front only to get failed ultimately because of a catch-22 resulting from post-construction testing.

Further, it should be noted that the testing requirements ("air infiltration rate", i.e., "uncontrolled inward air leakage") does not comply with the IMC's definition of natural ventilation ("the movement of air into and out of a space through intentionally provided openings...").

The proposed change reverts back to the requirements in the 2009 IMC which simply allows for either natural or mechanical ventilation.

Cost Impact: Will not increase the cost of construction
This proposal allows the option of not installing mechanical ventilation, saving on construction costs.

M 19-15 : 401.2-ESCOBAR5800

M 20-15

202 (New), 401.2

Proponent: Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport (mmoore@newportventures.net)

2015 International Mechanical Code

Add new definition as follows:

SECTION 202 DEFINITIONS

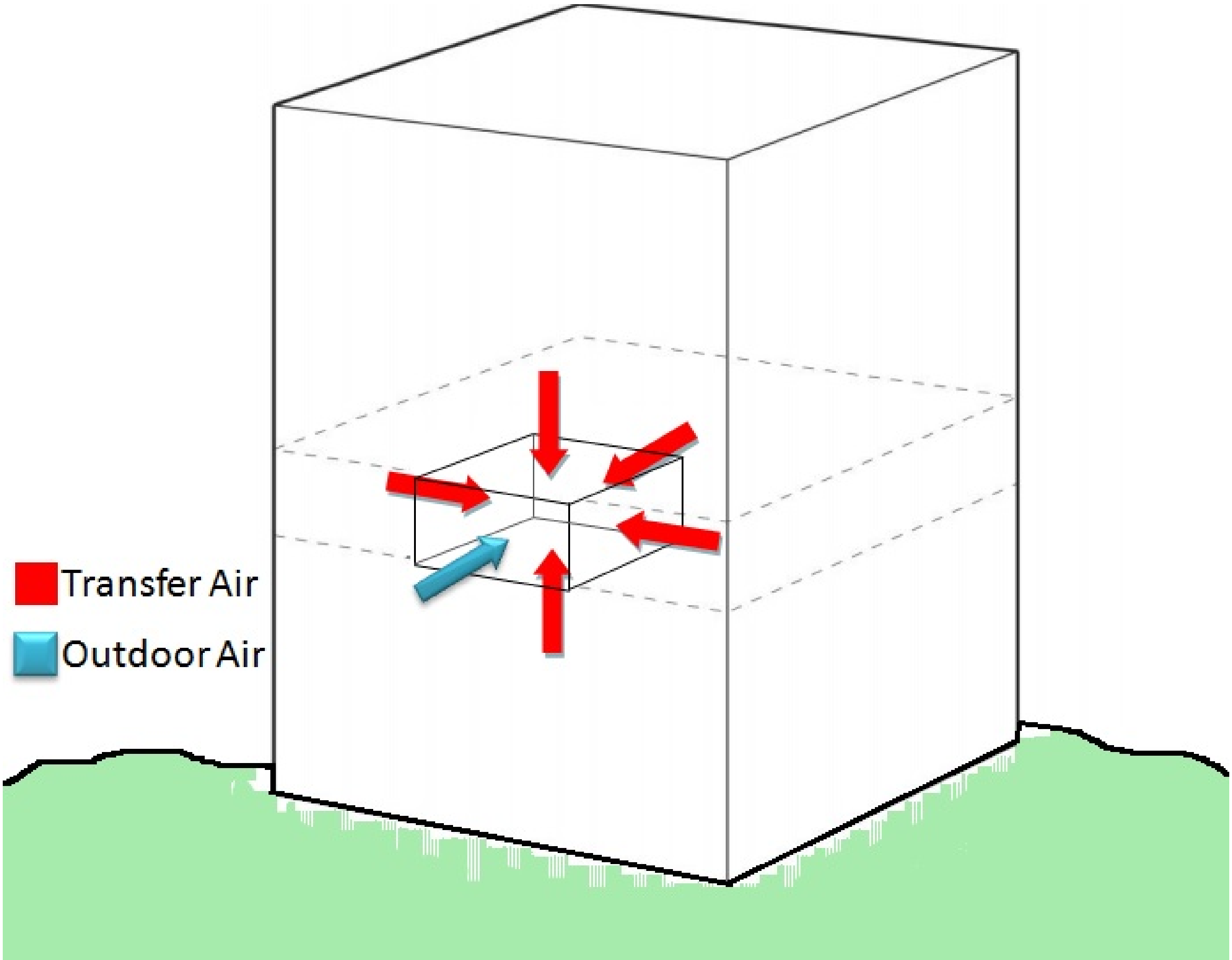
NONTRANSIENT Characterized by occupancy of a dwelling unit for greater than 30 days by occupants who are primarily permanent in nature.

Revise as follows:

401.2 Ventilation required. Every occupied space shall be ventilated by natural means in accordance with Section 402 or by mechanical means in accordance with Section 403. ~~Where the air infiltration rate~~Dwelling units in ~~a dwelling unit is less than 5 air changes per hour when tested with a blower door at a pressure of 0.2-inch water column (50 Pa) in accordance with Section R402.4.1.2 of the *International Energy Conservation Code*, the dwelling unit~~nontransient residential occupancies shall be ventilated by mechanical means in accordance with Section 403. Ambulatory care facilities and Group I-2 occupancies shall be ventilated by mechanical means in accordance with Section 407.

Reason: Compartmentalized Units are Tight and Should Require Mechanical Ventilation!
Attached dwelling units are being built tighter than ever, with increasing focus on compartmentalization of dwelling units for suppression of fire, smoke, odors, and environmental tobacco smoke; reduced energy use for heating and cooling; improved acoustics; and improved occupant comfort. Despite dwelling units being built tighter, there is no requirement for these tight units to be provided with mechanical ventilation. This proposal introduces a requirement for mechanical ventilation in today's tight and energy efficient buildings to provide occupants with minimum acceptable indoor air quality. So, how tight are these dwelling units covered by the IMC being built? Unfortunately, we don't know, because very little data are available on new, code-minimum units. We do know that in general, dwelling units are getting much tighter over time (see Figure 1), but how much, we're not sure. For argument's sake, let's say they're TWICE as leaky as ENERGY STAR multifamily high rise units. Sound reasonable? This would put them at about 12 ACH50.[12] That sounds plenty leaky to provide sufficient natural ventilation, until you consider that a significant portion of the infiltration of attached dwelling units is likely to be transfer air from neighboring units, since much less of an attached unit's surface area is adjacent to the outdoors.

For example, interior dwelling units have only 1/6 surfaces exposed to the exterior, or about 10% of the total surface area for a unit with a square floor plan. Let's assume that up to 40% of the dwelling unit leakage comes through the 10% of the surface area accounted for by the exterior wall. This number can vary widely, but is a reasonable assumption based on multiple sources and feedback from builders, developers, and energy professionals that the most difficult area to air seal in attached units is the fire rated assembly wall separating dwelling units. So, for attached dwelling units that are twice as leaky as ENERGY STAR units, the effective outdoor air leakage rate would be about 5 ACH50 (40% of 12 ACH50). This is the leakage rate that triggers mechanical ventilation requirements in both the IRC and IMC.



ENERGY STAR Tight	Typical Tightness	
Total Leakage	Total Leakage	Leakage to Outdoors
~6 ACH50 (0.3 cfm50/sqft)	~12 ACH50 (assuming twice as leaky as ENERGY STAR)	~5 ACH50 (assuming 40% of leakage comes from outdoors)

Table 1. Estimating the tightness of typical attached dwelling units.

In other words, by the IRC and IMC's own standards, typical dwelling units, regardless of whether or not they have a blower door test, should be provided with mechanical ventilation. This proposal limits the requirements for mechanical ventilation to the dwelling units that will have the highest impact on occupant health - those units whose occupants are expected to be nontransient, since these account for the lion's share of pollutant exposure over time. The definition of nontransient is adapted from the IBC definition of transient.

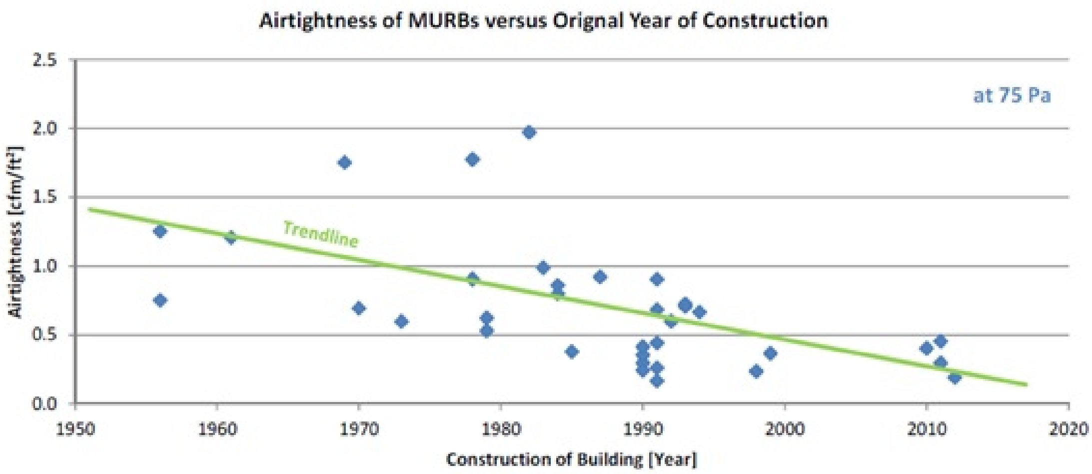


Figure 1. Airtightness of Multi-Unit Residential Buildings (MURB), by year.[14] The 0.4 cfm75/sqft metric for units built after 1995 would translate to about 0.3 cfm50/sqft. However, because this data set is limited and includes some high performance buildings across the U.S. and Canada, it should only be used to indicate a trend in tightness over time (dwelling units are getting tighter!) and should not be used to validate a specific leakage rate.

Building Tight without Mechanically Ventilating Can Have Huge Health Impacts

Building tight, compartmentalized dwelling units (5 ACH50 and below) has become the new standard practice, regardless of whether or not a developer confirms the tightness with a blower door test. Of course, the one potential problem with building tight is the negative impact it has on indoor air quality if mechanical ventilation is not provided. Without mechanical ventilation, tight dwelling units can experience elevated humidity levels; increased condensation potential on windows; higher concentrations of dust mites and allergens; and higher concentrations of pollutants such as particulate matter (which can be transmitted to the circulatory system and organs after being introduced to the lungs), radon (the second leading cause of lung cancer; has also been detected in high-rise units[13]), formaldehyde, acetaldehyde, and other VOCs that have negative health impacts.

We spend 90% of our time indoors, so it's no wonder that health impacts associated with poor indoor air quality include increased risk or exacerbation of asthma, stroke, neurotoxicity, and cancer, among others.[6,9,10] Many indoor air pollutants originate from building materials and finishes. Recent studies have shown that air pollution levels in dwelling units that are not mechanically ventilated can exceed outdoor national air quality standards for CO in 7-8% of homes and NO_2 in 55-70% of homes, during a typical week.[3] Other sources point to the increase in flame retardants in building materials and finishes driven by codes and standards as contributing to the presence of these chemicals in indoor dust and air and ultimately in the bodies of people (33 different flame retardants products have now been discovered in people's bodies; health effects of many of these are still largely unknown).[11]

Estimates for the cost of poor indoor air quality are staggering. The cost of asthma triggered by dampness and mold in U.S. residences has been estimated at $3.5 billion annually[5], and asthma now affects one in five Americans[4]. While dampness and mold should be controlled as much as possible at the source, there are other pollutants where source control is not an option for many households. Even when you exclude radon and second hand smoke from the list of indoor pollutants, poor indoor air quality in U.S. residences is estimated to account for 14% of all years of life lost and years of disability associated with "noncommunicable and nonpsychiatric diseases."[6] Based on another study, this is roughly equal to the negative health impacts of alcohol use, diabetes, and HIV/AIDS combined.[7]

Relying on Natural Ventilation Alone Doesn't Cut it In Tight Dwelling Units

A prominent study on occupant window operation in new (2002-2004 era) single family homes concluded that "a substantial percentage of homeowners never open their windows, especially in the winter" and that window operation coupled with natural infiltration does not provide the airflow rates necessary to achieve minimum indoor air quality.[8]

Nonetheless, natural ventilation through operable windows provides a useful and sometimes necessary function. Operable windows offer natural ventilation in addition to daylight and egress. Even with mechanical ventilation, a home occupant needs to be able to control their own environment, particularly in the case of an emergency such as a power failure (e.g., being able to open windows for airflow in the aftermath of a storm or blackout or in the case of equipment failure). The intention of this proposal is not to supplant natural ventilation, but to complement it. Experience shows that where mechanical ventilation is required (i.e., all ENERGY STAR homes, low-rise dwelling units built to the 2012 IECC, all new low-rise dwelling units in CA, etc.), builders are not generally using it to trade off against natural ventilation requirements. The exception for this would be toilet rooms, which for decades have often been provided with local exhaust instead of an operable window.

At this point, mechanical ventilation is needed to provide minimum acceptable air quality for code-minimum construction. This change will ensure that the comfortable, energy efficient homes that builders and developers are now building are also provided with the systems required by national consensus standards to provide for this need.

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   b. State data: ICC, "International Codes – Adoption by State (September 2014)" accessed from http://www.iccsafe.org/gr/Documents/stateadoptions.pdf on Dec 3, 2014.
   c. Jurisdictional data: Building department websites of various jurisdictions.
   d. 2014 housing starts: National Association of Home Builders Total Housing Starts Forecast, October 2014.
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10. Anderson, E.L. and Albert, R.E. (1999). Risk assessment and indoor air quality. Lewis Publishers, New York, NY.
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12. The ENERGY STAR requirement for maximum total air leakage in high-rise multifamily dwelling units is 0.3 cfm50/sqft of the dwelling unit's envelope surface area. For a square, 1000 sqft unit with 9 foot ceilings, this translates to 6.3 ACH50 (the ENERGY STAR requirement for low-rise and mid-rise multifamily units is even tighter, at 3-6 ACH50, depending on climate zone). Assuming typical units are twice as leaky as high rise units would place them at ~12 ACH50 total leakage. Then, assuming that these units have 40% of their leakage to outdoors means that the effective outdoor air

leakage rate would be ~5 ACH50.
13. Slack, H. & Palmer, J. (2011). Radon and Ventilation In Residential High-rise Buildings. Proceedings of Indoor Air 2011, Paper 447.
14. Canada Mortgage and Housing Corporation. (2013). Air Leakage Control in Multi-Unit Residential Buildings. Project 5314.00.

Cost Impact: Will increase the cost of construction
For those dwelling units that are not already provided with outdoor air, retail incremental costs for compliant systems can be less than $70. This is based on the incremental, retail cost difference between an entry-level exhaust fan (Broan 688 at $11.56) and a quiet, higher-efficiency exhaust fan that meets the requirements of the 2012 IECC (Broan QTR080 at $79.15). Prices were sourced from zoro.com on December 19, 2014.

M 20-15 : 401.2-MOORE4859

M 21-15

401.2, 501.3

Proponent: Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport (mmoore@newportventures.net)

2015 International Mechanical Code

Revise as follows:

401.2 Ventilation required. Every occupied space shall be ventilated by natural means in accordance with Section 402 or by mechanical means in accordance with Section 403. ~~Where~~Mechanical ventilation shall be required for the following:

1. Dwelling units where the air infiltration rate~~ in a dwelling unit~~ is less than 5 air changes per hour when tested with a blower door at a pressure of 0.2-inch water column (50 Pa) in accordance with Section R402.4.1.2 of the *International Energy Conservation Code*.~~, the~~
2. Kitchens in dwelling ~~unit shall be ventilated by mechanical means in accordance with Section 403~~units.
3. Ambulatory care facilities and Group I-2 occupancies. Such ventilation shall be~~e ventilated by mechanical means~~ in accordance with Section 407.

501.3 Exhaust discharge. The air removed by every mechanical exhaust system shall be discharged outdoors at a point where it will not cause a public nuisance and not less than the distances specified in Section 501.3.1. The air shall be discharged to a location from which it cannot again be readily drawn in by a ventilating system. Air shall not be exhausted into an attic, crawl space, or be directed onto walkways.

Exceptions:

1. Whole-house ventilation-type attic fans shall be permitted to discharge into the attic space of *dwelling units* having private attics.
2. Commercial cooking recirculating systems.
3. Where installed in accordance with the manufacturer's instructions and where mechanical ~~or *natural*~~ *ventilation* is otherwise provided in accordance with Chapter 4, *listed* and *labeled* domestic ductless range hoods shall not be required to discharge to the outdoors.

Reason:

Pollutants from cooking have been identified as some of the worst in the home, in terms of health impacts. Pollution during cooking events includes NO_2, CO, HCHO (formaldehyde), acrolein (produced when cooking meats and oils; used as a nerve agent in WWI), polycyclic aromatic hydrocarbons, and particulate matter (which can become lodged in the lungs or pass through the lungs to the circulatory system.[1,2,3,4,5,6,17,18,19,20,21] Overall, indoor air pollution from residential dwelling units (excluding the impacts of radon and second hand smoke) is estimated to account for 14% of all years of life lost and years of disability associated with "noncommunicable and nonpsychiatric diseases."[7] Based on another study, this is roughly equal to the negative health impacts of alcohol use, diabetes, and HIV/AIDS combined.[8] The lion's share of the health impacts of poor indoor air quality in dwelling units has been linked to particulate matter, and indoor particulate matter is emitted when cooking on both electric and gas stoves.[3,7,9]

Overall, the primary source of particulate matter in non-smoking dwelling units is unvented cooking.[1] Natural ventilation alone is an insufficient means to provide required ventilation because it relies on pressure differentials that may or may not exist, and when they exist, the pressure differential could be equally as likely to spread the pollutant throughout the dwelling unit and neighboring units as it would be to exhaust the pollutant directly to the outdoors. Further, studies have shown that occupants often do not operate windows for ventilation.[10,11] Concerns with window operation include security and discomfort (including severe draft in winter).

To improve the health and life safety of dwelling unit occupants, this proposal would require that mechanical ventilation be provided for all kitchens in dwelling units. Some compelling facts and quotes on kitchen pollutants and ventilation follow.

- Simulations show that where a natural gas cooktop is used without a vented range hood, "62%, 9%, and 53% of occupants are routinely exposed to NO_2, CO, and HCHO (formaldehyde) levels that exceed acute health-based standards and guidelines."[12]
- "Emissions of nitrogen dioxide in homes with gas stoves exceed the EPA's definition of clean air in an estimated 55 percent to 70 percent of those homes, according to one model; a quarter of them have air quality worse than the worst recorded smog (nitrogen dioxide) event in London. Cooking represents one of the single largest contributors, generating particulate matter (formally known as PM2.5) at concentrations four times greater than major haze events in Beijing."[13]
- Increased exposure to NO_2 in dwelling units has been associated with an increased number of asthma attacks.[14,15,16]
- "People don't need to radically change their lifestyles. We need to change the building codes so that everyone gets a venting range hood."- Dr. Jennifer Logue, Research Scientist with Lawrence Berkeley National Laboratory[13]

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Cost Impact: Will increase the cost of construction

For those units that do not already install kitchen exhaust, the cost of construction will increase, depending on equipment selection. Exhaust hoods start around $30 retail (e.g., Broan economy hood #403001, 2-speed, moving 160 cfm, priced on zoro.com at $33.36 with free shipping on December 19, 2014). Most dwelling units have some sort of recirculating exhaust hood at a minimum, so the actual incremental cost could probably be disregarded for the equipment itself. For units that are recirculating only, installed cost to the GC for ducting is estimated at ~$13/linear foot for 3.25x10" duct (RS Means 2013 Residential Cost Data, adjusted for inflation).

M 21-15 : 401.2-MOORE4909

M 22-15

Table 401.5

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Revise as follows:

TABLE 401.5
OPENING SIZES IN LOUVERS, GRILLES AND SCREENS PROTECTING AIR INTAKE OPENINGS

OUTDOOR OPENING TYPE	MINIMUM AND MAXIMUM OPENING SIZES IN LOUVERS, GRILLES AND SCREENS[a] ~~MEASURED IN ANY DIRECTION~~
Intake openings in residential occupancies	Not < $^1/_4$ inch and not > $^1/_2$ inch
Intake openings in other than residential occupancies	> $^1/_4$ inch and not > 1 inch

For SI: 1 inch = 25.4 mm.

<u>a. For rectangular openings, the table requirements apply to the shortest side. For round openings, the table requirements apply to the diameter. For square openings, the table requirements apply to any side.</u>

Reason: The current text would not permit slotted louvers and grilles because the size limit applies to all sides "in any direction." A slot 3/8 inch wide and 12 inches long meets the intent of the code but would be prohibited by the current table. The table appears to rule out slots and instead allows only openings that are a maximum of ½ by ½ or 1 x 1 inch. What if the openings are round? If so, the measurement should apply to the diameter of the circle. "Measured in any direction" would also include the diagonal of a square or rectangle. For example, a ½ by ½ inch square mesh screen on a residential building has a diagonal of 11/16 inch, which exceeds the ½ inch maximum. As revised, note (a) clearly specifies the measurement that applies to the geometry of the opening.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

M 22-15 : T401.5-SNYDER3615

M 23-15

202 (New), 403.1, 403.3, 403.3.1, 403.3.2, 403.3.2.1, 403.3.2.2, 403.3.2.3

Proponent: Mike Moore, Newport Ventures, Representing Broan-NuTone, representing Newport (mmoore@newportventures.net)

2015 International Mechanical Code

Add new definition as follows:

SECTION 202 DEFINITIONS

NONTRANSIENT Characterized by occupancy of a dwelling unit for greater than 30 days by occupants who are primarily permanent in nature.

Revise as follows:

403.1 Ventilation system. Mechanical ventilation shall be provided by a method of supply air and return or *exhaust air* except that mechanical ventilation air requirements for ~~Group R-2, R-3 and R-4 occupancies three stories and less~~dwelling units in ~~height above grade plane~~nontransient residential occupancies shall be provided by an exhaust system, supply system or combination thereof. The amount of supply air shall be approximately equal to the amount of return and *exhaust air*. The system shall not be prohibited from producing negative or positive pressure. The system to convey *ventilation air* shall be designed and installed in accordance with Chapter 6.

403.3 Outdoor air and local exhaust airflow rates. ~~Group R-2, R-3 and R-4 occupancies three stories and less~~ Dwelling units in ~~height above grade plane~~nontransient residential occupancies shall be provided with outdoor air and local exhaust in accordance with Section 403.3.2. All other buildings intended to be occupied shall be provided with outdoor air and local exhaust in accordance with Section 403.3.1.

403.3.1 Other buildings intended to be occupied. The design of local exhaust systems and ventilation systems for outdoor air for occupancies other than ~~Group R-2, R-3 and R-4 three stories and less above grade plane~~dwelling units in nontransient residential occupancies shall comply with Sections 403.3.1.1 through 403.3.1.5.

403.3.2 ~~Group R-2, R-3 and R-4~~Dwelling units in nontransient residential occupancies~~, three stories and less~~. The design of local exhaust systems and ventilation systems for outdoor air in ~~Group R-2, R-3 and R-4 occupancies three stories and less~~dwelling units in ~~height above grade plane~~nontransient residential occupancies shall comply with Sections 403.3.2.1 through 403.3.2.3.

403.3.2.1 Outdoor air for dwelling units in nontransient residential occupancies. *No change to text.*

Delete without substitution:

~~**403.3.2.2 Outdoor air for other spaces.** Corridors and other common areas within the conditioned space shall be provided with outdoor air at a rate of not less than 0.06 cfm per square foot of floor area.~~

Revise as follows:

TABLE 403.3.2.3
MINIMUM REQUIRED LOCAL EXHAUST RATES FOR ~~GROUP R-2, R-3, AND R-4~~DWELLING UNITS IN NONTRANSIENT RESIDENTIAL OCCUPANCIES

AREA TO BE EXHAUSTED	EXHAUST RATE CAPACITY
Kitchens	100 cfm intermittent or 25 cfm continuous
Bathrooms and toilet rooms	50 cfm intermittent or 20 cfm continuous

For SI: 1 cubic foot per minute = 0.0004719 m^3/s.

Reason: This proposal is intended to simplify the optional mechanical ventilation compliance path for all dwelling units in nontransient residential occupancies, regardless of building height. This change is aligned with a recent scope change in standards ASHRAE 62.2 and 62.1 that moved jurisdiction of dwelling units in nontransient residential occupancies to the scope of ASHRAE 62.2, regardless of building height.[1] This change was strongly supported by both committees, primarily for the following reason:

- Ventilation rates for dwelling units in nontransient residential occupancies should be consistent across all units, regardless of building height. Why should a dwelling unit in a 4 story building require an outdoor air ventilation rate that is up to two times greater than that in a 3 story building?

Approval of this particular proposal to the IMC would have the following benefits:

- More closely align the IMC's ventilation requirements with consensus standards without requiring the user to access or purchase those standards.
- Simplify the design, specification, and enforcement of outdoor air ventilation and exhaust requirements for dwelling units in nontransient residential occupancies, regardless of building height.
- Save significant energy: As an example, the IMC currently requires a 1000 sqft, 2 bedroom apartment with 9 foot ceilings to be provided with 53 cfm of outdoor air when located in a three story building (using equation 4-9). For the identical unit in a four story building, the IMC requires 53-105 cfm of outdoor air, depending on the type of HVAC system installed (equations 4-1 and 4-2, and tables 403.3.1.1 and 403.3.1.1.1.2). So, up to 50% of the ventilation energy currently required for high-rise dwelling units can be saved by simply transitioning all ventilation requirements for dwelling units in nontransient residential occupancies to those currently contained in Section 403.3.2.

Bibliography:

1. ASHRAE 62.2-2013 Addendum G. To access a free copy, please contact ASHRAE at (404) 636-8400.

Cost Impact: Will not increase the cost of construction
This change is not expected to increase the cost of construction because it serves to simplify the design, specification, and enforcement of outdoor air ventilation and exhaust requirements for dwelling units in nontransient residential occupancies, regardless of building height.

M 23-15 : 403-MOORE4858

M 24-15

Table 403.3.1.1

Proponent: Steven Ferguson, representing ASHRAE (sferguson@ashrae.org)

2015 International Mechanical Code

Revise as follows:

TABLE 403.3.1.1
MINIMUM VENTILATION RATES

OCCUPANCY CLASSIFICATION	OCCUPANT DENSITY #/1000 FT^2 [a]	PEOPLE OUTDOOR AIRFLOW RATE IN BREATHING ZONE, R_pCFM/PERSON	AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE, R_aCFM/FT^2 [a]	EXHAUST AIRFLOW RATE CFM/FT^2 [a]
Correctional facilities				
Booking/waiting	50	7.5	0.06	—
Cells				
without plumbing fixtures	25	5	0.12	—
with plumbing fixtures[g]	25	5	0.12	1.0
Day room	30	5	0.06	—
Dining halls	—	—	—	—
(see food and beverage service)				
Guard stations	15	5	0.06	—
Dry cleaners, laundries				
Coin-operated dry cleaner	20	15	—	—
Coin-operated laundries	20	7.5	~~0.06~~<u>0.12</u>	—
Commercial dry cleaner	30	30	—	—
Commercial laundry	10	25	—	—
Storage, pick up	30	7.5	0.12	—
Education				
Art classroom[g]	20	10	0.18	0.7
Auditoriums	150	5	0.06	—
Classrooms (ages 5-8)	25	10	0.12	—

Classrooms (age 9 plus)	35	10	0.12	—
Computer lab	25	10	0.12	—
Corridors (see public spaces)	—	—	—	—
Day care (through age 4)	25	10	0.18	—
Lecture classroom	65	7.5	0.06	—
Lecture hall (fixed seats)	150	7.5	0.06	—
Locker/dressing rooms[g]	—	—	—	0.25
Media center	25	10	0.12	—
Multiuse assembly	100	7.5	0.06	—
Music/theater/dance	35	10	0.06	—
Science laboratories[g]	25	10	0.18	1.0
Smoking lounges[b]	70	60	—	—
Sports locker rooms[g]	—	—	—	0.5
Wood/metal shops[g]	20	10	0.18	0.5
Food and beverage service				
Bars, cocktail lounges	100	7.5	0.18	—
Cafeteria, fast food	100	7.5	0.18	—
Dining rooms	70	7.5	0.18	—
Kitchens (cooking)[b]	—20	—7.5	—0.12	0.7

OCCUPANCY CLASSIFICATION	OCCUPANT DENSITY #/1000 FT^2 [a]	PEOPLE OUTDOOR AIRFLOW RATE IN BREATHING ZONE, R_pCFM/PERSON	AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE, R_aCFM/FT^2 [a]	EXHAUST AIRFLOW RATE CFM/FT^2 [a]
Hotels, motels, resorts and dormitories				
Bathrooms/toilet—private[g]	--	—	—	25/50[f]
Bedroom/living room	10	5	0.06	—
Conference/meeting	50	5	0.06	—
Dormitory sleeping areas	20	5	0.06	—
Gambling casinos	120	7.5	0.18	—

Lobbies/prefunction	30	7.5	0.06	—
Multipurpose assembly	120	5	0.06	—
Offices				
Conference rooms	50	5	0.06	—
Main entry lobbies	10	5	0.06	—
Office spaces	5	5	0.06	—
Reception areas	30	5	0.06	—
Telephone/data entry	60	5	0.06	—
Private dwellings, single and multiple				
Garages, common for multiple units[b]	—	—	—	0.75
Kitchens[b]	—	—	—	25/100[f]
Living areas[c]	Based upon number of bedrooms. First bedroom, 2; each additional bedroom, 1	0.35 ACH but not less than 15 cfm/person	—	—
Toilet rooms and bathrooms[g]	—	—	—	25/50[f]
Public spaces				
Corridors	—	—	0.06	—
Courtrooms	70	5	0.06	—
Elevator car	—	—	—	1.0
Legislative chambers	50	5	0.06	—
Libraries	10	5	0.12	—
Museums (children's)	40	7.5	0.12	—
Museums/galleries	40	7.5	0.06	—
Places of religious worship	120	5	0.06	—
Shower room (per shower head)[g]	—	—	—	50/20[f]
Smoking lounges[b]	70	60	—	—
Toilet rooms — public[g]	—	—	—	50/70[e]

Retail stores, sales floors and showroom floors				
Dressing rooms	—	—	—	0.25
Mall common areas	40	7.5	0.06	—
Sales	15	7.5	0.12	—
Shipping and receiving	~~—~~2	~~—~~10	0.12	—
Smoking lounges[b]	70	60	—	—
Storage rooms	—	—	0.12	—
Warehouses (see storage)	—	~~—~~10	~~—~~0.06	—

OCCUPANCY CLASSIFICATION	OCCUPANT DENSITY #/1000 FT[2 a]	PEOPLE OUTDOOR AIRFLOW RATE IN BREATHING ZONE, R_pCFM/PERSON	AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE, R_aCFM/FT[2 a]	EXHAUST AIRFLOW RATE CFM/FT[2 a]
Specialty shops				
Automotive motor-fuel dispensing stations[b]	—	—	—	1.5
Barber	25	7.5	0.06	0.5
Beauty salons[b]	25	20	0.12	0.6
Nail salons [b, h]	25	20	0.12	0.6
Embalming room[b]	—	—	—	2.0
Pet shops (animal areas)[b]	10	7.5	0.18	0.9
Supermarkets	8	7.5	0.06	—
Sports and amusement				
Bowling alleys (seating areas)	40	10	0.12	—
Disco/dance floors	100	20	0.06	—
Game arcades	20	7.5	0.18	—
Gym, stadium, arena (play area)	~~—~~7	~~—~~20	~~0.30~~**0.18**	—
Health club/aerobics room	40	20	0.06	—
Health club/weight room	10	20	0.06	—

Ice arenas without combustion engines	—	—	0.30	0.5
Spectator areas	150	7.5	0.06	—
Swimming pools (pool and deck area)	—	—	0.48	—
Storage				
Repair garages, enclosed parking garages[b,d]	—	—	—	0.75
Refrigerated warehouses/Freezers	—	10	—	—
Warehouses	—	—10	0.06	—
Theaters				
Auditoriums (see education)	—	—	—	—
Lobbies	150	5	0.06	—
Stages, studios	70	10	0.06	—
Ticket booths	60	5	0.06	—
Transportation				
Platforms	100	7.5	0.06	—
Transportation waiting	100	7.5	0.06	—

OCCUPANCY CLASSIFICATION	OCCUPANT DENSITY #/1000 FT^2 [a]	PEOPLE OUTDOOR AIRFLOW RATE IN BREATHING ZONE, R_p CFM/PERSON	AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE, R_a CFM/FT^2 [a]	EXHAUST AIRFLOW RATE CFM/FT^2 [a]
Workrooms				
Bank vaults/safe deposit	5	5	0.06	—
Computer (without printing)	4	5	0.06	—
Copy, printing rooms	4	5	0.06	0.5
Darkrooms	—	—	—	1.0
Meat processing[c]	10	15	—	—
Pharmacy (prep. area)	10	5	0.18	—
Photo studios	10	5	0.12	—

For SI: 1 cubic foot per minute = 0.0004719 m^3/s, 1 ton = 908 kg, 1 cubic foot per minute per square foot = 0.00508 $m^3/(s \cdot m^2)$, °C = [(°F)-32]/1.8, 1 square foot = 0.0929 m^2.

a. Based upon *net occupiable floor area*.

b. Mechanical exhaust required and the recirculation of air from such spaces is prohibited. Recirculation of air that is contained completely within such spaces shall not be prohibited (see Section 403.2.1, Item 3).

c. Spaces unheated or maintained below 50°F are not covered by these requirements unless the occupancy is continuous.

d. Ventilation systems in enclosed parking garages shall comply with Section 404.

e. Rates are per water closet or urinal. The higher rate shall be provided where the exhaust system is designed to operate intermittently. The lower rate shall be permitted only where the exhaust system is designed to operate continuously while occupied.

f. Rates are per room unless otherwise indicated. The higher rate shall be provided where the exhaust system is designed to operate intermittently. The lower rate shall be permitted only where the exhaust system is designed to operate continuously while occupied.

g. Mechanical exhaust is required and recirculation from such spaces is prohibited except that recirculation shall be permitted where the resulting supply airstream consists of not more than 10 percent air recirculated from these spaces. Recirculation of air that is contained completely within such spaces shall not be prohibited (see Section 403.2.1, Items 2 and 4).

h. For nail salons, each manicure and pedicure station shall be provided with a *source capture system* capable of exhausting not less than 50 cfm per station. Exhaust inlets shall be located in accordance with Section 502.20. Where one or more required source capture systems operate continuously during occupancy, the exhaust rate from such systems shall be permitted to be applied to the exhaust flow rate required by Table 403.3.1.1 for the nail salon.

Reason: This proposal seeks to update the existing ventilation rate table in the IMC. Standard 62.1 is the source material for this table, and this updates the table to match the ventilation rates in 62.1-2013.
Addendum s to ASHRAE Standard 62.1-2007 added a minimum outdoor airflow rate per person as well as a minimum per unit area rate in response to concerns expressing that minimum rates were needed for those spaces. Additionally, that addendum increased the outdoor airflow rate for coin operated laundry facilities based on concerns that those types of spaces were not getting enough outdoor air.

Addendum h to ASHRAE Standard 62.1-2010 modified the ventilation rates for gym/arenas/play areas because the space types had ventilation rates based on floor area only; the per-person rate was zero. Users of the standard
expressed interest in applying demand-controlled ventilation to these space types, which was effectively prohibited by the lack of a per-person component to the ventilation rate. The addendum, and this associated change replaces these space types with the new rates in this proposal. One concern about allowing CO2-based demand controlled ventilation in these spaces is that the volume per person in these spaces is typically large, which means that CO2 concentration changes will have longer than usual lag times behind occupancy changes.

Addendum L to 62.1-2010 added a new cateory for refrigerated warehouses/freezers. The current code includes ventilation spaces for warehouses, which would apply to refrigerated warehouses. Refrigerated warehouse spaces are significantly different from conventional warehouses in a number of ways. The low temperatures will slow the emission of contaminants, such as VOCs, from the materials stored in the space; the characteristics of the items being stored will be different; and the amount of time spent in the space by occupants may be shorter (particularly for spaces kept at sub-freezing temperatures).

This proposal adds a refrigerated warehouse space type to Table 6-1, providing revised ventilation rates for these spaces. These rates include a People Outdoor Air Rate which will require ventilation during periods of expected occupancy, but do not include an Area Outdoor Air Rate which will allow the ventilation rate to be zero for refrigerated warehouses with no occupants. This change was provided to ASHRAE TC 10.1, Custom Engineered Refrigeration Systems, for review. Based on comments from that Technical Committee, the Area Outdoor Air Rate was set to zero, and no distinction is made between refrigerated and freezer spaces.

Bibliography: ASHRAE Standard 62.1-2013
Addendum s to ASHRAE Standard 62.1-2007

Addendum h to ASHRAE 62.1-2010

Addendum L to ASHRAE 62.1-2010

Addenda to ASHRAE Standard 62.1 can be found here:https://www.ashrae.org/standards-research--technology/standards-addenda

Cost Impact: Will increase the cost of construction
While many of these changes may not increase the cost of construction, the cost of construction may increase in refrigerated warehouses/freezers, and warehouses as there will now need to be mechanical ventilation in those spaces, while there was no previous airflow rate requirement.

M 24-15 : T403.3.1.1-FERGUSON3836

M 25-15

403.3.2.4 (New)

Proponent: Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport (mmoore@newportventures.net)

2015 International Mechanical Code

Add new text as follows:

403.3.2.4 System controls. Control devices for outdoor air ventilation systems shall be provided with text or a symbol indicating the device's function.

Reason:
Tight dwelling units are being outfitted with code-mandated outdoor air ventilation systems. These systems are often simply a bathroom exhaust fan expected to run continuously. The problem is that without a label indicating the system's function, occupants have no idea of the purpose of these systems and are likely to turn them off – thereby increasing the rate of accumulation of harmful indoor pollutants without their knowledge. At a minimum, these systems should be labeled to indicate that they are different than a typical bath fan.

Cost Impact: Will increase the cost of construction
This proposal is expected to have minimal cost impacts, as it simply involves labeling equipment for its intended purpose. This label could either be supplied from manufacturers (incremental cost would probably be <$0.10) or field-applied.

M 25-15 : 403.3.2.4 (New)-MOORE4897

M 26-15

403.3.2.4 (New)

Proponent: Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport (mmoore@newportventures.net)

2015 International Mechanical Code

Add new text as follows:

<u>**403.3.2.4** **Ventilating Equipment.** Exhaust equipment serving single dwelling units shall be listed and labeled to provide the minimum required air flow in accordance with ANSI/AMCA 210-ANSI/ASHRAE 51.</u>

Add new standard(s) as follows:

<u>ANSI/AMCA 210 - ANSI/ASHRAE 51 -07 Laboratory Methods of Testing Fans for Aerodynamic Performance Rating</u>

Reason:

Industry experience and research have shown that "for advertised airflows that are not certified, the actual installed airflow can be a small fraction of the advertised value".[1] Without a code minimum requirement for listing and labeling flows in accordance with an ANSI standard, there is nothing in place to stop a manufacturer from reporting an airflow under whatever conditions they please (e.g., the condition with no duct work attached). Requiring listing and labeling of ventilating equipment per ANSI/AMCA 210 - ANSI/ASHRAE 51 is the first step in ensuring that fans perform to expectations. In 2015, the IRC adopted a requirement for fans to be tested per ANSI/AMCA 210 - ANSI/ASHRAE 51 when using prescriptive duct sizing Table M1506.2 (see footnote "a"), so this standard has already been referenced elsewhere in the I-codes.

Listing and labeling of products tested to this standard is maintained by the Home Ventilating Institute, which has been in operation for decades. Verification of listing and labeling to this standard can be accomplished by visually inspecting the equipment for an HVI sticker or by looking up the equipment in the on-line database.[2] Certification by HVI in accordance with ANSI/AMCA 210 - ANSI/ASHRAE 51 is already required by ASHRAE 62.2, ENERGY STAR for Homes, and the State of California, among other groups. Roughly 12,000 ventilating equipment products are listed, labeled, and can be referenced in the HVI directory.

Bibliography:

1. Singer, B. C., Delp, W. W., Apte, M., & Price, P. N. (2011). Performance of Installed Cooking Exhaust Devices. LBNL-5265E. Berkeley, CA: Lawrence Berkeley National Laboratory.
2. Home Ventilating Institute. HVI-Certified Products Directory. http://hvi.org/proddirectory/index.cfm . Accessed December 10, 2014.

Cost Impact: Will increase the cost of construction
Over 12,000 ventilating equipment products are labeled and listed in the HVI directory. These fans are tested for airflow in accordance with ANSI/AMCA 210-ANSI/ASHRAE 51. For these products, there will be no incremental cost associated with this change. For equipment that is not currently tested, listed, and labeled, the incremental costs are highly dependent upon volume of the specific products sold.

Analysis: A review of the standard proposed for inclusion in the code, ANSI/AMCA 210 - ANSI/ASHRAE 51, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 26-15 : 403.3.2.4 (New)-MOORE4901

M 27-15

404.1

Proponent: Jonathan Roberts, representing UL LLC (jonathan.roberts@ul.com)

2015 International Mechanical Code

Revise as follows:

404.1 Enclosed parking garages. Where mechanical ventilation systems for enclosed parking garages operate intermittently, such operation shall be automatic by means of carbon monoxide detectors applied in conjunction with nitrogen dioxide detectors. Such detectors shall be listed in accordance with UL 2075 and installed in accordance with their listing and the manufacturers' ~~recommendations~~instructions.

Add new standard(s) as follows:
UL 2075-2013 Standard for Gas and Vapor Detectors and Sensors

Reason: This proposal clarifies that the detectors required by this section must be listed to UL 2075 and installed in accordance with their listing. Requiring these detectors to be listed to UL 2075 is consistent with IBC and IFC requirements.

Cost Impact: Will increase the cost of construction
Listed UL 2075 detectors might be marginally more expensive than non-listed detectors.

Analysis:
A review of the standard proposed for inclusion in the code, UL 2075, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 27-15 : 404.1-ROBERTS4110

M 28-15

404.1, 404.2

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Revise as follows:

404.1 Enclosed parking garages. ~~Where mechanical~~
Mechanical ventilation systems for enclosed parking garages shall operate ~~intermittently, such operation~~continuously or shall be ~~automatic~~automatically operated by means of carbon monoxide detectors applied in conjunction with nitrogen dioxide detectors. Such detectors shall be installed in accordance with their manufacturers~~'~~ recommendations. Automatic operation shall cycle the ventilation system between the following two modes of operation:

1. Full-on at an airflow rate of not less than 0.75 cfm per square foot of the floor area served.
2. Standby at an airflow rate of not less than 0.05 cfm per square foot of the floor area served.

Delete without substitution:

~~**404.2 Minimum ventilation.** Automatic operation of the system shall not reduce the ventilation airflow rate below 0.05 cfm per square foot (0.00025 $m^3/s \cdot m^2$) of the floor area and the system shall be capable of producing a ventilation airflow rate of 0.75 cfm per square foot (0.0038 $m^3/s \cdot m^2$) of floor area.~~

Reason: This section has been misinterpreted regarding intermittent operation. No technical changes are proposed by this revision. It is simpler to state that the exhaust system either has to run constantly or it has to run automatically. It is either on all of the time, or it is allowed to be cycled between full-on and minimum-on by the detectors. "Intermittent" operation implies that the system shuts off completely, but, Section 404.2 clearly does not allow the system to shut off completely. The current text breaks the requirements into two separate sections which adds to the confusion. Section 404.2 is being rolled into Section 404.1. Section 404.2 does not convey the simple concept that the system has to exhaust 0.75 cfm continuously or must cycle between 0.75 cfm and some rate that is not less than 0.05 cfm. The detectors determine when the system goes from standby airflow rate to full-on airflow rate.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

M 28-15 : 404.1-SNYDER3278

M 29-15

404.2

Proponent: Kathleen Petrie, representing City of Seattle, Department of Planning and Development (kathleen.petrie@seattle.gov)

2015 International Mechanical Code

Revise as follows:

404.2 Minimum ventilation. Automatic operation of the system shall not reduce the ventilation airflow rate below 0.05 cfm per square foot (0.00025 $m^3/s \cdot m^2$) of the floor area ~~and~~when the garage is occupied. The system shall be capable of producing a ventilation airflow rate of 0.75 cfm per square foot (0.0038 $m^3/s \cdot m^2$) of floor area.

Reason: This proposal clarifies that a ventilating system for an enclosed parking garage must operate at a minimum ventialtion airflow rate only when occupants are present. This tactic conserves energy and saves the building owner money without compromizing occupant health.

Cost Impact: Will not increase the cost of construction
This proposal is only a code clarification

M 29-15 : 404.2-PETRIE4257

M 30-15

501.2, 506.1, 507.1, 507.1.2, 509.1

Proponent: Jim Tidwell, Tidwell Code Consulting, representing Fire Equipment Manufacturers' Association (jimtidwell@tccfire.com)

2015 International Mechanical Code

Revise as follows:

501.2 Independent system required. Single or combined mechanical exhaust systems for environmental air shall be independent of all other exhaust systems. Dryer exhaust shall be independent of all other systems. Type I exhaust systems shall be independent of all other exhaust systems except as provided in Section 506.3.5. Single or combined Type II exhaust systems for food-processing operations shall be independent of all other exhaust systems. Kitchen exhaust systems shall be constructed in accordance with Section 505 for domestic ~~equipment~~ cooking operations and Sections 506 through 509 for commercial ~~equipment~~cooking operations.

506.1 General. Commercial kitchen hood ventilation ducts and exhaust *equipment* shall comply with the requirements of this section. Commercial kitchen grease ducts shall be designed for the type of cooking ~~*appliance*~~ and hood served.

507.1 General. Commercial kitchen exhaust hoods shall comply with the requirements of this section. Hoods shall be Type I or II and shall be designed to capture and confine cooking vapors and residues. A Type I or Type II hood shall be installed at or above ~~all~~ ~~*commercial cooking*~~ *appliances* in accordance with Sections 507.2 and 507.3. Where any cooking *appliance* under a single hood requires a Type I hood, a Type I hood shall be installed. Where a Type II hood is required, a Type I or Type II hood shall be installed. Where a Type I hood is installed, the installation of the entire system, including the hood, ducts, exhaust equipment and makeup air system shall comply with the requirements of Sections 506, 507, 508 and 509.

Exceptions:

1. Factory-built commercial exhaust hoods that are listed and labeled in accordance with UL 710, and installed in accordance with Section 304.1, shall not be required to comply with Sections 507.1.5, 507.2.3, 507.2.5, 507.2.8, 507.3.1, 507.3.3, 507.4 and 507.5.
2. Factory-built commercial cooking recirculating systems that are listed and labeled in accordance with UL 710B, and installed in accordance with Section 304.1, shall not be required to comply with Sections 507.1.5, 507.2.3, 507.2.5, 507.2.8, 507.3.1, 507.3.3, 507.4 and 507.5. Spaces in which such systems are located shall be considered to be kitchens and shall be ventilated in accordance with Table 403.3.1.1. For the purpose of determining the floor area required to be ventilated, each individual *appliance* shall be considered as occupying not less than 100 square feet (9.3 m^2).
3. Where cooking appliances are equipped with integral down-draft exhaust systems and such appliances and exhaust systems are listed and labeled for the application in accordance with NFPA 96, a hood shall not be required at or above them.

507.1.2 Domestic cooking appliances used for commercial purposes. Domestic cooking appliances utilized for commercial purposes shall be provided with Type I or Type II hoods as required for the type of ~~appliances and~~ cooking processes in accordance with Sections 507.2 and 507.3. Domestic cooking appliances utilized for domestic ~~purposes~~ cooking shall comply with Section 505.

509.1 Where required. ~~*Commercial cooking*~~ *Cooking appliances* required by Section 507.2 to have a Type I hood shall be provided with an *approved* automatic fire suppression system complying with the *International Building Code* and the *International Fire Code*.

Reason: The existing verbiage in this section is somewhat confusing, in that it refers to the type of cooking equipment to justify the type of hood (commercial cooking equipment), then states that when domestic cooking equipment is used for commercial purposes, hoods are also required. This code change is intended to clarify that hoods and fire suppression systems are required where the hazard justifies such protection, regardless of the type of equippment being covered.
Section 501.2 addresses the construction of hoods based upon the type of appliance being used; however, other sections (505.4, 507.1.2, 507.2, 507.3) contain requirements based upon the hazard regardless of the type of equipment. The proposed change to 501.2 clarifies and correlates the requirements in the chapter.

Currently, 506.1 states that hood ventilation ducts and exhaust equipment be designed for the type of appliance; however, Section 507.1.2 requires a Type I hood where domestic appliances are used in commercial operations that produce grease or smoke (refers to 507.2). Domestic appliances are currently available that generate very similar heating hcaracteristics as commercial appliances; as a matter of fact, some of the appliances being sold to consumers for their homes are virtually indistinguishable from commercial appliances and may easily be used in commercial cooking operations. The proposed change clarifies that the hazards generated from the cooking operation dictate the required protection scheme.

Section 507.1 currently states that Type I or Type II hoods shall be installed above all commercial cooking appliances, but points to sections of the code that describe requirements for both cooking appliances and other appliances such as dishwashers. In addition, Section 507.1.2 clearly states that Type I or Type II hoods are required for domestic cooking appliances used for commercial purposes. The proposed change clarifies that hoods should be installed over appliances based upon the hazard (or lack thereof) rather than the type of appliance.

507.1.2 requires Type I or Type II hoods over domestic appliances utilized for commercial purposes. It then states that the type of hood is ddependent upon the type of appliance and the proces being used, and refers the user to sections 507.2 and 507.3. These sections clearly apply to commercial cooking and other commercial applications, so maintaining the reference to the type of appliance only confuses the user. The proposed change to this section clarifies the intent of the code.

The change to 509.1 is intended to clarify that any time a Type I hood is required, suuppression is required, regardless of the type of equipment.

Cost Impact: Will not increase the cost of construction
The code change is for purposes of clarification, and does not change the overall requirements of the section, thus will not change the cost of compliance.

M 30-15 : 501.2-TIDWELL5040

M 31-15

501.3.1

Proponent: Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport (mmoore@newportventures.net)

2015 International Mechanical Code

Revise as follows:

501.3.1 Location of exhaust outlets. The termination point of exhaust outlets and ducts discharging to the outdoors shall be located with the following minimum distances:

1. For ducts conveying explosive or flammable vapors, fumes or dusts: 30 feet (9144 mm) from property lines; 10 feet (3048 mm) from operable openings into buildings; 6 feet (1829 mm) from exterior walls and roofs; 30 feet (9144 mm) from combustible walls and operable openings into buildings which are in the direction of the exhaust discharge; 10 feet (3048 mm) above adjoining grade.
2. For other product-conveying outlets: 10 feet (3048 mm) from the property lines; 3 feet (914 mm) from exterior walls and roofs; 10 feet (3048 mm) from operable openings into buildings; 10 feet (3048 mm) above adjoining grade.
3. For all *environmental air* exhaust: 3 feet (914 mm) from property lines; 3 feet (914 mm) from operable openings into buildings for all occupancies other than Group U, and 10 feet (3048 mm) from mechanical air intakes. Such exhaust shall not be considered hazardous or noxious. Where a combined exhaust and intake terminal is used to separate intake air from exhaust air originating in living space other than kitchens, a minimum separation distance between these two openings shall not be required, provided that the exhaust air concentration within the intake air flow does not exceed 10%, as established by the manufacturer of such terminal.
4. Exhaust outlets serving structures in flood hazard areas shall be installed at or above the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment.
5. For specific systems see the following sections:
    5.1. Clothes dryer exhaust, Section 504.4.
    5.2. Kitchen hoods and other kitchen exhaust *equipment*, Sections 506.3.13, 506.4 and 506.5.
    5.3. Dust stock and refuse conveying systems, Section 511.2.
    5.4. Subslab soil exhaust systems, Section 512.4.
    5.5. Smoke control systems, Section 513.10.3.
    5.6. Refrigerant discharge, Section 1105.7.
    5.7. Machinery room discharge, Section 1105.6.1.

Reason:
Combined exhaust/supply terminations are regularly installed with heating and energy recovery ventilators (H/ERVs) used for dwelling units. Their use reduces building penetrations, labor, and associated system costs. By reducing the number of penetrations, air leakage can also be reduced, resulting in space conditioning energy savings. Further, the durability of the structure can be improved through reducing entry pathways for bulk water. Combined terminations are regularly approved and installed in single family and multifamily dwelling units across the country, and manufacturer tests have demonstrated that minimum cross-contamination of airflow results from these terminations. There is currently no industry standard by which to test these units, so we have simply proposed that their performance be verified by the manufacturer, as is the practice in other areas of the code (IMC Sections 513.10.1, 801.14, 1002.2, 1006.3, 1006.7, 1007.2, 1102.2.2.3, 1108.1 exception 3, 1206.7, 1210.6.6.2, etc.). The 10% cross contamination metric is based on language in ASHRAE 62.1 that limits cross contamination of exhaust and supply streams to 10% for "air with moderate contaminant concentration, mild sensory-irritation intensity, or mildly offensive odors"; a similar exception exists in the IMC, Section 514.4. In both the IMC and ASHRAE 62.1, no standard is cited for determining cross-contamination, presumably because none yet exists.

Cost Impact: Will not increase the cost of construction

This proposal is expected to reduce construction costs by eliminating the need for a second wall cap and extra ducting that would otherwise be required to separate intake and exhaust airstreams.

M 31-15 : 501.3.1-MOORE4876

M 32-15

501.6 (New)

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Add new text as follows:

501.6 Discharge from multiple exhaust fans. The discharge outlets of multiple exhaust fans shall not be connected to a common duct. The discharge outlets of exhaust fans serving separate dwelling units shall not be connected to a common duct.

Reason: If exhaust fans such as toilet and kitchen exhaust fans are connected together on the positive pressure (discharge) side of the fans, exhaust air will flow through any fan that is not running. The typical backdraft dampers do not prevent leakage and are not reliable unless cleaned and maintained. If the fans operate in parallel or have effective backdraft dampers, they could share a common discharge duct if such duct was properly sized and configured. Often such connections involve no engineering and consist of fans duct taped to a tee fitting without even increasing the duct size as necessary. If the fans serve different dwelling units, the exhaust air from one dwelling would discharge into another dwelling unit and this is unacceptable.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction in those cases where the discharge side of exhaust fans would have been connected to a common duct, because separate exhaust terminations are required by the proposed text.

M 32-15 : 501.5-SNYDER3260

M 33-15

502.14

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Revise as follows:

502.14 Motor vehicle operation. In areas where motor vehicles operate, mechanical ventilation shall be provided in accordance with Section 403. Additionally, areas in which stationary motor vehicles are operated shall be provided with a *source capture system* that connects directly to the motor vehicle exhaust systems. Such system shall be engineered by a registered design professional or shall be factory-built equipment designed and sized for the purpose. <u>Makeup air for the ventilation system shall be provided by permanent openings or mechanical makeup air supply units. Motorized dampers for such openings and makeup air supply units shall be automatically controlled to start and operate simultaneously with operation of the ventilation system.</u>

Exceptions:

1. This section shall not apply where the motor vehicles being operated or repaired are electrically powered.
2. This section shall not apply to one and two-family dwellings.
3. This section shall not apply to motor vehicle service areas where engines are operated inside the building only for the duration necessary to move the motor vehicles in and out of the building.

Reason: Overhead doors in repair garages and service garages should not be relied upon to provide makeup air for the required mechanical exhaust/ventilation system because they may or may not be open when makeup is needed. Dampered outdoor air intake openings and makeup air supply units need to be controlled so that they function when the exhaust/ventilation system functions.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction in those cases where overhead doors would have been used as makeup air inlets. Alternative makeup air openings are mandated and control wiring will be required to cause simultaneous operation of ventilation systems and the makeup supply units and motorized louvers.

M 33-15 : 502.14-SNYDER3261

M 34-15

504.3

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com)

2015 International Mechanical Code

Revise as follows:

504.3 Cleanout. Each vertical riser shall be provided with a means for cleanout. Dryer duct terminations shall by design, provide access for cleaning the exhaust duct.

Reason: The routine cleaning of the dryer exhaust ducts minimizes the potential for a fire in the duct as well as increasing the efficiency of the appliance. Duct cleaning services now provide this service for dryer exhaust ducts using a wand and brush. Many duct cleaning service companies enter the dryer exhaust duct through the duct termination. This offers an easy access to the dryer exhaust duct system. If a proper dryer exhaust terminal is not provided that allows ease of access, some companies have been known to wrongly remove the termination lid or cover creating a potential leak situation.

Examples of vent caps that duct cleaners wrongly disassemble to gain access.

Examples of vent caps that duct cleaners wrongly disassemble to gain access.

Cost Impact: Will increase the cost of construction
The cost may increase for a vent terminal that allows cleaning.

M 34-15 : 504.3-BALLANCO4121

M 35-15

504.4

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com)

2015 International Mechanical Code

Revise as follows:

504.4 Exhaust installation. Dryer exhaust ducts for clothes dryers shall terminate on the outside of the building and shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination. Exhaust duct penetrations of exterior wall and roof assemblies shall be sealed air-tight to prevent dryer exhaust from re-entering the building. Ducts shall not be connected or installed with sheet metal screws or other fasteners that will obstruct the exhaust flow. Clothes dryer exhaust ducts shall not be connected to a vent connector, vent or *chimney*. Clothes dryer exhaust ducts shall not extend into or through ducts or plenums.

Reason: This change clarifies that the dryer exhaust must vent to the outside without the possibility of having the dryer exhaust return to the building. In some regions, friction-fitting a ducts' end into a roof cap appears to still be acceptable. This change adds the language to require a positive leak-proof assembly that will prevent the dryer exhaust from reentering the building. The high humidity of the dryer exhaust can cause all sorts of problems within the building elements if the dryer exhaust can reenter the building. Humidity control is an important part of any building design. As such, humid lint-laden air should never be given a path to enter the building after being exhausted.

Cost Impact: Will not increase the cost of construction
This change is simply clarifying the intent of the code.

M 35-15 : 504.4-BALLANCO4118

M 36-15

504.4, 504.8.2

Proponent: Guy McMann, Jefferson County Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Mechanical Code

Revise as follows:

504.4 Exhaust installation. Dryer exhaust ducts for clothes dryers shall terminate on the outside of the building and shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination. ~~Ducts shall not be connected or installed with sheet metal screws or other fasteners that will obstruct the exhaust flow.~~ Clothes dryer exhaust ducts shall not be connected to a vent connector, vent or *chimney*. Clothes dryer exhaust ducts shall not extend into or through ducts or plenums.

504.8.2 Duct installation. Exhaust ducts shall be supported at 4-foot (1219 mm) intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude more than $^1/_8$ inch (3.2 mm) into the inside of the duct.

Reason: As a result of the newer language in Section 504.8.2, this language is no longer required and will only cast doubt on Section 504.8.2.

Cost Impact: Will not increase the cost of construction
.There is no cost impact as this modification is strictly editorial in nature

M 36-15 : 504.4-MCMANN4352

M 37-15

504.4

Proponent: Janine Snyder, City of Thornton, Colorado, representing Colorado Association of Plumbing & Mechanical Officials (CAPMO) (Janine.Snyder@cityofthornton.net)

2015 International Mechanical Code

Add new text as follows:

504.4 Exhaust installation. Dryer exhaust ducts for clothes dryers shall terminate on the outside of the building and shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination. Ducts shall not be connected or installed with sheet metal screws or other fasteners that will obstruct the exhaust flow. Clothes dryer exhaust ducts shall not be connected to a vent connector, vent or *chimney*. Clothes dryer exhaust ducts shall not extend into or through ducts or plenums. <u>Clothes dryer exhaust ducts shall be sealed in accordance with Section 603.9</u>

Reason: Section 504 covers duct construction for dryers, however, it is unclear on the requirement to seal dryer ducts. Sealing is specified in 603.9. Because we don't have a reference directing the code official to 603.9 do we inadvertently lose the duct sealing requirements? This code change clarifies that dryer ducts must be sealed in accordance with 603.9 removing any doubt.

Cost Impact: Will not increase the cost of construction
The requirement has always been in the code to seal ducts. This code change proposal just reminds you that it is also required for dryer ducts within the section that regulates dryer ducts.

M 37-15 : 504.4-SNYDER4451

M 38-15

504.4.1 (New)

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com)

2015 International Mechanical Code

Add new text as follows:

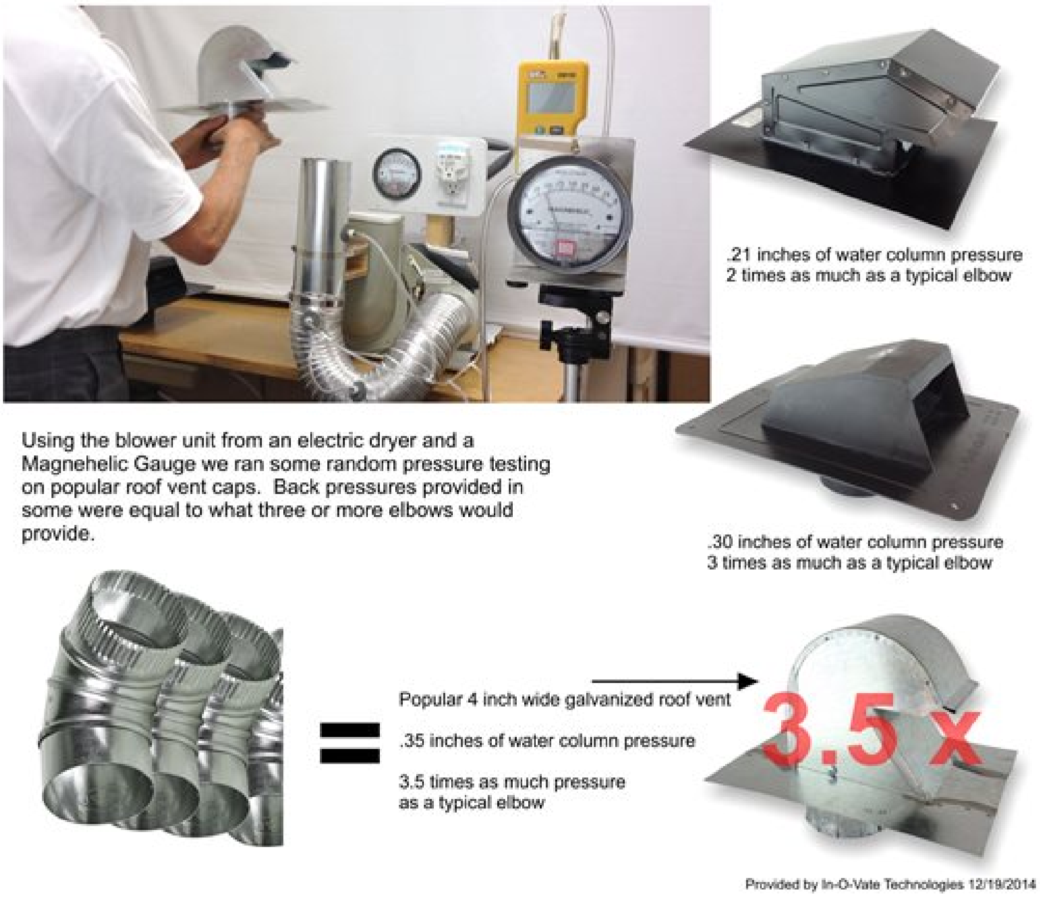
504.4.1 Exhaust termination outlet and passageway size. The passageway of dryer exhaust duct terminals shall be undiminished in size and shall provide an open area of not less than 12.5 square inches (8,065 sq mm).

Reason: The allowable (calculated) length of the dryer exhaust duct is based on an open (non-restrictive) exhaust terminal. Some exhaust terminals increase resistance due to their inherent design characteristics (path and final opening size). This results in the dryer exhaust duct having to be reduced in length. However, there is no allowance for a reduction in length for a highly resistant vent cap. Short of requiring testing standards for every vent termination, the code must require a minimum open area of 12.5 sq. inches which equates to a 4" round duct. The code is very sensitive and detailed as it relates to 90 degree elbows and their respective friction loss but does not prohibit or penalize for termination hoods that grossly create back pressure, reducing the efficiency of the dryer.
The dimension used for the opening in the interior area of the 4 inches duct is rounded to an even number (12.5"). By maintaining the same opening area throughout the vent terminal, the friction resistance in vent caps can be greatly reduced.

Video Links:

www.youtube.com/watch?v=5KnRp3eXNbk

http://youtu.be/ZL2zV1-GjdI?t=50s



Cost Impact: Will increase the cost of construction
The cost of the vent terminal may be higher.

M 38-15 : 504.4.1 (New)-BALLANCO4124

M 39-15

504.4.1 (New)

Proponent: Rick Harpenau, In-O-Vate Technologies, representing Self

2015 International Mechanical Code

Add new text as follows:

504.4.1 Exhaust termination pathways. Dryer exhaust duct terminal pathways that cause a change in direction of air flow between 45 and 90 degrees shall have an area not less than 20 percent larger that the cross sectional area of the exhaust duct served. Dryer exhaust duct terminal pathways that cause a change in direction of air flow greater than 90 degrees shall have an area not less than 30 percent larger than the cross sectional area of the exhaust duct served. Exhaust duct terminal passageways shall maintain throughout an area of not less than 12.5 square inches (8,065 sq mm).

Reason: The code is very sensitive and detailed as it relates to 90 degree elbows and their respective friction loss but does not prohibit or penalize for termination hoods that grossly create back pressure, reducing the efficiency of the dryer. There are wall vents and roof vents on the market that with minimal testing equipment show clearly they create as much back pressure as 3 and 4 elbows. Short of requiring testing standards for every vent termination, the council should consider language whereby the passageway increases in size to make up for the friction causing bends. If this addition to the codes makes sense, actual calculations can be provided. Bottom line, treat terminations the same as elbows and run lengths.
Video Links:

www.youtube.com/watch?v=5KnRp3eXNbk

http://youtu.be/ZL2zV1-GjdI?t=50s

Cost Impact: Will increase the cost of construction
A larger opening at the termination may cost more.

M 39-15 : 504.4.1 (New)-HARPENAU4551

M 40-15

504.6.1 (New)

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies, Inc. (JBENGINEER@aol.com)

2015 International Mechanical Code

Add new text as follows:

504.6.1 **Make-up air for tight construction.** Make up air shall be provided for clothes dryers where the air infiltration rate is known to be less than 0.4 air changes per hour (ACH). Make-up air shall be provided by a duct that communicates with the outdoors, a ventilated crawl space, or a ventilated attic space and such duct shall have a cross sectional area not less than that of a 4 inch round duct. The make-up air duct shall open into the room in which the clothes dryer is located. Make-up air duct inlets shall be provided with a screen having a mesh size not less than ¼ inch and not greater than ½ inch. The make-up air inlet shall be equipped with an air admitting damper that opens during the operation of the clothes dryer.

Exception: Condensing dryers shall not require make-up air.

Reason: Today homes are much more tightly constructed, creating an inadequate condition for the proper operation of a clothes dryer. The exhaust rate for a residential dryer ranges from 125 to 200 cfm with newer dryers favoring 200 cfm.
When the air infiltration rate drops to less than 0.4 air changes per hour, this creates a condition of inadequate make-up for the clothes dryer. When there is inadequate ambient air to pull from, the dryer is starved and not capable of efficiently drying the clothes any longer. This extends the length of time for the dryer cycle wasting energy. It also reduce the life of the dryer since the fan is attempting to exhaust air that is not available.

Many clothes dryers are located in the basement of a home. When located in the basement, they have the available air in the basement as make-up air for exhausting the moisture. If a basement in 25 feet by 25 feet with an 8 foot ceiling, there is 5,000 cubic feet of available air. However, with an air exchange rate of 0.4, the available air for exhaust is 2000 cubic feet. That translates to 33.3 cfm of air. This means that the dryer has to draw air from other locations in order to properly operate, potentially pulling it from other unsafe sources.

Outside air is normally required by combustion air when the air infiltration rate is less than 0.4 as identified in Section G2407.5. This code change is consistent by requiring make-up air when the air exchange rate is below this value. The amount of air required for combustion air is normally less than the amount of make-up air for a dryer exhaust. An 80,000 Btu/hr furnace only requires between 16.6 and 26.6 cfm for combustion air, whereas the dryer requires between 125 and 200 cfm.

With a 4 inch duct, the make-up air can be provided at an acceptable rate. Furthermore, the fan in the clothes dryer would draw the make-up air through the make-up air duct.

A screened air admitting damper or equivalent device is necessary to prevent outside air from entering the home when the clothes dryer is not in use. The screen dimension are taken from Table 401.5 of the IMC for residential occupancies. The air admitting damper also prevents the loss of conditioned air when the dryer is not in use.

Cost Impact: Will increase the cost of construction
There is a cost to installing a make up air supply system.

M 40-15 : 504.6.1 (New)-BALLANCO3702

M 41-15

Part Part I:
504.8.1
Part Part II:
M1502.4.1

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part Part I

2015 International Mechanical Code

Revise as follows:

504.8.1 Material and size. Exhaust ducts shall have a smooth interior finish and shall be constructed of metal ~~a minimum~~not less than 0.016 inch (0.4 mm) ~~thick~~in thickness. The exhaust duct shall be round and the size shall be 4 inches (102 mm) nominal in diameter.

Part Part II

2015 International Residential Code

Revise as follows:

M1502.4.1 Material and size. Exhaust ducts shall have a smooth interior finish and shall be constructed of metal ~~having a minimum thickness of~~not less than 0.0157 ~~inches (0.3950~~inch(0.3950 mm) in thickness (No. 28 gage). The exhaust duct shall be round and the size shall be 4 inches (102 mm) nominal in diameter.

Reason: The code assumes that the dryer ducts are 4 inch round duct, but this not stated in the code. Square, rectangular and oval ducts all have differing flow characteristics and the exhaust system design is based on round duct. The code states 4 inch diameter which clearly indicates round duct, but it would be very clear to state that it must be round.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact:

Part Part I: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

Part Part II: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

M 41-15 : 504.8.1-SNYDER3262

M 42-15

504.8.2

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com)

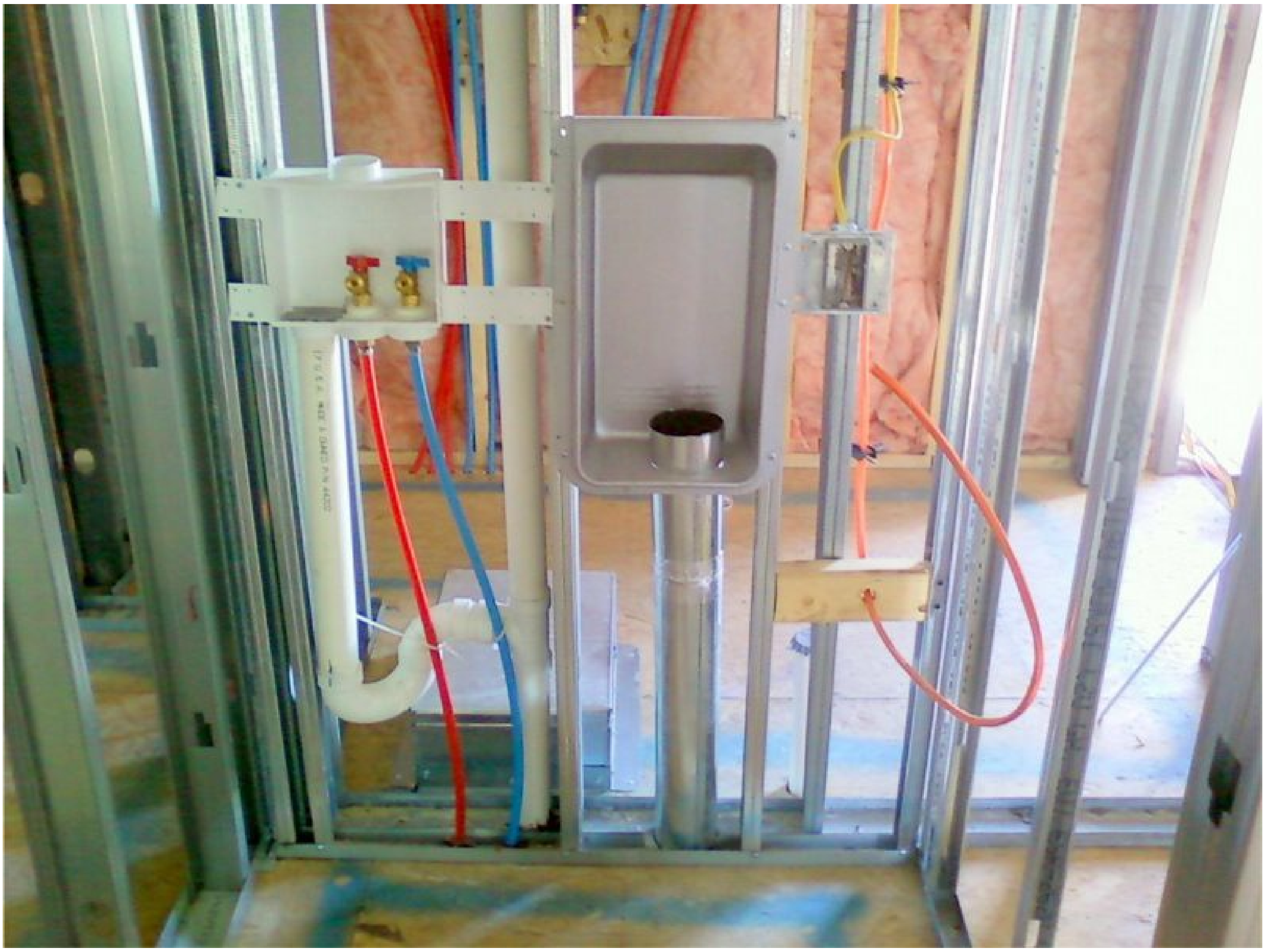
2015 International Mechanical Code

Revise as follows:

504.8.2 Duct installation. Exhaust ducts shall be supported at 4-foot (1219 mm) intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude more than $^1/_8$ inch (3.2 mm) into the inside of the duct. <u>Where dryer exhaust ducts are enclosed in wall or ceiling cavities, such cavitiies shall have a least dimension of not less than 4.25 inches (108 mm). Round duct shall not be deformed.</u>

Reason: The dryer exhaust duct must remain round in shape to reduce friction loss in the duct system. The length of the duct and termination are based on friction loss for round duct, not oval duct. The length of the dryer exhaust duct would have to be reduced if the 4 inch duct was oval in shape. In addition to the reduction in efficiency, the oval pipe creates a difficult connection for the consumer to make to the dryer exhaust transition hose.

A 1 inch furring strip (1x2) can be added to a 2 x 4 stud providing the 4.25 inches of space. In most cases, this "mechanical" wall is busy with other trades (plumbing drainage and vent stacks, gas piping, electric service, laundry services and water piping). A 4.25 inch space will benefit all of the trades working within that space. The minimum space required to keep the dryer exhaust duct round is 4.125 inches. This dimension could also be referenced here, however, most contractors will simply use a furring strip on a 2 x 4 to provide the minimum spacing for the duct.




MOVIE

Examples of “mechanical walls” showing the abundance of utilities in this wall, demonstrating the need to provide more than 3.5”

Cost Impact: Will increase the cost of construction
There is an added cost of adding furring strips to a 2 x 4 wall.

M 42-15 : 504.8.2-BALLANCO4116

M 43-15

504.8.2

Proponent: Guy McMann, Jefferson County, Colorado., representing Colorado Associatoin of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Mechanical Code

Revise as follows:

504.8.2 Duct installation. Exhaust ducts shall be supported at ~~4-foot~~ intervals not to exceed 12 feet (~~1219~~3657 mm) ~~intervals and~~and shall be secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude more than $^{1}/_{8}$ inch (3.2 mm) into the inside of the duct.

Reason: Twelve feet is what is found in the SMACNA Manual for 4 inch duct as strapping every 4 feet is unnecessarily restrictive.

Cost Impact: Will not increase the cost of construction
This proposal will actually *decrease* costs by not having to install as many hangers and the labor to do so.

M 43-15 : 504.8.2-MCMANN3570

M 44-15

505, 505.1 (New), 505.2 (New), 505.1, 505.4

Proponent: Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

2015 International Mechanical Code

Revise as follows:

SECTION 505
DOMESTIC ~~KITCHEN~~ COOKING EXHAUST EQUIPMENT

Add new text as follows:

505.1 General. Domestic cooking exhaust equipment shall comply with the requirements of this section.

505.2 Domestic cooking exhaust. Where domestic cooking exhaust equipment is provided it shall comply with the following as applicable:

1. Overhead range hoods and downdraft exhaust equipment not integral with the cooking appliance shall be listed and labeled in accordance with UL 507.
2. Domestic cooking appliances with integral downdraft exhaust equipment shall be listed and labeled in accordance with UL 858 or ANSI Z21.1.
3. Microwave ovens with integral exhaust for installation over the cooking surface shall be listed and labeled in accordance with UL 923.

Revise as follows:

~~505.1~~505.3 ~~Domestic systems.~~Exhaust ducts. ~~Where domestic range hoods and domestic appliances equipped with downdraft~~
Domestic cooking exhaust ~~are provided, such hoods and appliances~~equipment shall discharge to the outdoors through sheet metal ducts constructed of galvanized steel, stainless steel, aluminum or copper. Such ducts shall have smooth inner walls, shall be air tight, shall be equipped with a backdraft damper, and shall be independent of all other exhaust systems.

Exceptions:

1. In other than Group I-1 and I-2, where installed in accordance with the manufacturer's instructions and where mechanical or natural ventilation is otherwise provided in accordance with Chapter 4, listed and labeled ductless range hoods shall not be required to discharge to the outdoors.
2. Ducts for domestic kitchen cooking appliances equipped with downdraft exhaust systems shall be permitted to be constructed of Schedule 40 PVC pipe and fittings provided that the installation complies with all of the following:
   - 2.1. The duct shall be installed under a concrete slab poured on grade.
   - 2.2. The underfloor trench in which the duct is installed shall be completely backfilled with sand or gravel.
   - 2.3. The PVC duct shall extend not more than 1 inch (25 mm) above the indoor concrete floor surface.
   - 2.4. The PVC duct shall extend not more than 1 inch (25 mm) above grade outside of the building.
   - 2.5. The PVC ducts shall be solvent cemented.

505.4 Other than Group R. In other than Group R occupancies, where cooktops, ranges, and open-top broilers are installed, domestic cooking ~~appliances are utilized for domestic purposes, such appliances shall be provided with domestic range hoods. Hoods and~~ exhaust systems shall be ~~in accordance with Sections 505.1 and 505.2.~~provided.

Add new standard(s) as follows:

ANSI Z21.1 - 2010 Household Cooking Gas Appliances

UL 507 - 2014 Standard for Safety Electric Fans

Reason: The IMC currently has no criteria for exhaust hoods and downdraft equipment. This proposal accomplishes the following:
1. Includes a new charging Section 505.1 that is similar to other charging sections in the IMC.
2. New section 505.2 describes the listing standards used to investigate the various types of exhaust equipment.
3. Section 505.3 (formerly Section 505.1) was retitled "Exhaust ducts" to more accurately reflect what is covered in the section. Some edits were made to clarify the wording. No substantive changes were made to the requirements for the exhaust ducts.
4. Section 505.4 was revised to clarify the types of domestic cooking appliance that requires a domestic cooking exhaust system. Without this change an exhaust system could be required for a coffee maker, wall mounted oven, rice cooker, etc.

Cost Impact: Will increase the cost of construction
In most cases there should be no increase in costs if exhaust hoods and downdraft equipment are listed to the specified standards, which appears to be common practice.

Analysis:
A review of the standard proposed for inclusion in the code, UL 507 , with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 44-15 : 505-ROBERTS5747

M 45-15

505.1

Proponent: Guy McMann, Jefferson County Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Mechanical Code

Revise as follows:

505.1 Domestic systems. Where domestic range hoods and domestic appliances equipped with downdraft exhaust are provided, such hoods and appliances shall discharge to the outdoors through sheet metal ducts constructed of galvanized steel, stainless steel, aluminum or copper. Such ducts shall have smooth inner walls, shall be air tight, shall be equipped with a backdraft damper, and shall be independent of all other exhaust systems.

Exceptions:

1. In other than Group I-1 and I-2, where installed in accordance with the manufacturer's instructions and where mechanical or natural ventilation is otherwise provided in accordance with Chapter 4, listed and labeled ductless range hoods shall not be required to discharge to the outdoors. Installations in Group I-1 and Group I-2 occupancies shall be in accordance with Section 407.2.6 of the International Building Code and Section 904.13 of the International Fire Code.
2. Ducts for domestic kitchen cooking appliances equipped with downdraft exhaust systems shall be permitted to be constructed of Schedule 40 PVC pipe and fittings provided that the installation complies with all of the following:
   - 2.1. The duct shall be installed under a concrete slab poured on grade.
   - 2.2. The underfloor trench in which the duct is installed shall be completely backfilled with sand or gravel.
   - 2.3. The PVC duct shall extend not more than 1 inch (25 mm) above the indoor concrete floor surface.
   - 2.4. The PVC duct shall extend not more than 1 inch (25 mm) above grade outside of the building.
   - 2.5. The PVC ducts shall be solvent cemented.

Reason: These pointers are going to aid the user in finding the pertinant information regarding fire suppresion for these range hoods. It can be very time consuming trying to locate the correct language for a code compliant installation. The user would never know that fire suppresion is even required without these pointers.

Cost Impact: Will not increase the cost of construction
There is no cost impact as this proposal is strictly editorial in nature.

M 45-15 : 505.1-MCMANN4983

M 46-15

505.2, 505.2.1 (New)

Proponent: Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport (mmoore@newportventures.net)

2015 International Mechanical Code

Revise as follows:

505.2 Makeup air required. ~~Exhaust hood systems~~ Where one or more gas, liquid, or solid-fuel burning appliances that are neither direct vent nor use a mechanical draft venting system are located within a dwelling unit's air barrier, each exhaust system capable of exhausting in excess of 400 cfm (0.19 m^3/s) shall be mechanically or passively provided with *makeup air* at a rate approximately equal to the *exhaust air* rate. Such *makeup air* systems shall be equipped with ~~a means~~not less than one damper that complies with Section 505.2.1.

> **Exception:** Makeup air is not required for exhaust systems installed for the exclusive purpose of ~~closure~~space cooling and ~~shall~~intended to be ~~automatically controlled to start and operate simultaneously with the exhaust system.~~operated only when windows or other air inlets are open.

Add new text as follows:

505.2.1 Makeup air dampers. Where makeup air is required by Section 505.2, such dampers shall comply with this section. Dampers shall be gravity or barometric dampers or electrically operated dampers that automatically open when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced. Gravity or barometric dampers shall not be used in passive makeup air systems except where the dampers are rated to provide the design makeup airflow at a pressure differential of 0.01 in. w.c. (3 Pa) or less.

Reason:
Backdrafting of combustion appliances typically presents the greatest danger associated with depressurizing a space. Field tests have confirmed that naturally vented combustion appliances (i.e., those that are not mechanically vented or direct-vent) are the most susceptible to depressurization, and measures should be taken to provide makeup air (MUA) for large exhaust appliances when such appliances are located within the dwelling unit's air barrier. ASHRAE 62.2, the consensus standard for Ventilation and Acceptable Indoor Air Quality in residential dwelling units, does not require MUA when combustion appliances are mechanically vented or are direct-vent. The ASHRAE 62.2 committee recently reviewed the 62.2 section requiring MUA, and the general consensus (no vote taken) was a reaffirmation that the MUA requirement should not apply to mechanically vented or direct-vent combustion appliances, due to lack of data to substantiate their susceptibility to backdrafting.

This proposal would relax the MUA requirement in the IMC for dwelling units by aligning it more closely with ASHRAE 62.2. Similar changes have been made to this section in Florida's and Virginia's adoptions of the IRC, which has a similar requirement to the IMC.

The proposal introduces a new section to address MUA dampers specifically, with the second and third sentences in Section 505.2.1 taken verbatim from the 2015 IRC. The last sentence introduces a new requirement for gravity or barometric dampers. It makes no sense to design a system to provide MUA if the damper does not open before the combustion appliance starts spilling. So, the new requirement is intended to ensure that when MUA is required, any gravity or barometric damper used to provide MUA shall engage at the pressure differential above which naturally drafted combustion appliances can be expected to backdraft (3 Pa, based on an acceptable 5%-20% failure rate across all outdoor conditions)[1]. This proposed requirement only applies to gravity or barometric dampers in "passive" MUA systems, which are those provide MUA without the assistance of a fan. Gravity or barometric dampers in "active" MUA systems are excluded from this requirement because we assume that the fan will create a sufficient pressure differential to open the damper.

Bibliography:
1. Bohac, D., et al. (2002). Ventilation and Depressurization Information for Houses Undergoing Remodeling. Accessed on Dec 5, 2014 at: http://www.mncee.org/getattachment/eedb1afc-f50e-4833-b450-d52233f58ce0/.

Cost Impact: Will not increase the cost of construction
This proposal is expected to reduce construction costs by reducing the number of scenarios requiring makeup air for kitchen exhaust.

M 46-15 : 505.2.1 (New)-MOORE4887

M 47-15

506.3.11.2

Proponent: Guy McMann, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Mechanical Code

Revise as follows:

506.3.11.2 Field-applied grease duct enclosure. Grease ducts constructed in accordance with Section 506.3.1 shall be enclosed by a *listed* and *labeled* field applied grease duct enclosure material, systems, product, or method of construction specifically evaluated for such purpose in accordance with ASTM E 2336. The surface of the duct shall be continuously covered on all sides<u> with not less than two layers of field applied grease duct enclosure material</u> from the point at which the duct originates to the outlet terminal. Duct penetrations shall be protected with a through penetration fire stop system tested and *listed* in accordance with ASTM E 814 or UL 1479 and having a "F" and "T" rating equal to the fire-resistance rating of the assembly being penetrated. The grease duct enclosure and firestop system shall be installed in accordance with the listing and the manufacturer's instructions. Partial application of a field applied grease duct enclosure shall not be installed for the sole purpose of reducing clearances to combustibles at isolated sections of grease duct. Exposed duct-wrap systems shall be protected where subject to physical damage.

Reason: ASTM E-2336 states that two layers are required to be applied to meet the Standard. All the manufacturer's instructions and the ICC evaluations also state the same. Many installers and designers are not aware that two layers are required. This was disapproved last cycle because of the possibility that a single layer system may someday be developed. Manufacturers of duct wrap material would rather sell twice as much material so there is little incentive to develop a single layer system. This is important information that the user needs to know ahead of time, not only for bidding purposes but in order to pass an inspection the first time around. Inspectors also need this information so they know what to look for. This is a simple "heads up" for code users and installers

Cost Impact: Will not increase the cost of construction
There will be no addional cost as this in only an editorial modification and clarification. Installers are already required to do do this.

M 47-15 : 506.3.11.2-MCMANN3571

M 48-15

506.3.13.2

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Revise as follows:

506.3.13.2 Termination through an exterior wall.
Exhaust outlets shall be permitted to terminate through exterior walls where the smoke, grease, gases, vapors and odors in the discharge from such terminations do not create a public nuisance or a fire hazard. Such terminations shall not be located where protected openings are required by the *International Building Code*. ~~Other exterior openings~~Such terminations shall be located in accordance with Section 506.3.13.3 and shall not be located within 3 feet ~~(914 mm)~~ of ~~such terminations.~~any opening in the exterior wall.

Reason: The current last sentence implies that outdoor air intakes and windows can be within 3 feet of the exhaust terminal, however Section 506.3.13.3 requires a 10 foot separation for outdoor intakes unless there is a 3 foot vertical separation. This section has been misinterpreted to allow grease duct terminations to be within 3 feet of an operable window. The real intent of the current last sentence is fire safety related and that intent is preserved in the proposed revision. Exterior openings include all openings in the wall such as fixed (non-openable) fenestration panels. The clearance requirement of Section 506.3.13.3 must not be overlooked.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

M 48-15 : 506.3.13.2-SNYDER3264

M 49-15

506.3.13.3.1 (New)

Proponent: Jon Marcus, representing Jon Marcus

2015 International Mechanical Code

Add new text as follows:

506.3.13.3.1 Clearance from dwelling units
Where an exhaust discharge outlet is located within 250 feet horizontally of a dwelling unit, it shall comply with one or more of the following:

1. The point of discharge for such outlet shall be located 25 feet or greater above the highest opening into the dwelling unit.
2. The exhaust system shall be served by a pollution control unit that is listed for that application and designed to effectively capture and control effluent particulates, contaminants and odors.
3. The exhaust system shall be an engineered system utilizing a utility set fan and discharge nozzle designed to eject the effluent vertically to a height not less than 25 feet above the dwelling unit.

Reason: The code currently allows commercial kitchen effluent to discharge as close as 10 feet from an adjacent building which could include single family dwellings and dwelling units in multifamily residential buildings. The occupants of dwelling units that close to the effluent discharge are subjected to the smoke, grease, particulates and odor in the effluent. This can prevent the occupants from opening their windows and enjoying their exterior spaces such as porches and balconies. In some cases, the contaminants enter the dwellings and deposit on the dwelling's interior surfaces. This scenario is all too common in urban areas where dwellings and businesses coexist next door or across a street from each other. The 250 foot horizontal distance and 25 foot vertical are reasonable and would likely allow the effluent to dissipate and be carried away such that the impact on the dwellings is minimal. The proposed text would require a 250 foot horizontal separation, but would allow any lesser horizontal separation where the discharge point is at least 25 foot above the highest window or door of any dwelling within 250 feet.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because it would require vertical discharge duct extensions or pollution control equipment where it would not be required currently by the code.

M 49-15 : 506.3.13.3-MARCUS3906

M 50-15

506.3.2.5

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Revise as follows:

506.3.2.5 Grease duct test.
Prior to the use or concealment of any portion of a grease duct system, a leakage test shall be performed. Ducts shall be considered to be concealed where installed in shafts or covered by coatings or wraps that prevent the ductwork from being visually inspected on all sides. The permit holder shall be responsible to provide the necessary *equipment* and perform the grease duct leakage test. A ~~light~~ water test shall be performed to determine that all welded and brazed joints are liquid tight.

A ~~light~~ water test shall be performed by passing ~~a lamp having a power rating of not less than 100 watts~~grease duct pressure washing equipment through the entire section of ductwork to be tested and visually inspecting for leakage of water. The ~~lamp~~pressure washing equipmnent shall be ~~open so as to emit light equally in all directions perpendicular to the duct walls~~of a type used for professionally cleaning commercial kitchen grease ducts. A test shall be performed for the entire duct system, including the hood-to-duct connection. ~~The~~Where the duct work ~~shall be permitted to be~~is tested in sections, ~~provided that every~~no joint ~~is tested~~shall be excluded from testing. For *listed* factory-built grease ducts, this test shall be limited to duct joints assembled in the field and shall exclude factory welds.

Reason: The light test required currently has many deficiencies. Openings in overlapped joint welds would not allow light to reach the observer. Pinhole leaks may not allow enough light through to be observed. The faults in the joints could be on sides not observed during the test and some duct sides may not be visible at all when installed. How fast can the lamp be pulled through the duct? What if the ambient light is bright or it is sunlight? What are the chances that a light test will disclose any, much less, all of the faults in joints? A test with pressurized duct cleaning equipment will expose all faults in the joints by visible water leakage.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because the proposed water test will require more labor and equipment than the currently required light test.

M 50-15 : 506.3.2.5-SNYDER3263

M 51-15

202 (New), 506.5.2 (New)

Proponent: Shawn Strausbaugh, Arlington County, VA representing the VA Plumbing and Mechanical Officials Association (VPMIA) and the VA Building Code Officials Association (VBCOA) Guy McMann, Jefferson County CO, representing the CO Association of Plumbing and Mechanical Officials (CA, representing Arlington County, VA representing the VA Plumbing and Mechanical Inspectors Association (VPMIA) and the VA Building Code Officials Association (VBCOA) (sstrausbaugh@arlingtonva.us)

2015 International Mechanical Code

Add new definition as follows:

SECTION 202 DEFINITIONS

POLLUTION CONTROL UNIT (PCU) Manufactured equipment that is installed in a grease exhaust duct system for the purpose of extracting smoke, grease particles, and odors from the exhaust flow by means of a series of filters.

Add new text as follows:

506.5.2 **Pollution Control Units.** Pollution control units shall be installed in accordance with the manufacturer's installation instructions and shall be in accordance with all of the following:

1. Pollution control units shall be listed and labeled in accordance with UL 1978.
2. Fans serving pollution control units shall be listed and labeled in accordance with with UL 762.
3. Pollution control units shall be mounted and secured in accordance with the manufacturer's installation instructions and the International Building Code.
4. Pollution control units located indoors shall be listed and labeled for such use. Where enclosed duct systems, as required by Section 506.3.11, are connected to a pollution control unit, such unit shall be located in a room or space having the same fire-resistance rating as the duct enclosure. Access shall be provided for servicing and cleaning of the unit. The space or enclosure shall be ventilated in accordance with the manufacturer's installation instructions.
5. A clearance of not less than 18 inches (457 mm) shall be maintained between the pollution control unit and combustible material.
6. Roof mounted pollution control units shall be listed for exterior installation and shall be mounted not less than 18 inches (457 mm) above the roof.
7. Exhaust outlets for pollution control units shall be in accordance with Section 506.3.13.
8. An airflow differential pressure control shall be provided to monitor the pressure drop across the filter sections of a pollution control unit. When the airflow is reduced below the design velocity, the airflow differential pressure control shall activate a visual alarm located in the area where cooking operations occur.
9. Pollution control units shall be provided with a factory installed fire suppression system.
10. Service space shall be provided in accordance with the manufacturer's instructions for the pollution control unit and the requirements of Section 306.
11. Wash down drains shall discharge through a grease interceptor and shall be sized for the flow. Drains, shall be sealed with a trap or other approved means to prevent air bypass. Where a trap is utilized it shall have a seal depth that accounts for the system pressurization and evaporation between cleanings.
12. Protection from freezing shall be provided for the water supply and fire suppression systems where such systems are subject to freezing.
13. Duct connections to pollution control units shall be in accordance with Section 506.3.2.3. Where water splash or carryover can occur in the transition duct as a result of a washing operation, the transition duct shall slope downward toward the cabinet drain pan for a length not less than 18 inches (457 mm). Ducts shall transition to the full size of the units inlet and outlet openings.
14. Extra heavy duty appliance exhaust systems shall not be connected to pollution control units except where such units are specifically designed and listed for use with solid fuels.
15. Pollution control units shall be maintained in accordance with the manufacturer's instructions.

Reason: Pollution Control Units have been manufactured by numerous companies for several years. The desire to limit the amount of smoke, grease, and other particulate at the exhaust outlets of commercial cooking appliances has driven the use of these units as numerous entities are requiring these types of units to be installed. These unit and there minimum construction and installation standards need to be addressed in the mechanical code.

Cost Impact: Will increase the cost of construction

The cost of construction of these specific units may be increased by manufacturers if their current unit did not meet the minimum requirements per this new section. As we do not represent manufacturers it is difficult to substantiate if this proposed change will have create such a cost increase or not

M 51-15 : 506.5.2 (New)-STRAUSBAUGH3640

M 52-15

507.1

Proponent: Thomas Johnson, Johnson Diversified Products, Inc, representing Johnson Diversified Products, Inc. (tomj@jdpinc.com)

2015 International Mechanical Code

Revise as follows:

507.1 General. Commercial kitchen exhaust hoods shall comply with the requirements of this section. Hoods shall be Type I or II and shall be designed to capture and confine cooking vapors and residues. A Type I or Type II hood shall be installed at or above all *commercial cooking appliances* in accordance with Sections 507.2 and 507.3. Where any cooking *appliance* under a single hood requires a Type I hood, a Type I hood shall be installed. Where a Type II hood is required, a Type I or Type II hood shall be installed. Where a Type I hood is installed, the installation of the entire system, including the hood, ducts, exhaust equipment and makeup air system shall comply with the requirements of Sections 506, 507, 508 and 509.

Exceptions:

1. Factory-built commercial exhaust hoods that are listed and labeled in accordance with UL 710, and installed in accordance with Section 304.1, shall not be required to comply with Sections 507.1.1.1, 507.1.2, 507.1.3, 507.1.4, 507.1.5, 507.2, 507.2.1, 507.2.2, 507.2.3, 507.2.4, 507.2.5, 507.2.6, 507.2.7, 507.2.8, ~~507.3.1~~507.2.8.1, ~~507.3.3~~507.2.8.2. 507.2.9, ~~507.4~~507.4.1, 507.4.2, 507.5, 507.5.1, 507.4.2,507.5, 507.5.1, 507.5.2, 507.5.3, 507.5.4, 507.6.1, 508.1, 508.1.1, 508.2 and ~~507.5~~509.1.
2. Factory-built commercial cooking recirculating systems that are listed and labeled in accordance with ANSI UL 710B, and installed in accordance with Section 304.1, shall be installed in accordance with thier listings and the manufacturers' instructions. Such systems shall not be required to comply with Sections 507.1.1.1, 507.1.2, 507.1.3, 507.1.4, 507.1.5, 507.2, 507.2.1, 507.2.2, 507.2.3, 507.2.4, 507.2.5, 507.2.6, 507.2.7, 507.2.8, ~~507.3.1~~507.2.8.1, ~~507.3.3~~507.2.8.2. 507.2.9, ~~507.4~~507.4.1, 507.4.2, 507.5, 507.5.1, 507.4.2, 507.5, 507.5.1, 507.5.2, 507.5.3, 507.5.4, 507.6.1, 508.1, 508.1.1, 508.2 and ~~507.5~~509.1. Spaces in which such systems are located shall be considered to be kitchens and shall be ventilated in accordance with Table 403.3.1.1. For the purpose of determining the floor area required to be ventilated, each individual *appliance* shall be considered as occupying not less than 100 square feet (9.3 m^2).
3. Where cooking appliances are equipped with integral down-draft exhaust systems and such appliances and exhaust systems are listed and labeled for the application in accordance with NFPA 96, a hood shall not be required at or above them.

Reason: Manufacturered systems that are performance tested to an ANSI Accredideted test by an ANSI Certifying body are to be installed pursuant to thier listings and manufacturers instructions.
The prescriptive formulas of the model building and mechanical codes have always been intended to prescribe minimum safety criteria for those systems that are not preformance tested and certified by an accredited ANSI certifying body. Rather, they are field commissioned and accepted by an AHJ that that is immune from liability prosecution - if they get it wrong and the fabricated and feild installed compliant system fails. ANSI performance tested, listed and labveled products and systems installed purduant to their manufacturers instruction provide comprehensive liability protection far beyond that of one built in a fabrication shops with many different trades having a hand in thier narrow scope of work.

When the code and its interpretation by an AHJ conflicts with the products listing or the manufacturers instructions, the instructions from the manufacturer must prevail as liability for the product and its intended use is tied to its listing and manufacturers instructions. Licensing agencies do not assume liability for thier interpretations. When their code interpretations conflict with a products listing and manufacturers instrcutions, reasonable standards of care require adherance to the listing and the manufacturers instructions. Contractors, design professionals and owners that acquiese to an denying AHJ in such matters can incur significant incremental risk exposures when complainants pursue them for injury due to teh forced compliants while the AHJ's that provided the written order for the deviation quickly invoke thier discretionary immunity.

In recent State and Local licensing agencies that have denied acceptance of such products have been succesfully pursued in Boards or appeals and in courts of law for overreaching, arbitrary interpretations that in fact comprise a restraint to trade.

Accordingly, I seek to provide code language that makes it clear that ANSI performance tested, listed and labelled products must be installed pursuant to thier listings and manufacturers instructions as a preordnal requirement to the presscriptice criteria of the code.

Bibliography:

ANSI UL 710B

ANSI UL710

ANSI UL710C

UL KNLZ

ASHRAE Std 154

NFPA 96

EPA 202

EPA 5

Cost Impact: Will not increase the cost of construction
There will be **enormous cost savings** when the confusion the pervades regulatory agencies, desingers and the construction trade in general is clearly dienated in this code section - and all others.
To be clear, I'd have prefered to be very breif and simply state that ANSI perfomance tested listed and labelled systems installed pursuant to thier listings and manufacturers instructions are exempt from the remaining criteira of the code. This makes sense as the rest of the criteriain the code is prescriptive *and intended f*or sheet metal fabricators and the different trades that essentially sew (cobble?) thier specialties together in the field to comprise a coherent "compliant" system.

M 52-15 : 507.1-JOHNSON5473

M 53-15

507.1

Proponent: Guy McMann, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Mechanical Code

Revise as follows:

507.1 General. Commercial kitchen exhaust hoods shall comply with the requirements of this section. Hoods shall be Type I or II and shall be designed to capture and confine cooking vapors and residues. A Type I or Type II hood shall be installed at or above all *commercial cooking appliances* in accordance with Sections 507.2 and 507.3. Where any cooking *appliance* under a single hood requires a Type I hood, a Type I hood shall be installed. Where a Type II hood is required, a Type I or Type II hood shall be installed. Where a Type I hood is installed, the installation of the entire system, including the hood, ducts, exhaust equipment and makeup air system shall comply with the requirements of Sections 506, 507, 508 and 509.

Exceptions:

1. Factory-built commercial exhaust hoods that are listed and labeled in accordance with UL 710, and installed in accordance with Section 304.1, shall not be required to comply with Sections 507.1.5, 507.2.3, 507.2.5, 507.2.8, 507.3.1, 507.3.3, 507.4 and 507.5.
2. Factory-built commercial cooking recirculating systems that are listed and labeled in accordance with UL 710B, and installed in accordance with Section 304.1, shall not be required to comply with Sections 507.1.5, 507.2.3, 507.2.5, 507.2.8, 507.3.1, 507.3.3, 507.4 and 507.5. Spaces in which such systems are located shall be considered to be kitchens and shall be ventilated in accordance with Table 403.3.1.1. For the purpose of determining the floor area required to be ventilated, each individual *appliance* shall be considered as occupying not less than 100 square feet (9.3 m^2).
3. Where cooking appliances are equipped with integral down-draft exhaust systems and such appliances and exhaust systems are listed and labeled for the application ~~in accordance with NFPA 96,~~ a hood shall not be required at or above them.

Reason: The IMC does not follow NFPA-96 strictly as pertinent textis extracted. This reference implies that the standard needs to be complied with in it's entirety when in fact this is not the case. Stadards generally speaking contain much non-mandatory language.

Cost Impact: Will not increase the cost of construction
By not having to comply entirely with the NFPA Standard there could actually be a cost savings.

M 53-15 : 507.1-MCMANN3591

M 54-15

507.2

Proponent: John Corliss, City of Corvallis Oregon, representing Oregon Mechanical Officials Association (john.corliss@corvallisoregon.gov)

2015 International Mechanical Code

Revise as follows:

507.2 Type I hoods. Type I hoods shall be installed where cooking *appliances* produce grease or smoke as a result of the cooking process. Type I hoods shall be installed over *medium-duty*, *heavy-duty* and *extra-heavy-duty cooking appliances*.

~~**Exception**~~**<u>Exceptions</u>:**

1. A Type I hood shall not be required for an electric cooking appliance where an approved testing agency provides documentation that the appliance effluent contains 5 mg/m^3 or less of grease when tested at an exhaust flow rate of 500 cfm (0.236 m^3/s) in accordance with UL 710B.
2. <u>Listed and labeled solid fuel-fired ovens that are constructed of solid masonry or reinforced portland or refractory cement concrete, that are vented by natural draft in accordance with NFPA 211 and that are installed in accordance with the manufacturer's instructions and NFPA 96.</u>

Reason: This proposal provides clarity for the installation of solid fuel ovens that are listed to be natural draft vented. The IMC recognizes listed solid fuel appliances vented per NFPA211. However, when used as an oven for foods, a solid fuel appliance is currently required to be disconnected from its flue and utilize an extra-heavy duty Type I hood to vent products of combustion.
This proposal brings forward current methods from Chapter 14 of NFPA 96 for the use of natural draft vented solid fuel ovens without a grease hood or automatic fire extinguishing equipment. NFPA 96 recognizes the safe operation of these oven types utilizing natural draft venting. Ovens listed for this use are heavy duty, solid fuel appliances (IMC Chapter 9). Most units weigh in excess of 2,000 pounds and are intended to operate in excess of 650F baking temperature.

This proposal will not reduce safety. Some ovens have dual listings to UL 737. A UL 737 appliance can be installed as a decorative stove in the middle of a restaurant seating area, burn high fuel content wood, and be direct vented thru NFPA 211 products. But current IMC language requires that once lower fuel content food product is introduced, the oven must be disconnected from its listed, code-compliant, safely-functioning vent and placed under Type I extra-heavy duty category hood.

Keeping a listed appliance connected to its listed flue system does not reduce safety relative to the current IMC requirement for locating under a Type I hood:

1. Connected to a listed vent, the products of combustion remain at high temperature and are safely removed from the building per the listing. When located under an extra-heavy duty Type I hood, the combustion gases are mixed with 5-10 times more ventilation air and the flue gases cool significantly. This cools any grease vapors below the condensation point, creating grease build-up in the Type I system. Type I systems are intended to capture grease vapors because the exhaust temperatures are always within the condensation range. When installed as a listed natural draft vent, gases, including any possible grease vapor, enter the flue above condensation point and are carried beyond the vent system.

An additional wrinkle is added using an Extra-heavy duty Type I hood over solid fuel combustion: the mixing of combustion gases cools the flow to the condensation point for of creosote (about 250F for most wood types). The high flow rate of extra heavy duty Type I hoods mixes more cool (room make-up) air with the flue gases than other hoods, which reduces the temperature of the combined air stream. Creosote build-up on the hood, hood filters, exhaust duct and fan is a less safe condition than utilizing a natural vent, NFPA 211 intended to limit and prevent creosote build-up.

a. A listed solid fuel appliance is designed to maintain flue temperatures above creosote development temperatures. Dilution of flue gases under a Type I hood almost guarantees creosote development on surfaces not intended for this material. Cleaning creosote requires different procedures from cleaning grease: removal from fan parts is more difficult.

2. A natural draft solid fuel appliance does not rely on an external fan for safe operation. When under a Type I hood, fan failure or loss of power will result in uncontrolled release of combustion products and smoke into the occupied space. The fire in the oven cannot be quickly or easily extinguished during this type event. A natural draft oven will maintain safe operation in event of a power failure.

3. Lack of clear guidance on automatic extinguishing within current IMC. An open solid fuel grille (for grilling) may experience a food product fire that exceeds the heat release of the cooking fire. See https://www.youtube.com/watch?v=lKd8XXq_ZOs video of a fire on an open grille not intended to contain a flare-up. This video shows the obvious intent for the Extra-heavy duty appliance definition in IMC Chapter 2. This proposal concerns solid fuel for cooking inside a refractory oven designed to safely contain a fire. Current IMC has no clear intent of how a fire system would put out a fire within a fireplace that is already "on fire".

a. Automatic extinguishing is required for the extra heavy duty hood. The extinguishing systems will not be triggered should food products ignite inside of the oven. Should pizza/bread catch fire, it will not create a temperature rise or differential greater than the fuel already burning in the oven. Even if the food had no water content, the food has a lower fuel-content than the burning wood. The oven is designed to maintain adequate natural draft; food that catches fire inside of the oven will not create enough flare-up leaving the oven door to trigger an automatic system. "Manual" operation may be possible; Note that NFPA 96 requires a portable extinguisher. But a code minimum automatic system has little, if any, value.

b. There is unclear guidance of where to direct the extinguishing system nozzles. Should they be pointed at the oven housing? This will not extinguish a fire inside of a refractory oven. Should they point at the oven opening?

c. There is no method to cut off fuel flow to the oven. While the operator may refrain from adding fuel, the fuel inside of the oven will continue to safely burn at full fire: that's what a solid-fuel oven (fireplace) is supposed to do. A heavy refractory enclosure will contain any fire.

4. Safer containment for accidental food combustion than a deck-type oven. Deck-type pizza ovens under current code and commentary

recognize that these deck-type appliances are light duty appliances (and can be located under a Type II hood per IMC 507.2.2). These appliances are bread finishing/cheese melting appliances. It is recognized that if a pizza catches fire, the oven door can be closed and the burning food be contained within the deck-type oven. But a conveyorized pizza ovens are currently considered medium duty appliances. Current logic is that burning food product cannot be contained within the conveyorized oven. For a solid fuel oven, should the food product catch fire in a wood oven, the oven is already listed to safely contain a fire.

5. The high temperature operation of these ovens will limit any chance for grease build-up. The temperature in the oven is well above the smoke point of animal fats (Lard = 390F; Tallow = 420F). Grease will not build up on interior surfaces of the oven. See photos of the interior of a wood oven in operation:

http://www.fornobravo.com/pizza_oven_management/oven_firing.html

There is no chance for build-up of grease inside the oven: the internal temperature of the oven is "self-cleaning" during each firing cycle. The flue requires the same cleaning required for any solid fuel chimney. Grease build-up is not of concern.

NOTE: OMOA may have video/pictures of a flue outlet.

6. OMOA and State of Oregon recognizes this as a statewide method of compliance.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction and can reduce cost of installation and operation.

M 54-15 : 507.2-CORLISS4673

M 55-15

507.2.6

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Revise as follows:

507.2.6 Clearances for Type I hood. A Type I hood shall be installed with a *clearance* to combustibles of not less than 18 inches (457 mm).

Exceptions:

1. ~~**Exception:**~~ *Clearance* shall not be required from gypsum wallboard or $^{1}/_{2}$ -inch (12.7 mm) or thicker cementitious wallboard attached to noncombustible structures provided that a smooth, cleanable, nonabsorbent and noncombustible material is installed between the hood and the gypsum or cementitious wallboard over an area extending not less than 18 inches (457 mm) in all directions from the hood.
2. Type I hoods listed and labeled for clearances less than 18 inches in accordance with UL710 shall be installed with the clearances specified by such listings.

-

Reason: Type I hoods can be listed to the latest edition of UL710 which now includes testing for clearances to combustibles. There are hoods that are listed for clearances of less than 18 inches, however, the code does not currently recognize this fact and would require 18 inches minimum in all cases. Adding the new exception will allow lesser clearances without having to seek alternative approval from the AHJ.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

M 55-15 : 507.2.6-SNYDER3272

M 56-15

507.6.1

Proponent: Guy McMann, Jefferson County, Colorado., representing Colorado Associatoin of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Mechanical Code

Revise as follows:

507.6.1 Capture and containment test. The permit holder shall verify capture and containment performance of the exhaust system. This field test shall be conducted with all appliances under the hood at operating temperatures, with all sources of outdoor air providing *makeup air* for the hood operating and with all sources of recirculated air providing conditioning for the space in which the hood is located operating. Capture and containment shall be verified visually by observing smoke or steam produced by actual or simulated cooking, such as ~~with~~that provided by smoke ~~candles, smoke puffers, and similar means~~generators.

Reason: The term "smoke generators" includes all forms of smoke producing products and cleans up the sectoin a little bit.

Cost Impact: Will not increase the cost of construction
There will be no addional cost as this in only an editorial modification and clarification.

M 56-15 : 507.6.1-MCMANN3574

M 57-15

510.5

Proponent: Samuel Waymire, APPA: Leadership In Educational Facilities, representing APPA: Leadership In Educational Facilities

2015 International Mechanical Code

Revise as follows:

510.5 Incompatible materials and common shafts. Incompatible materials, as defined in the *International Fire Code*, shall not be exhausted through the same hazardous exhaust system. Hazardous exhaust systems shall not share common shafts with other duct systems, except where such systems are hazardous exhaust systems originating in the same fire area.

~~Exception~~Exceptions:
1. The provisions of this section shall not apply to laboratory exhaust systems where all of the following conditions apply:

1. All of the hazardous exhaust ductwork and other laboratory exhaust within both the occupied space and the shafts are under negative pressure while in operation.
2. The hazardous exhaust ductwork manifolded together within the occupied space must originate within the same fire area.
3. Hazardous exhaust ductwork originating in different fire areas and manifolded together in a common shaft shall meet the provisions of Section 717.5.3, Exception 1, Item 1.1 of the *International Building Code*.
4. Each control branch has a flow regulating device.
5. Perchloric acid hoods and connected exhaust shall be prohibited from manifolding.
6. Radioisotope hoods are equipped with filtration, carbon beds or both where required by the *registered design professional*.
7. Biological safety cabinets are filtered.
8. Each hazardous exhaust duct system shall be served by redundant exhaust fans that comply with either of the following:
   - 8.1. The fans shall operate simultaneously in parallel and each fan shall be individually capable of providing the required exhaust rate.
   - 8.2. Each of the redundant fans is controlled so as to operate when the other fan has failed or is shut down for servicing.

2. Hazardous exhaust ducts serving laboratories that are used solely for educational purposes shall not be prohibited from sharing common shafts with other ducts.

Reason: Laboratories within educational teaching facilities typically use less hazardous materials and chemicals in such a manner and in such low quantities that the exhaust produced by these substances does not pose significant risks to health/ safety when compared to the exhaust resulting from laboratories meant for manufacturing or commercial use. Therefore it is not justifiable to impose the same regulations and restrictions on exhaust systems from these types of facilities as if they were equivalent. Exhaust from labs in educational facilities, though technically meeting the definition of hazardous, rarely pose an actual threat. For this reason, there is no need for the exhaust systems of these facilities to be subject to such stringent regulation.

Cost Impact: Will not increase the cost of construction
Given that the second exception proposed to IMC 510.5 is designed to reduce the regulatory requirements imposed upon Group B occupancies, it follows that the proposed change will not increase the cost of construction. This proposal would limit the number of regulations with which hazardous air exhaust systems in Group B occupancies have to comply, and in doing so would actually mitigate the expense of applicable construction projects by relieving the need to spend money on certain features/ technologies (flow regulating devices, redundant fans, etc.) that would be required under the code as it currently stands.

M 57-15 : 510.5-WAYMIRE4730

M 58-15

510.8

Proponent: Peter Levitt, Sternvent, representing Sternvent (plevitt@sternvent.com)

2015 International Mechanical Code

Revise as follows:

510.8 Suppression required. Ducts shall be protected with an *approved* automatic fire suppression system installed in accordance with the *International Building Code*. Dust collection system ducts shall be protected by a spark detection and extinguishing system.

Exceptions:

1. An approved automatic fire suppression system shall not be required in ducts conveying materials, fumes, mists and vapors that are nonflammable and noncombustible under all conditions and at any concentrations.
2. Automatic fire suppression systems shall not be required in metallic and noncombustible, nonmetallic exhaust ducts in semiconductor fabrication facilities.
3. An *approved* automatic fire suppression system shall not be required in ducts where the largest cross-sectional diameter of the duct is less than 10 inches (254 mm).
4. For laboratories, as defined in Section 510.1, automatic fire protection systems shall not be required in laboratory hoods or exhaust systems

Reason: Many designers of dust collection systems are not familiar with what type of fire supression system is suitable for a dust collection system duct and the asociated dust particle convening velocity of 3000-5000 feet per minute. If a source of ignition such as a spark enters a dust collection system, burning embers will travel towards the dust collector. Due to the small mass of the embers and high transport velocity in the duct, there will not be enough heat generated to activate a thermocouple sprinkler head. A photocell spark detection and extinguishing system is typically used. This technolgy is defined and recoginzed by NFPA in #69 and recognized in #664.

Bibliography:

NFPA 69

NFPA 664

and

NFPA Guide to Combustible Dusts

Authors; Walter Frank & Samuel Rodgers

Editor; Guy Colonna

2012

Pages 171-178

Cost Impact: Will increase the cost of construction
While a thermocuple sprinkler head has a cost of aprox $100 and the cost of the spark detection system is $5,000-$8,000, the spark detection system will prevent a fire or explosion in the dust collector and as a result prevent property loss, injury & loss of life, whereas a thermocouple head will be ineffective in this application.

M 58-15 : 510.8-LEVITT5228

M 59-15

510.8.4 (New)

Proponent: Ellie Klausbruckner, representing Klausbruckner & Associates Inc. (ek@klausbruckner.com)

2015 International Mechanical Code

Add new text as follows:

510.8.4 Duct cleanout. Ducts conveying combustible dust as part of a dust collection system shall be equipped with cleanouts that are provided with access. The cleanouts shall be located at the base of each vertical duct riser and at intervals not exceeding 20 foot in horizontal sections of duct.

Reason: To avoid an accumulation of combustible dust and reduce potential dust deflagration from the accumulation of dusts inside ducts, cleanouts are needed to provide accessible points as part of the housekeeping and inspection. While this hazard is more commonly found in industries that produce heavy combustible dusts [e.g. metal dusts, etc.], the potential accumulation of dusts in ducts exist in all combustible dust producing facilities.

Cost Impact: Will increase the cost of construction
The proposed code change will increase the cost of construction since previous editions did not require cleanouts.

**M 59-15 : 510.8.4 (New)-
KLAUSBRUCKNER5285**

M 60-15

511.1.3

Proponent: Peter Levitt, Sternvent, representing Sternvent (plevitt@sternvent.com)

2015 International Mechanical Code

Revise as follows:

511.1.3 Conveying systems exhaust discharge. An exhaust system shall discharge to the outside of the building either directly by flue or indirectly through the bin or vault into which the system discharges, except where the contaminants have been removed. Exhaust system discharge shall be permitted to be recirculated provided that the solid particulate has been removed at a minimum efficiency of 99.9 percent at 10 microns (10.01 mm) and where flammable vapors are present in the exhaust flow, such vapor concentrations are less than 25 percent of the LFL, ~~and *approved equipment* is used to monitor~~as determined by a hazard analysis. Where flammable vapor concentrations are greater than 25% of the ~~vapor concentration.~~LFL, the exhaust system discharge shall not be recirculated.

Reason: The current wording of section 511.1.3 requires vapor monitoring equipment for all dust collection systems that recirculate the filtered air back to the bulding, *regardless* if vapors are *ever present*. Dust collection system air streams rarley include flamable or non-flamable vapors. Vapors are not a part of the process or created by cutting wood, grinding metals, conveying chemical or food products, etc. Vapors are more likely to be part of the air stream for refuse conveying.
The current requirement for vapor monitoring equipment for all dust collectors that recirculate the air seems to be *overly burdensome*. I beleve the current text first appeared in the 2009 edition.

Some code enforcers who are familar with section 511.1.3 have been requiring flamable vapor detection systems for woodworing shops in schools, maintenance and comercial facilities, that do not have flamable vapors, because of the IMC requirement.

Flammable vapor detection systems are typicaly used in industrial processes where there is the potential for flammable vapors to exist in the work area and there is also a potential ignition source. Some aplications include; printing, paint manufacturing, commercial painting and storage areas.

Cost Impact: Will not increase the cost of construction

A typical flammable vapor detection system cost $10,000-$15,000.

End users, who do not have flammable vapors in their air stream or have flammable vapors that have a concentration of less than 25% of the LFL and need to recirculate the filtered air from the dust collection system, will no longer need to purchase a flammable vapor detection system and therefore save $10,000-$15,000.

M 60-15 : 511.1.3-LEVITT4394

M 61-15

512.2

Proponent: Pennie L Feehan, Copper Development Association, representing Copper Development Association (penniefeehan@me.com)

2015 International Mechanical Code

Revise as follows:

512.2 Materials. Subslab soil exhaust system duct material shall be air duct material *listed* and *labeled* to the requirements of UL 181 for Class 0 air ducts, or any of the following piping materials that comply with the *International Plumbing Code* as building sanitary drainage and vent pipe: cast iron; galvanized steel; ~~brass or~~ copper <u>and copper-alloy</u> pipe~~; copper~~ <u>and</u> tube of a weight not less than ~~that of copper drainage tube, Type~~<u>type</u> DWV; and plastic piping.

Reason: The proposal removes brass because brass is a copper alloy and reworded the sentence without changing the meaning.

Cost Impact: Will not increase the cost of construction
This proposal will not impact the cost of construction as this is only changing the name of the material.

M 61-15 : 512.2-FEEHAN3725

M 62-15

601.5

Proponent: Guy McMann, Jefferson County Colorado, representing Colorado Associatoin of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Mechanical Code

Revise as follows:

601.5 Return air openings. Return air openings for heating, ventilation and air-conditioning systems shall comply with all of the following:

1. Openings shall not be located less than 10 feet (3048 mm) measured in any direction from an open combustion chamber or draft hood of another appliance located in the same room or space.
2. Return air shall not be taken from a hazardous or insanitary location or a refrigeration room as defined in this code.
3. The amount of return air taken from any room or space shall be not greater than the flow rate of supply air delivered to such room or space.
4. Return and transfer openings shall be sized in accordance with the appliance or equipment manufacturer's installation instructions, ACCA Manual D or the design of the registered design professional.
5. Return air taken from one dwelling unit shall not be discharged into another dwelling unit.
6. Taking return air from a crawl space shall not be accomplished through a direct connection to the return side of a forced air furnace. Transfer openings in the crawl space enclosure shall not be prohibited.
7. Return air shall not be taken from a closet, bathroom, toilet room, kitchen, garage, boiler room, furnace room or unconditioned attic.

Exceptions:

7.1. Taking return air from a kitchen is not prohibited where such return air openings serve the kitchen and are located not less than 10 feet (3048 mm) from the cooking appliances.

7.2. Dedicated forced air systems serving only the garage shall not be prohibited from obtaining return air from the garage

<u>7.3.</u> <u>Return air shall not be taken from indoor swimming pool enclosures and associated deck areas except where such spaces are dehumidified</u>.

Reason: It is not desirable to pull return air from swimming pool areas due to the affects it would have on the system from humidity and chemical odors associated with such spaces. A dedicated system would be required or a combination of supply and exhaust or the air should be dehumidified.

Cost Impact: Will not increase the cost of construction
No cost unless the air is treated.

M 62-15 : 601.5-MCMANN3834

M 63-15

601.6 (New), 601.6.1 (New)

Proponent: Jeff Sonne, Florida Solar Energy Center, representing Florida Solar Energy Center (jeff@fsec.ucf.edu)

2015 International Mechanical Code

Add new text as follows:

601.6 Balanced return air. Provisions shall be made to prevent unbalanced air flows and pressure differentials caused by restricted return air flow. Pressure differentials caused by air distribution systems across individually closed interior doors, where return air intakes are centrally located, shall be limited to 0.01 inch WC (2.5 pascals). Pressure differentials across fire walls and other partitions within ceiling space plenums shall be limited to 0.01 inch WC (2.5 pascals) by providing air duct pathways or air transfer pathways from the high pressure zone to the low pressure zone.

601.6.1 Prescriptive alternatives. The following are alternatives to the requirements of Section 601.6 and apply only to habitable rooms.

1. Transfer ducts or other transfer pathways shall be provided and shall have an area that is not less than 1½ times the cross sectional area of the supply duct or supply ducts serving the room or space. In addition, the room entry door shall have an unrestricted 1 inch (25.4 mm) or greater undercut.
2. Transfer grilles shall be provided and shall have an area of not less than 0.50 square inches for each 1 cfm of supply air. In addition, the room entry door shall have an unrestricted 1 inch (25.4 mm) or greater undercut.

Reason: Restricted return air affects building pressures and increases air infiltration which in turn increases energy use and can cause comfort, building durability, and health and safety issues. A similar balance return air requirement is already in the Florida Building Code for these reasons. A comparison of homes built prior to the code change to those after the code change showed a 74% reduction in pressure differentials across closed interior doors, from an average of 9.1 pascals to 2.4 pascals. (See supporting publication from Cummings and Withers 2006.)
This code change has been successfully implemented in Florida with little difficulty. The prescriptive alternatives are widely used and there have been few problems in verifying compliance. Inspection of these alternatives is straightforward. Contractors readily learn what steps are required to achieve the 2.5 pascal target.

This modification is an appropriate minimum code proposal. Providing return air pathways should be a minimum code requirement and has been accepted as good practice for decades. While much of the research has been done in Florida, the unbalanced return air problem exists across the United States, wherever unequal return and supply air flows occur within an enclosed space:

i. Throughout the country, as homes get tighter, depressurization of the indoor spaces caused by unbalanced return air may in turn lead to spillage or back-drafting of vented combustion devices (hot water heaters, furnaces, boilers, and fireplaces), introducing combustion gases into the home (Cummings 2012-- see slides 6-11).

ii. In cold climates, unbalanced return air causes significant increase in air flow across the building envelope, which increases space conditioning loads, may push indoor relative humidity to unacceptably low levels, and may lead to freezing of pipes.

iii. In hot and humid climate zones, unbalanced return air also causes significant increase in air flow across the building envelope, adding to space conditioning loads and increasing latent loads and indoor relative humidity.

iv. Also in hot and humid climates, depressurization of indoor spaces caused by unbalance return air combined with factors such as low homeowner thermostat set points and vapor impermeable interior wall coverings can cause mold growth (Moyer et al. 2001).

Bibliography: Balanced Return Air, Duct Airtightness, and Combustion/Dilution Air Code Compliance in 40 Central Florida Homes, FSEC-CR-1789-06, Cummings, J. and C. Withers, 2006, http://www.fsec.ucf.edu/en/publications/pdf/FSEC-CR-1789-06.pdf.
Moisture Problems in Manufactured Housing: Probable Cause and Cures, FSEC-GP-212-01, Moyer, N., D. Beal, D. Chasar, J. McIlvaine, C. Withers, and S. Chandra, 2001, http://www.fsec.ucf.edu/en/publications/pdf/FSEC-GP-212-01.pdf.

Combustion Safety Concerns and Energy Savings in Very Airtight Residences, Cummings, J., Building America Expert Meeting Presentation, June 28, 2012 (see Attachments).

Cost Impact: Will increase the cost of construction
An HVAC contractor indicates the extra material cost for a three bedroom home is $60 and 1.5 hours of labor. While installing return air pathways adds to first cost, it reduces energy waste that results from increased air infiltration and yields a reduced life-cycle cost. Monitored energy savings finds a payback of 3 years. Health benefits not counted.

M 63-15 : 601.6 (New)-SONNE4726

M 64-15

602.1

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Revise as follows:

602.1 General. Supply, return, exhaust, relief and ventilation air plenums shall be limited to uninhabited crawl spaces, areas above a ceiling or below the floor, attic spaces ~~and~~, mechanical equipment rooms and the framing cavities addressed in Section 602.3. Plenums shall be limited to one fire area. Air systems shall be ducted from the boundary of the fire area served directly to the air-handling equipment. Fuel-fired appliances shall not be installed within a plenum.

Reason: Section 602.3 is in the plenum Section 602 and covers stud and joist space plenums, however, Section 602.1 does not recognize such plenums. Section 602.1 limits plenums to a list of spaces that excludes stud and joist space plenums.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

M 64-15 : 602.1-SNYDER3267

M 65-15

602.2

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Revise as follows:

602.2 Construction. *Plenum* enclosure construction materials that are exposed to the airflow shall comply with the requirements of Section 703.5 of the *International Building Code* or such materials shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723.

The use of gypsum boards to form plenums shall be limited to systems where the air temperatures do not exceed 125°F (52°C) and the building and mechanical system design conditions are such that the gypsum board surface temperature will be maintained above the airstream dew-point temperature. Air plenums formed by gypsum boards shall not be incorporated in air-handling systems utilizing evaporative coolers.

> <u>**Exception:** The materials from which the stud and joist space plenums addressed in Section 602.3 are constructed shall not be required to comply with Section 703.5 of the International Building Code and shall not be required to have a maximum flame spread index of 25 and a maximum smoke-developed index of 50 when tested in accordance ASTM E 84 or UL723.</u>

Reason: The significant change to Section 602.2 did not specifically address stud and joist space plenums. It is assumed that that Section 602.2 was intended to apply to spaces such as under-floor and above-ceiling spaces utilized as plenums. If Section 602.2 does apply to stud and joist space plenums, then such plenums would not be allowed to be constructed with wood studs, wood joists, wood trusses and wood floor decking. Section 602.2 should not have the effect of banning the common variety of stud and joist space plenums.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction

This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

M 65-15 : 602.2-SNYDER3268

M 66-15

602.2.1

Proponent: Janine Snyder, City of Thornton, Colorado, representing Colorado Association of Plumbing & Mechanical Officials (CAPMO) (Janine.Snyder@cityofthornton.net)

2015 International Mechanical Code

Revise as follows:

602.2.1 Materials within plenums. Except as required by Sections 602.2.1.1 through 602.2.1.7, materials within plenums shall be noncombustible or shall be listed and labeled as having a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723.

Exceptions:

1. Rigid and flexible ducts and connectors shall conform to Section 603.
2. Duct coverings, linings, tape and connectors shall conform to Sections 603 and 604.
3. This section shall not apply to materials exposed within plenums in one- and two-family dwellings.
4. This section shall not apply to smoke detectors.
5. Combustible materials fully enclosed within one of the following:
   5.1. Continuous noncombustible raceways or enclosures.
   5.2. Approved gypsum board assemblies.
   5.3. Materials listed and labeled for installation within a plenum and listed for the application.
6. Materials in Group H, Division 5 fabrication areas and the areas above and below the fabrication area that share a common air recirculation path with the fabrication area.

Reason: There is a misconception that any material listed for plenum use such as ordinary insulation can be used to cover PVC pipe so it can be installed in a plenum. There are specific products which have been specifically designed and tested for specific applications. This section leaves something to be desired in terms of specificity in that although some insulations may indeed be listed for plenum use, they cannot be installed to protect pipes during a fire. They are not tested for limiting flame propagation or smoke generation.

Cost Impact: Will increase the cost of construction
This will prevent the errors in the field as the construction community will not have to spend additional time and money removing the improper insulation and replacing with the correct material.

M 66-15 : 602.2.1-SNYDER4450

M 67-15

602.2.1.1, 602.2.1.2, 602.2.1.3

Proponent: Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

2015 International Mechanical Code

Revise as follows:

602.2.1.1 Wiring. Combustible electrical wires and cables and optical fiber cables exposed within a plenum shall be listed and labeled as having a~~ maximum~~ peak optical density ~~of~~not greater than 0.50~~ or less~~, an average optical density ~~of~~not greater than 0.15~~ or less~~, and a~~ maximum~~ flame spread distance ~~of~~not greater than 5 feet (1524 mm)~~ or less~~ when tested in accordance with NFPA 262 or shall be installed in metal raceways or metal sheathed cable. Combustible optical fiber and communication raceways exposed within a plenum shall be listed and labeled as having a~~ maximum~~ peak optical density ~~of~~not greater than 0.5~~ or less~~, an average optical density ~~of~~not greater than 0.15~~ or less~~, and a~~ maximum~~ flame spread distance ~~of~~not greater than 5 feet (1524 mm) ~~or less~~ when tested in accordance with ~~ANSI/~~UL 2024. Only plenum-rated wires and cables shall be installed in plenum-rated raceways.~~ Electrical wires and cables, optical fiber cables and raceways addressed in this section shall be listed and labeled and shall be installed in accordance with NFPA 70.~~

602.2.1.2 Fire sprinkler piping. Plastic fire sprinkler piping exposed within a *plenum* shall be used only in wet pipe systems and shall ~~have~~be listed and labeled as having a peak optical density not greater than 0.50, an average optical density not greater than 0.15, and a flame spread ~~of~~distance not greater than 5 feet (1524 mm) when tested in accordance with UL 1887. ~~Piping shall be *listed* and *labeled*.~~

602.2.1.3 Pneumatic tubing. Combustible pneumatic tubing exposed within a *plenum* shall ~~have~~be listed and labeled as having a peak optical density not greater than 0.50, an average optical density not greater than 0.15, and a flame spread ~~of~~distance not greater than 5 feet (1524 mm) when tested in accordance with UL 1820.~~ Combustible pneumatic tubing shall be *listed* and *labeled*.~~

Reason: This proposal is primarily editorial and introduces no substantive changes. It provides consistency with the pass/fail criteria for the testing of these products, and the listing and labeling requirements. The last sentence of each section is not necessary because the first sentence already requires the product to be listed and labeled.
In Section 602.2.1.1 the requirement for the electrical wiring to be installed in accordance with NFPA 70 was deleted because Section 301.10 already requires electrical wiring to be installed in accordance with NFPA 70.

Cost Impact: Will not increase the cost of construction
Editorial changes only.

M 67-15 : 602.2.1.1-ROBERTS5143

M 68-15

602.2.1.2, 602.2.1.7

Proponent: Larry Gill, representing IPEX USA LLC (larry.gill@ipexna.com)

2015 International Mechanical Code

Revise as follows:

602.2.1.2 Fire sprinkler and water distribution piping. Plastic fire sprinkler piping exposed within a *plenum* shall be used only in wet pipe systems and shall have a peak optical density not greater than 0.50, an average optical density not greater than 0.15, and a flame spread of not greater than 5 feet (1524 mm) when tested in accordance with UL 1887. Plastic water distribution piping exposed within a plenum shall have a peak optical density not greater than 0.50, an average optical density not greater than 0.15, and a flame spread of not greater than 5 feet (1524mm) when tested in accordance with UL 2846. Piping shall be *listed* and *labeled*.

602.2.1.7 Plastic DWV and chemical waste plumbing pipe and tube. Plastic drain, waste and vent (DWV) and chemical waste piping and tubing used in plumbing systems shall be listed and shall exhibit a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723.

Add new standard(s) as follows:
UL 2846 - 2014 Fire Test of Plastic Water Distribution Plumbing Pipe for Visible Flame and Smoke Characteristics

Reason: The proposal is to add a new standard for mounting of water distribution pipe. UL 2846 is proposed to be added to Section 602.2.1.2 Fire Sprinkler piping. This section currently lists UL 1887 for sprinkler pipe and the acceptance criteria in the new UL 2846 standard is the same as UL 1887. Both fire sprinkler pipe and water distribution pipe are water filled. Therefore it makes sense to reference UL 2846 in the same section as UL 1887.
The proposed change to 602.2.1.7 will make this section applicable to DWV and special waste where the tests standards are ASTM E84 and UL 723. These proposed changes will clearly distinguish between water distribution and DWV/Special Waste.

Cost Impact: Will not increase the cost of construction
No cost impact. The change will permit plastic water distribution piping meeting UL 2846 to be installed in a plenum. This will provide a cost effective alternative to pipe in a plenum.

Analysis: A review of the standard proposed for inclusion in the code, UL 2846, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 68-15 : 602.2.1.2-GILL5058

M 69-15

Part I:

602.2.1.6, 602.2.1.6.1, 602.2.1.6.2, 602.2.1.6.3

Part II:

2603.7, 2603.7.1, 2603.7.2, 2603.7.3

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IMC COMMITTEE. PLEASE SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

Proponent: Marcelo Hirschler, representing GBH International (gbhint@aol.com)

Part I

2015 International Mechanical Code

Revise as follows:

602.2.1.6 Foam plastic ~~insulation.~~interior finish and interior trim in plenums Foam plastic ~~insulation used~~interior wall and ceiling finish in plenums ~~as interior wall or ceiling finish or as~~and foam plastic interior trim in plenums shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 and shall also comply with one or more of Sections 602.2.1.6.1, 602.2.1.6.2 and 602.2.1.6.3.

602.2.1.6.1 Separation required. The foam plastic ~~insulation~~ shall be separated from the plenum by a thermal barrier complying with Section 2603.4 of the *International Building Code* and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.

602.2.1.6.2 Approval. The foam plastic ~~insulation~~ shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use and shall meet the acceptance criteria of Section 803.1.2 of the *International Building Code* when tested in accordance with NFPA 286.

The foam plastic ~~insulation~~ shall be approved based on tests conducted in accordance with Section 2603.9 of the *International Building Code*.

602.2.1.6.3 Covering. The foam plastic ~~insulation~~ shall be covered by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm) and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.

Part II

2015 International Building Code

Revise as follows:

2603.7 Foam plastic ~~insulation used as~~ interior finish or interior trim in plenums. Foam plastic ~~insulation used as~~ interior wall or ceiling finish ~~or as~~and foam plastic interior trim in plenums shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 and shall comply with one or more of Sections 2603.7.1, 2603.7.2 and 2607.3.

2603.7.1 Separation required. The foam plastic ~~insulation~~ shall be separated from the plenum by a thermal barrier complying with Section 2603.4 and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.

2603.7.2 Approval. The foam plastic ~~insulation~~ shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use and shall meet the acceptance criteria of Section 803.1.2 when tested in accordance with NFPA 286. The foam plastic ~~insulation~~ shall be approved based on tests conducted in accordance with Section 2603.9.

2603.7.3 Covering. The foam plastic ~~insulation~~ shall be covered by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm) and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.

Reason:

Part I: This is simple clarification. The important issue is that the foam plastic is used as interior finish or as interior trim and not whether it additionally has an insulative function: that is immaterial. This has apparently caused confusion. This is exactly the same change that is proposed for section 2603.7 of the IBC and is simple clarification.
The IBC proposal produces the following language:

Revise as follows:

2603.7 Foam plastic interior finish or interior trim in plenums.
Foam plastic interior wall or ceiling finish or foam plastic interior trim in plenums shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when
tested in accordance with ASTM E 84 or UL 723 and shall comply with one or more of Sections 2603.7.1, 2603.7.2 and 2607.3.

Revise as follows:
2603.7.1 Separation required.
The foam plastic shall be separated from the plenum by a thermal barrier complying with Section 2603.4 and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.

Revise as follows:
2603.7.2 Approval.
The foam plastic shall exhibit a flame spread index of 25 or less and a smoke developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the
thickness and density intended for use and shall meet the acceptance criteria of Section 803.1.2 when tested in accordance with NFPA 286. The foam plastic shall be approved based on tests conducted in accordance with Section 2603.9.

Revise as follows:
2603.7.3 Covering.
The foam plastic shall be covered by corrosion-resistant steel having a base metal
thickness of not less than 0.0160 inch (0.4 mm) and shall exhibit a flame spread index of 75 or
less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or
UL 723 at the thickness and density intended for use.

Part II: This is simple clarification. The important issue is that the foam plastic is used as interior finish or as interior trim and not whether it additionally has an insulative function: that is immaterial. This has apparently caused confusion.
This is the same language that is proposed for the corresponding IMC section.

The IMC proposal would lead to the following language:

Revise as follows:
602.2.1.6 Foam plastic interior finish or interior trim in plenums
Foam plastic interior wall or ceiling finish or foam plastic interior trim in plenums shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when
tested in accordance with ASTM E84 or UL 723 and shall also comply with one or more of Sections 602.2.1.6.1, 602.2.1.6.2 and 602.2.1.6.3.

Revise as follows:
602.2.1.6.1 Separation required.
The foam plastic shall be separated from the plenum by a thermal barrier complying with Section 2603.4 of the International Building Code and shall exhibit a flame spread index of
75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723 at the thickness and density intended for use.

Revise as follows:
602.2.1.6.2 Approval.
The foam plastic shall exhibit a flame spread index of 25 or less and a smoke developed index of 50 or less when tested in accordance with ASTM E84 or UL 723 at the
thickness and density intended for use and shall meet the acceptance criteria of Section 803.1.2 of the International Building Code when tested in accordance with NFPA 286.
The foam plastic shall be approved based on tests conducted in accordance with Section 2603.9 of the International Building Code.

Revise as follows:
602.2.1.6.3 Covering.
The foam plastic shall be covered by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm) and shall exhibit a flame spread index of 75 or
less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723 at the thickness and density intended for use.

Cost Impact:

Part I: Will not increase the cost of construction
Simple clarification.

Part II: Will not increase the cost of construction
Simple clarification.

M 69-15 : 602.2.1.6-HIRSCHLER4986

M 70-15

Part I:

602.2.1.6, 602.2.1.6 (New), 602.2.1.6.1, 602.2.1.6.2, 602.2.1.6.3

Part II:

2603.7 (New), 2603.7, 2603.7.1, 2603.7.2, 2603.7.3, 2604.1.1 (New)

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IMC COMMITTEE. PLEASE SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE.

Proponent: John Woestman, Kellen Company, representing Extruded Polystyrene Foam Association (XPSA) (jwoestman@kellencompany.com)

Part I

2015 International Mechanical Code

Delete without substitution:

~~**602.2.1.6 Foam plastic insulation.** Foam plastic insulation used in plenums as interior wall or ceiling finish or as interior trim shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 and shall also comply with one or more of Sections 602.2.1.6.1, 602.2.1.6.2 and 602.2.1.6.3.~~

Add new text as follows:

<u>602.2.1.6</u> <u>**Foam plastic insulation in plenums as interior finish or interior trim.**</u> <u>Where exposed to the airflow in plenums, foam plastic insulation in plenums used as interior wall or ceiling finish or interior trim, shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E84 or UL 723 at the maximum thickness and density intended for use, and shall be tested in accordance with NFPA 286 and meet the acceptance criteria of Section 803.1.2 of the *International Building Code*.</u>

<u>**Exceptions:**</u>

<u>1. Foam plastic insulation in plenums used as interior wall or ceiling finish or interior trim, shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723 at the maximum thickness and density intended for use, where it is separated from the airflow in the plenum by a thermal barrier complying with Section 2603.4 of the *International Building Code*.</u>

<u>2. . Foam plastic insulation in plenums used as interior wall or ceiling finish or interior trim, shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723 at the maximum thickness and density intended for use, where it is separated from the airflow in the plenum by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm).</u>

<u>3. Foam plastic insulation in plenums used as interior wall or ceiling finish or interior trim, shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723 at the maximum thickness and density intended for use, where it is separated from the airflow in the plenum by not less than a 1 inch (25mm) thickness of masonry or concrete.</u>

Delete without substitution:

~~**602.2.1.6.1 Separation required.** The foam plastic insulation shall be separated from the plenum by a thermal barrier complying with Section 2603.4 of the *International Building Code* and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.~~

~~**602.2.1.6.2 Approval.** The foam plastic insulation shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use and shall meet the acceptance criteria of Section 803.1.2 of the *International Building Code* when tested in accordance with NFPA 286.~~

~~The foam plastic insulation shall be approved based on tests conducted in accordance with Section 2603.9 of the *International Building Code*.~~

~~**602.2.1.6.3 Covering.** The foam plastic insulation shall be covered by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm) and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.~~

Part II

2015 International Building Code

Add new text as follows:

2603.7 Foam plastic insulation in plenums as interior finish or interior trim. Where exposed to the airflow in plenums, foam plastic insulation in plenums used as interior wall or ceiling finish, or interior trim, shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the maximum thickness and density intended for use, and shall be tested in accordance with NFPA 286 and meet the acceptance criteria of Section 803.1.2.

Exceptions:

1. Foam plastic insulation in plenums used as interior wall or ceiling finish, or interior trim, shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the maximum thickness and density intended for use, where it is separated from the airflow in the plenum by a thermal barrier complying with Section 2603.4.
2. Foam plastic insulation in plenums used as interior wall or ceiling finish, or interior trim, shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the maximum thickness and density intended for use, where it is separated from the airflow in the plenum by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm).
3. Foam plastic insulation in plenums used as interior wall or ceiling finish, or interior trim, shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the maximum thickness and density intended for use, where it is separated from the airflow in the plenum by not less than a 1 inch (25mm) thickness of masonry or concrete.

Delete without substitution:

~~**2603.7 Foam plastic insulation used as interior finish or interior trim in plenums.** Foam plastic insulation used as interior wall or ceiling finish or as interior trim in plenums shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 and shall comply with one or more of Sections 2603.7.1, 2603.7.2 and 2607.3.~~

~~**2603.7.1 Separation required.** The foam plastic insulation shall be separated from the plenum by a thermal barrier complying with Section 2603.4 and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.~~

~~**2603.7.2 Approval.** The foam plastic insulation shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use and shall meet the acceptance criteria of Section 803.1.2 when tested in accordance with NFPA 286. The foam plastic insulation shall be approved based on tests conducted in accordance with Section 2603.9.~~

~~**2603.7.3 Covering.** The foam plastic insulation shall be covered by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm) and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.~~

Add new text as follows:

2604.1.1 Plenums. Foam plastics installed in plenums as interior wall or ceiling finish shall comply with Section 2603.7. Foam plastics installed in plenums as interior trim shall comply with Sections 2604.2 and 2603.7.

Reason:

Part I: This proposal is intended to revise the requirements for foam plastic in plenums. There is a companion proposal for the International Building Code. This code change is intended to not revise technical requirements, but clarifies the code's intent for the use of foam plastic in plenums. The following revisions are proposed:
1) The term "exposed to the airflow" is added to clarify the placement of the foam relative to the plenum airflow. This term is taken from the IMC Section 602.2: "602.2 Construction. Plenum enclosure construction materials that are exposed to the airflow shall comply with . . . . "
2) The requirements for foam plastic exposed to the plenum airflow (currently 602.2.1.6.2 Approval) are moved to the charging paragraph in proposed Section 2603.7.
3) Not including the last sentence in 602.2.1.6.2 in this re-write of 602.2.1.6 clearly establishes the ASTM E84 performance limits and NFPA 286 with the identified acceptance criteria in IBC Section 803.1.2 as the qualifying tests for use of foam plastics exposed to the airflow in plenums.
4) The use of a thermal barrier (currently Section 602.2.1.6.1Separation required) separating the foam plastic from the air flow in the plenum is allowed and therefore listed as an exception.
5) The use of an alternate barrier (currently Section 602.2.1.6.3 Covering) separating the foam plastic from the air flow in the plenum is allowed and therefore listed as an exception.
6) A new exception is added to recognize the use of masonry or concrete as a means to separate the foam plastic from the air flow in the plenum. Masonry and concrete, with minimum 1 inch thickness, are approved thermal barriers for foam plastic per IBC Section 2603.4.1.
The changes bring needed clarification regarding the approved barriers and corresponding flame spread and smoke-developed requirements for foam plastic used in plenums.

Part II: This proposal is intended to revise the requirements for foam plastic in plenums. There is a companion proposal for the International Mechanical Code. This code change is intended to not revise technical requirements, but clarifies the code's intent for the use of foam plastic in plenums. The following revisions are proposed:
1) The term "exposed to the airflow" is added to clarify the placement of the foam relative to the plenum airflow. This term is taken from the IMC Section 602.2: "602.2 Construction. Plenum enclosure construction materials that are exposed to the airflow shall comply with . . . . "
2) The requirements for foam plastic exposed to the plenum airflow (currently 2603.7.2 Approval) are moved to the charging paragraph in proposed Section 2603.7.
3) Not including the last sentence in 2603.7 in this re-write of 2603.7 clearly establishes the ASTM E84 performance limits and NFPA 286 with the identified acceptance criteria in 803.1.2 as the qualifying tests for use of foam plastics exposed to the airflow in plenums.
4) The use of a thermal barrier (currently Section 2603.7.1 Separation required) separating the foam plastic from the air flow in the plenum is allowed and therefore listed as an exception.
5) The use of an alternate barrier (currently Section 2603.7.3 Covering) separating the foam plastic from the air flow in the plenum is allowed and therefore listed as an exception.
6) A new exception is added to recognize the use of masonry or concrete as a means to separate the foam plastic from the air flow in the plenum. Masonry and concrete, with minimum 1 inch thickness, are approved thermal barriers for foam plastic per Section 2603.4.1.
7) A sentence is added to the Interior Finish and Trim (Section 2604.1) pointing back to the plenum requirements in Section 2603.7.
The changes bring needed clarification regarding the approved barriers and corresponding flame spread and smoke-developed requirements for foam plastic used in plenums.

Cost Impact:

Part I: Will not increase the cost of construction
No cost increase. This code proposal revises existing requirements without technical changes.

Part II: Will not increase the cost of construction
No cost increase. This code proposal revises existing requirements without technical changes.

M 70-15 : 602.2.1.6-WOESTMAN5567

M 71-15

602.2.1.7

Proponent: Mike Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservnet.com)

2015 International Mechanical Code

Revise as follows:

602.2.1.7 Plastic plumbing pipe and tube. Plastic piping and tubing used in plumbing systems ~~shall be listed and~~ shall exhibit a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723.

Reason: While some of the exceptions for products in this section of the mechanical code contain, "listed and labeled" language, some have no mention of "listing and labeling", section 602.2.1.7 oddly only says, "listed".

We propose to delete, "listed" from this section, as it is inconsistent with the other language.

Cost Impact: Will not increase the cost of construction
This proposal seeks to determine if the "listing / listing and labeling" language is correct compared with other sections, and seeks conformity in the language. Thus the code with this proposal added will not cause the cost of construction to increase.

M 71-15 : 602.2.1.7-CUDAHY4606

M 72-15

602.2.1.7

Proponent: Mike Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservnet.com)

2015 International Mechanical Code

Revise as follows:

602.2.1.7 Plastic plumbing ~~pipe~~piping and ~~tube~~tubing. Plastic plumbing system piping and tubing ~~used in plumbing systems~~exposed within a *plenum* shall be listed and shall exhibit a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723. As an alternative, plastic water distribution piping and tubing exposed within a plenum, shall be listed in accordance with UL 2846, and shall have a peak optical density not greater than 0.50, an average optical density not greater than 0.15, and a flame spread of not greater than 5 feet (1524 mm).

Add new standard(s) as follows:
UL 2846-2014 Fire Test of Plastic Water Distribution Plumbing Pipe for Visible Flame and Smoke Characteristics

Reason: PPFA supports a new UL testing method for water distribution piping, UL 2846, "Fire Test of Plastic Water Distribution Plumbing Pipe for Visible Flame and Smoke Characteristics".
This proposal would allow plastic water distribution only to be tested to ASTM E84, UL 723 or UL 2846. Other (service and DWV) plumbing piping would still be tested to E84 or UL 723.

Cost Impact: Will not increase the cost of construction
This proposal simply adds another option for testing piping material for use in plenums into the code and as such, the option is not requiring that this method be chosen. Thus the code with this proposal added will not cause the cost of construction to increase

Analysis: A review of the standard proposed for inclusion in the code, UL 2846, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 72-15 : 602.2.1.7-CUDAHY5042

M 73-15

602.2.1.7

Proponent: Forest Hampton, representing Lubrizol Advanced Material, Inc. (forest.hampton@lubrizol.com)

2015 International Mechanical Code

Revise as follows:

602.2.1.7 Plastic plumbing pipe and tube. Plastic piping and tubing used in plumbing systems shall be listed and shall exhibit a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84~~ or~~, UL 723 or CAN/ULC S102.2.

Add new standard(s) as follows:

CAN/ULC S102.2-10 Standard Method of Test for Surface Burning Characteristics of Flooring. Floor Coverings and Miscellaneous Materials and Assemblies

Reason: There are no mounting methods for plastic pipe in ASTM E84 or UL 723. The addition of ULC-S102.2-2010 provides a relevant method for testing flame and smoke properties of actual plastic pipes, fittings and valves. This method is representative of how pipes and assemblies are used in the field. This method has been in use since the 1980's and has provided a safe determination of flame and smoke properties for use in air handling systems.

Cost Impact: Will not increase the cost of construction
The proposal adds an additional test method to show acceptance.

Analysis:
A review of the standard proposed for inclusion in the code, CAN/ULC S102.2, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 73-15 : 602.2.1.7-HAMPTON5364

M 75-15

602.2.1.7

Proponent: Marcelo Hirschler, representing GBH International (gbhint@aol.com)

2015 International Mechanical Code

Revise as follows:

602.2.1.7 Plastic plumbing pipe and tube.
Plastic piping and tubing used in plumbing systems shall be listed and labeled and shall exhibit a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723.

Reason: This section was added at the last edition. When the language was developed the section was written stating that the plastic piping and tubing needs to be "listed" instead of "listed and labeled" as other products in plenums are.

Cost Impact: Will increase the cost of construction
If jurisdictions approved plastic piping and plumbing items that were listed but not listed and labeled they will, in future, have to be both listed and labeled.

M 75-15 : 602.2.1.7-HIRSCHLER3529

M 76-15

602.2.1.7

Proponent: Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

2015 International Mechanical Code

Revise as follows:

602.2.1.7 Plastic plumbing ~~pipe~~piping and ~~tube~~tubing. Plastic piping and tubing used in plumbing systems exposed within a plenum shall be listed and ~~shall exhibit~~labeled as having a flame spread index ~~of~~ not ~~more~~ greater than 25 and a smoke-developed index ~~of~~ not ~~more~~greater than 50 when tested in accordance with ASTM E 84 or UL 723.

Exception: Plastic water distribution piping and tubing listed and labeled in accordance with UL 2846 as having a peak optical density not greater than 0.50, an average optical density not greater than 0.15, and a flame spread distance not greater than 5 feet (1524 mm), and installed in accordance with its listing.

Add new standard(s) as follows:
UL 2846-14, Fire Test of Plastic Water Distribution Plumbing Pipe for Visible Flame and Smoke Characteristics

Reason: This proposal accomplishes the following:

1. Clarifies that this section is only applicable to plastic piping and tubing exposed within a plenum, using wording similar to Section 602.2.1.3.
2. Makes grammatical revisions for consistency.
3. Allows an option for water distribution piping and tubing to be listed to the UL 2846 criteria noted.

UL 2846 is an ANSI standard that includes a test method for determining values of flame propagation distance and optical smoke density for individual pairs of plastic plumbing pipes for distribution of potable water that can be installed in ducts, plenums, and other spaces used for environmental air. The scope of this standard can be viewed at http://ulstandards.ul.com/standard/?id=2846.

The acceptance criteria specified (peak optical density not greater than 0.50, an average optical density not greater than 0.15, and a flame spread distance not greater than 5 feet) is consistent with values in Sections 602.2.1.1, 602.2.1.2 and 602.2.1.3.

Cost Impact: Will not increase the cost of construction
This proposal provides an alternative method for evaluating plastic water distribution system piping and tubing.

Analysis:
A review of the standard proposed for inclusion in the code, UL 2846, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 76-15 : 602.2.1.7-ROBERTS4106

M 77-15

602.2.1.7

Proponent: David Seiler, Arkema Inc, representing Arkema Inc. (dave.seiler@arkema.com)

2015 International Mechanical Code

Revise as follows:

602.2.1.7 Plastic plumbing pipe and tube. Plastic piping and tubing used in plumbing systems shall be listed and shall exhibit a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723 <u>without any liquid in the pipe and utilizing the full width of the test apparatus tunnel during such tests</u>.

Reason: This is a simple clarification to confirm the testing procedure of ASTM E84

Bibliography: NFPA 90A, ASTM E84, UL 723

Cost Impact: Will not increase the cost of construction
This clarification makes no change in the material types that currently meet the code, thus there is no cost impact.

M 77-15 : 602.2.1.7-SEILER4331

M 78-15

602.2.1.8 (New)

Proponent: Marcelo Hirschler, representing GBH International (gbhint@aol.com)

2015 International Mechanical Code

Add new text as follows:

602.2.1.8 Pipe insulation. Pipe insulation in plenums shall comply with the requirements of Section 604.

Reason: Section 602 contains the requirements for materials in plenums. However, pipe insulation in plenums, which is supposed to comply with the same requirements as duct insulation (shown in section 604) is not specifically included. The default requirements in section 602 are simply a flame spread index of 25 and a smoke developed index of 50, when tested in accordance with ASTM E84. However, section 604 contains further details, including the requirements to meet testing in accordance with ASTM C411, the temperature requirements and the details of the mounting method for ASTM E84 (which should be in accordance with ASTM E2231). Some people may consider this as implicit but it is always better to be explicit rather than implicit. ASTM E2231 is entitled Standard Practice for Specimen Preparation and Mounting of Pipe and Duct Insulation Materials to Assess Surface Burning Characteristics and it deals with both pipe and duct insulation and it is already referenced in section 604 of the IMC.

Cost Impact: Will increase the cost of construction
This provides a pointer to clarify a missing requirement and should not affect requirements. However, if some juridisctions now handle pipe insulation in plenums different from duct insulation then the requirements would change for those jurisdictions.

M 78-15 : 602.2.1.8 (New)-HIRSCHLER3525

M 79-15

602.2.1.8 (New)

Proponent: Marcelo Hirschler, representing GBH International (gbhint@aol.com)

2015 International Mechanical Code

Add new text as follows:

602.2.1.8 Pipe and duct insulation within plenums. Pipe and duct insulation contained within plenums, including insulation adhesives, shall have a flame spread index of not more than 25 and a smoke developed index of not more than 50 when tested in accordance with ASTM E84 or UL 723, using the specimen preparation and mounting procedures of ASTM E2231. Pipe and duct insulation shall not flame, glow, smolder or smoke when tested in accordance with ASTM C411 at the temperature at which they are exposed in service. The test temperature shall not fall below 250ºF (121ºC) . Pipe and duct insulation shall be listed and labeled.

Reason: Section 602 covers the contents of plenums and section 604 covers insulation of ducts. However, it is quite common to have insulated pipes and/or insulated ducts within plenums. Pipe insulation is not specifically covered by the IMC. Moreover, the potential exists that duct insulation contained within plenums falls through the cracks and is not properly regulated. Moreover, there is also the possibility that section 604 is amended and that would affect pipe or duct insulation contained within plenums.
Note that duct insulation could be applied outside buildings and the requirements may need to be different from duct insulation within plenums. However, the new section will ensure that the fire safety requirements areapplied to pipe and duct insulation contained within plenums irrespective of other requirements for exterior insulation of ducts not contained within plenums.

Therefore it is proposed to add the same requirements from Section 604.3 to the new section on pipe and duct insulation within plenums, and, that way, the section addressing materials contained within plenums is independent of the section on materials associated with ducts, whether the ducts are free-standing or within plenums.

Exception 2 to section 602.2.1 does not specifically mention pipe or duct insulation within plenums.

Cost Impact: Will not increase the cost of construction
This is clarification only because fire safety requirements for materials contained within plenums already exist.

M 79-15 : 602.2.1.8 (New)-HIRSCHLER4751

M 80-15

602.2.2 (New)

Proponent: Brian Helms, Charlotte Plastics, representing Charlotte Pipe and Foundry (brian.helms@charlottepipe.com)

2015 International Mechanical Code

Add new text as follows:

602.2.2 Plastic piping in plenums. Plastic piping installed in plenums shall be tested in strict accordance with the requirements of ASTM E84 and UL723 including the mounting method used and the size of the sample tested. Modified tests that use mounting methods or sample sizes different than those required by the E84 and UL723 shall not be accepted as proof of compliance.

Reason: The requirements found in STM E84 and UL723 are the requirements. Changing the sample size or mounting methods to enable a plastic pipe manufacturer to achieve a passing grade ignore the basis by which the existing requirements exist. That reason is the protection of the health and safety of the occupants of the building. Allowing the use of modified tests exposes all plastic pipe manufacturers to liability which some might not wish to accept.

Cost Impact: Will not increase the cost of construction
This change merely highlights that the requirement of the standards regarding a product's acceptability for use in a plenum be followed without alteration. The practice of modifying or altering the requirements of ASTM E84 and UL 723 has been gaining momentum in the industry and diluting results that are intended to provide safety to the industry by measuring flame spread and smoke development of material used in a plenum. This change does not add to the cost of construction.

M 80-15 : 602.2.2 (New)-HELMS5401

M 81-15

603.1, 603.6.2, 603.6.2.1

Proponent: John Hamilton, representing TABB (jhamilton@tabbcertified.org)

2015 International Mechanical Code

Revise as follows:

603.1 General. An air distribution system shall be designed and installed to supply the required distribution of air. The installation of an air distribution system shall not affect the fire protection requirements specified in the *International Building Code*. Ducts shall be constructed, braced, reinforced and installed to provide structural strength and durability. <u>Ducts shall be listed in accordance with UL 181.</u>

Delete without substitution:

~~**603.6.2 Flexible air connectors.** Flexible air connectors, both metallic and nonmetallic, shall be tested in accordance with UL 181. Such connectors shall be *listed* and *labeled* as Class 0 or Class 1 flexible air connectors and shall be installed in accordance with Section 304.1.~~

~~**603.6.2.1 Connector length.** Flexible air connectors shall be limited in length to 14 feet (4267 mm).~~

Reason: Allowing the use of air connectors breeches the ICC fire protection codes.
Air connectors do not have to pass a U.L. flame penatration test, thus allowing flames to easiely jump from floor to floor or flames to enter wall cavities.

There are several videos showing this on YouTube.

Search ASHRAE 5.2 on YouTube or use this link:

https://www.youtube.com/watch?v=l5oKO_hRoxw

Cost Impact: Will not increase the cost of construction
The cost of air connectors is within 5% or flexable air ducts.

M 81-15 : 603.1-HAMILTON4932

M 82-15

603.6, 603.6.2.1, 603.6.2.2, 603.6.3, 603.6.4

Proponent: John Hamilton, representing TABB (jhamilton@tabbcertified.org)

2015 International Mechanical Code

Revise as follows:

603.6 Flexible air ducts and flexible air connectors. Flexible air ducts, both metallic and nonmetallic, shall comply with Sections 603.6.1, 603.6.1.1, 603.6.3 and 603.6.4. ~~Flexible air connectors, both metallic and nonmetallic, shall comply with Sections 603.6.2 through 603.6.4.~~

Delete without substitution:

~~**603.6.2.1 Connector length.** Flexible air connectors shall be limited in length to 14 feet (4267 mm).~~

~~**603.6.2.2 Connector penetration limitations.** Flexible air connectors shall not pass through any wall, floor or ceiling.~~

Revise as follows:

603.6.3 Air temperature. The design temperature of air to be conveyed in flexible air ducts ~~and flexible air connectors~~ shall be less than 250°F (121°C).

603.6.4 Flexible air duct and air connector clearance. Flexible air ducts ~~and air connectors~~ shall be installed with a minimum *clearance* to an *appliance* as specified in the *appliance* manufacturer's installation instructions.

Reason: UL test air connectors, but they have to weak of a lableing requirment. Many time inspectors can not tell flex duct from air connectors. Air ducts have rectangular lables indicating it is UL approved duct.

Air connectors have a round lable indicating it is UL approved air connector.

Some manufactures put large rectangular performance lables on air connectors along with a small round UL lable saying the item is air connectors,

In my attached photo it shows the problem. The perfomance label (rectangular) is 4.3 times larger than the UL air connector lable.

ASHRAE 5.2 is going to question UL on how to lable air connectors better so inspectors can see what they are.

Until UL has a better lableing system the ICC should not recognize them.

Bibliography: UL 181

Cost Impact: Will not increase the cost of construction
Flex air duct is about the same cost

M 82-15 : 603.1-HAMILTON4962

M 83-15

Table 603.4

Proponent: John Hamilton, representing TABB (jhamilton@tabbcertified.org)

2015 International Mechanical Code

Revise as follows:

TABLE 603.4
DUCT CONSTRUCTION MINIMUM SHEET METAL THICKNESS FOR <u>OVER 14 FEET IN LENGTH FOR </u>SINGLE DWELLING UNITS[a]

(Portions of table and notes not shown remain unchanged)

603.6 Flexible air ducts and flexible air connectors. Flexible air ducts, both metallic and nonmetallic, shall comply with Sections 603.6.1, 603.6.1.1, 603.6.3 and 603.6.4. Flexible air connectors, both metallic and nonmetallic, shall comply with Sections 603.6.2 through 603.6.4.

603.6.2.1 Connector length. Flexible air connectors shall be limited in length to 14 feet (4267 mm).

603.6.2.2 Connector penetration limitations. Flexible air connectors shall not pass through any wall, floor or ceiling.

603.6.4 Flexible air duct and air connector clearance. Flexible air ducts and air connectors shall be installed with a minimum *clearance* to an *appliance* as specified in the *appliance* manufacturer's installation instructions.

Reason: Why have a minimum metal thickness if the code allows air connectors to be used. Seems odd when installing metal duct it has to be a min thickness but if a paper thin material other than metal is used there is no thickness requirment.

Cost Impact: Will not increase the cost of construction
Would help make HVAC systems cheaper

M 83-15 : T603.4-HAMILTON4654

M 84-15

603.6.5 (New)

Proponent: John Hamilton, representing TABB (jhamilton@tabbcertified.org)

2015 International Mechanical Code

Add new text as follows:

603.6.5 Flexible duct installation. Flexible duct shall be installed fully extended without compression and shall be cut to the length necessary for the installation. Flexible duct shall be supported at intervals not less than 4 feet (1219 mm) for horizontal ducts and not less than 6 feet (1829) intervals for vertical ducts. The duct sag between supports shall not exceed ½ inch per foot of duct length between the supports. Flexible duct supports shall be of rigid material and not less then 1.5 inch (38 mm) in width. Hangers shall be installed to prevent restriction of the internal diameter of the duct. Flexible air duct bends shall have a radius of not less than the duct diameter. Flexible ducts shall not be bent across objects such as pipes, wires, joists and trusses. Screws shall not penetrate the inside liner of nonmetallic flexible ducts. Flexible duct connections shall be made with rigid collars that are not less than 2 inches (51 mm) in length. Such collars shall be beaded except where metal worm-gear clamps are used to secure the duct liner. Flexible duct liners shall extend not less than 1 inch (25 mm) beyond the collar bead.

Reason: Of all the studies done on flex duct to date not one has found a situation where flex duct is installed properly. The information is already code but buried in 3rd party documents that most inspectors do not have or want to purchase.
Bring the current requirments into the code book. Ralph will even let you use pictures :-)

1. Install flex duct fully extended. Do not install in the compressed state or use excess length.
2. Install horizontal flex duct hangers at least every 4 feet (1.2 m).
3. Install vertical flex duct hangers at least every 6 feet (1.8 m)
4. Install flex duct so that sag does not exceed ½ in. per ft (42 mm per m). That means no more than 1" of sag between hangers.
5. Use flex duct supports that are ridged and at 1.5 inch (38 mm) minimum wide (no cloth hangers). Hanger shall be of sufficient width to prevent any restriction of the internal diameter of the duct when the weight of the supporting section rests on the hanger.
6. Install flex duct so that bends exceed one duct diameter radius. Do not bend ducts across sharp corners such as pipes, wires, joists or trusses.
7. Do not install non-metallic flex duct with screws penetrating the inside liner.
8. All flex duct connections shall be attached to a 2" ridged collar with a bead. The flex must be pulled over at least 1" over the bead before a fasten strap is affixed. Beads on connections are optional when using metal worm-gear clamps.

Bibliography: ADC 5th edition

Cost Impact: Will not increase the cost of construction
It is already code so no code is changing, so no increase in cost.

M 84-15 : 603.5-HAMILTON4955

M 85-15

603.6.1.1

Proponent: John Hamilton, representing TABB (jhamilton@tabbcertified.org)

2015 International Mechanical Code

Revise as follows:

603.6.1.1 Duct length. Flexible air ducts shall ~~not~~ be limited to 5 feet (1524 mm) in length.

Reason: There is no standard to which flex duct is made and tested regauding the friction loss (resistance) it creates on the HVAC system. Becasue of this no one test can show how much flex duct really cost in energy use.

Even the Air Diffusion Council test are on one specific brand of flex duct and that flex duct may not even be made anymore.

Flex duct creates more pressure resitance than metal ducts thus creating a higher energy use.

Unify the IMC with the UMC

Some examples from ASHRAE Reasearch Project 1333 or RP-1333:

- 6" metal duct = 10" flex
- 8" metal duct = 12" flex
- 10" metal duct = 14" flex duct
- Turning flex 90 degrees to use it as a elbow can create 20-40 times the resistance of a sheet metal elbow.
- Not one study to date has found flex duct to be installed properly

Limiting flex to 5 feet would help bring many codes together. Several states limit the length of flex duct. Engineering firms limit the length of flex. Target corperation world wide limits flex to 6' lengths. The UMC limits flex duct to 5 foot.

The common argument agaist this limit is where is the techincal data? There is lots of it attached in this proposal. Including ASHRAE spending over 400,000 dollars to document the restriction and energy use flex creates.

Technical reasons for limiting flex

1. Installation practices:
A. Poor installation practices can raise the total pressure loss by as much as a factor of 10.
ASHRAE Research Project RP-1333, Final Report

B. As a subject for future work, it is recommended that ASHRAE study actual installations. As part of the preparation for this project, numerous housing and industrial installations were reviewed. In this limited survey, it was found that every installation was not in compliance with Manual D and ADC (2003) requirements.

ASHRAE Research Project RP-1333, Final Report.

2. Performance:

A. Culp and Cantrill (2009), even when installed properly, i.e. adequately stretching the flexible duct, the pressure loss per unit length can be up to 120% greater than the values recorded in the ASHRAE Handbook for round metal duct of the same size when seen in their testing of 305 mm (12 in.), 356 mm (14 in.), and 406 mm (16 in.) duct diameters.
ASHRAE Transactions, 115(1):622-628.

B. Example of sizing flex using the ASHRAE Duct Fitting Database

Flex size" Flex Compression
4% 15% 30% 45%
6" 7.3" 8.4 9.2 9.8
8" 9.5 10.7 11.7 12.3
10" 11.6 12.9 13.9 14.6
12" 13.6 15 16.1 16.7
14" 15.7 17.1 18.2 18.9
ASHRAE. 2012. ASHRAE Duct Fitting Database

C. The ASHRAE Standard 120 test protocol which is conducted while the sample is supported on a flat surface, such that the duct is first stretched taut with a prescribed tensile force of 110 N (25 lbf) as measured with a pull scale, for a period of one minute.

None of the above underlined criteria is a typical field practice when installing flex duct.
ASHRAE Research Project RP-1333, Final Report.

D. Per the installation standard published by ADC (2010), accepted industry practice is to install flexible ducts fully extended, and duct compression and excessive lengths are to be avoided. Does this mean the flex is not to be allowed to compress back to 4%-15% how can an installer do this?

ADC. 2010. Flexible Duct Performance & Installation Standards, 5th edition. Air Diffusion Council, Schaumburg, Illinois.

E. Culp (2011) observed that the pressure loss measurements varied approximately ±20% to ±30%. These disparities were attributed to several factors, such as: (i) actual duct diameters can vary up to 6 mm (0.25 in.) among different manufacturers, (ii) it was difficult to obtain uniform compression in duct samples having an outer insulation and duct sleeve installed, because the insulation tended to reduce the inflation of the inner liner, (iii) various manufacturers employ different materials, wire diameters/pitches, and coil attachment methods to construct their products, and (iv) a 'hysteresis' (interior liner memory) effect was observed at high volume flow rates, such that when the duct deformed to a zigzag type of configuration and was then re-straightened, the duct pressure loss was perceived to increase ~20%. The implication is that field installations may potentially exhibit significantly different pressure losses from those predicted by the present analysis.

ASHRAE Research Project RP-1333, Final Report.

F. The cases involving flexible ducts considered in this study were limited to low pressure applications where the pressure loss per unit length did not surpass approximately 16.3 Pa/m (2 in. water/100 ft). The use of flexible ducts for applications exceeding this limit is not recommended by flexible duct manufacturers.

ASHRAE Research Project RP-1333, Final Report.

G. The 1995 ACCA data does not include compressibility factors. The 2009 ACCA Manual D discusses the effect of compression, but does not have friction charts for various degrees of flexible duct compression.

H. In field studies, observed pressure drops in flexible duct systems are often higher than expected based on design calculations. This is because the flexible ducts are not installed in a fully stretched condition; they are often found to be compressed to varying degrees. This common problem leads to excessive pressure drop in many systems with associated increases in fan power, flow reduction, and noise. For design purposes and for diagnostics of duct systems, friction charts and friction loss equations and coefficients from various references are used. For fully stretched flexible duct, in particular, ASHRAE Fundamentals (ASHRAE 2001a) and ACCA Manual D (ACCA 1995) provide pressure drop calculations using such charts, equations and coefficients.
Compression Effects on Pressure Loss in Flexible HVAC Ducts Published in ASHRAE HVAC&R Research Journal, Vol. 10, No. 3, July

3. Unknowns:

A. Nylon Straps
Sherman (2005) showed that some nonmetallic flexible duct core-to-collar clamps have unacceptable high-temperature performance. Most of the standard nylon straps failed before the two-year test period was completed.
B. Rodents
Chewing through duct work is that acceptable?
C. UV light
Has been shown and created failures in flex duct.
D. Concealed spaces?
How long should a duct last inside a concealed space?
E. Duct cleaning
The ADC and every manufacture I have researched has said not to clean flex duct you should replace it. Is it feasible to put flex duct in concealed space?

Bibliography:
A – Chris Van Rite, M&M Manufacturing Co., Airflow Is Critical To HVAC System Performance.
B - Abushakra, et al, Lawrence Berkeley National Laboratory, Compression Effects on Pressure Loss in Flexible HVAC Ducts (2002).
C - ASHRAE, HVAC Flexible Duct Pressure Loss Measurements, ASHRAE RP-1333, Final Report (March 2011).
D - Allison A. Bailes III, Ph.D., Green Building Advisor, Should flexible duct Be Banned? (Nov. 28, 2012).
E - U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Guidelines for Environmental Infection Control in Health-Care Facilities Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC), (2003).
F - ASHRAE. 2010. Standard 62.1-2010: Ventilation for Acceptable Indoor Air Quality, Section 5.4.1 – Resistance to Mold Growth.
G - Air Diffusion Council, Flexible Duct Performance and Installation Standards (5th Edition).
H - ASHRAE. HVAC Design Manual for Hospitals and Clinics (2nd Edition).
I - ASHRAE, Fundamentals Handbook (2009).
J - ASHRAE, Fundamentals Handbook (2013).
K - Energy Design Resources, Design Brief, Integrated Design for Small Commercial HVAC.
L - PDHonline Course, M246 (4PDH) HVAC Ducting - Principles and Fundamentals (2012).
M - Dept. of Defense, United Facilities Criteria (2-4.1.14), UFC-3-400-10N (July 2006).
N - New Hampshire, Bureau of Public Works Design & Construction, Design Guidelines, § 700(C)(3) (June 2013).
O - . Northern Arizona University Technical Standards Division, Design Guidelines, Division 23, § 23-31-13 (2014).
P - University of Illinois, Facilities Standards, Division 23, Section 23-31-00, subd. 2.2(A)(8) (2013).
Q - City of Fort Worth, Municipal Code, Section 7-42.
R - Cal. Code Regs., tit. 24, Part 4, § 602.3.1.
S - Inspectors Journal, Construction Code Communicator, Flexible Air Ducts and Flexible Air Connectors.
T - IAPMO, UMC Report on Comments (2014).

Cost Impact: Will not increase the cost of construction
People will claim this will increase building cost. Not true, if flex is installed as per the ADC it actually will decrease the instalation cost of HVAC systems. However when flex is installed improperly it will cost less to install a HVAC system. That is typical practice today do not follow the code or guidelines.
Understand the code today says how to intal flex duct and not one study has found a place where flex is installed properly.

M 85-15 : 603.5-HAMILTON4984

M 86-15

603.5

Proponent: John Hamilton, representing TABB (jhamilton@tabbcertified.org)

2015 International Mechanical Code

Revise as follows:

603.5 Nonmetallic ducts. Nonmetallic ducts shall be constructed with Class 0 or Class 1 duct material and shall comply with UL 181. Fibrous duct construction shall conform to the SMACNA *Fibrous Glass Duct Construction Standards* or NAIMA *Fibrous Glass Duct Construction Standards.* The air temperature within nonmetallic ducts shall not exceed 250°F (121°C). <u>Flexible air duct shall not be installed upstream of a variable air volume box.</u>

Reason: Follow ASHRAE design guide

Bibliography: ASHRAE design guide, Chapter 3 page 24 reference why flex should not be used before the VAV box.

Cost Impact: Will not increase the cost of construction
Installing flex vs metal duct has no cost difference when installing both products as per current codes.

M 86-15 : 603.5-HAMILTON5026

M 87-15

603.5, 603.6.2.1, 603.6.2.2, 603.6.3, 603.6.4

Proponent: John Hamilton, representing TABB (jhamilton@tabbcertified.org)

2015 International Mechanical Code

Revise as follows:

603.5 Nonmetallic ducts. Nonmetallic ducts shall be constructed with Class 0 or Class 1 duct material and shall comply with <u>all</u> UL 181 <u>duct tests</u>. Fibrous duct construction shall conform to the SMACNA *Fibrous Glass Duct Construction Standards* or NAIMA *Fibrous Glass Duct Construction Standards.* The air temperature within nonmetallic ducts shall not exceed 250°F (121°C).

603.6 Flexible air ducts and flexible air connectors. Flexible air ducts, both metallic and nonmetallic, shall comply with Sections 603.6.1, 603.6.1.1, 603.6.3 and 603.6.4. Flexible air connectors, both metallic and nonmetallic, shall comply with Sections 603.6.2 through 603.6.4.

Delete without substitution:

~~**603.6.2.1 Connector length.** Flexible air connectors shall be limited in length to 14 feet (4267 mm).~~

~~**603.6.2.2 Connector penetration limitations.** Flexible air connectors shall not pass through any wall, floor or ceiling.~~

Revise as follows:

603.6.3 Air temperature. The design temperature of air to be conveyed in flexible air ducts ~~and flexible air connectors~~ shall be less than 250°F (121°C).

603.6.4 Flexible air duct and air connector clearance. Flexible air ducts ~~and air connectors~~ shall be installed with a minimum *clearance* to an *appliance* as specified in the *appliance* manufacturer's installation instructions.

Reason: Follow ASHRAE Design guide

Bibliography: ASHRAE Design guide chapter 3 page 24

Cost Impact: Will not increase the cost of construction
Air connectors and flexable air ducts have the same cost

M 87-15 : 603.5-HAMILTON5028

M 88-15

603.5, 603.8.3

Proponent: Jay Peters, Codes and Standards International, representing AQC Industries (peters.jay@me.com)

2015 International Mechanical Code

Revise as follows:

603.5 Nonmetallic ducts. Nonmetallic ducts, other than plastic ducts, shall be constructed with Class 0 or Class 1 duct material and shall comply with UL 181. Fibrous duct construction shall conform to the SMACNA *Fibrous Glass Duct Construction Standards* or NAIMA *Fibrous Glass Duct Construction Standards.* The air temperature within nonmetallic ducts, other than plastic ducts, shall not exceed 250°F (121°C). Plastic ducts shall comply with section 603.8.3.

603.8.3 Plastic ducts and fittings. Plastic ducts and fittings shall be constructed of PVC or PE having a minimum pipe stiffness of 8 psi (55 kPa) at 5-percent deflection when tested in accordance with ASTM D 2412~~. Plastic duct fittings shall be constructed of either PVC or high-density polyethylene~~. Plastic duct and fittings shall be utilized in underground installations only. The maximum design temperature for systems utilizing plastic duct and fittings shall be 150°F (66°C). Plastic duct systems for underground applications shall be listed for such use.

Reason: Plastic duct systems are currently only allowed for use in underground locations per section 603.8.3. There has been some confusion regarding the application of this section in regard to the need for plastic ducts to comply with the flame and smoke requirements of UL 181. This proposal would bring needed clarity. Recently in 2014, UL has issued an interpretation (attached) stating that ***"The scope and original intent of UL 181, Factory Made Air Ducts and Air Connectors does not specifically cover factory made air ducts intended for installation underground. The requirements within UL 181 were not developed with the intent of addressing construction, performance, or other requirements for underground duct applications".*** Within the letter, UL recognizes that there are specific requirements for underground ducts in the marketplace, namely ICC ES PMG LC1014.

Because there was not a standard specific to underground ducts, ICC ES PMG created *PMG Listing Criteria for Underground Plastic Ducts (LC1014)* to address underground ducts specifically. The LC requires testing to meet related standards, IMC code provisions as well as specific provisions of UL 181 for underground ducts and exempts the flame and smoke provisions when installed underground. Multiple manufacturers of PVC and PE have tested and are listed to meet the requirments of ICC's LC, multiple standards as well as their intended application in the IMC and UMC,

Bibliography: [PMG Listing Criteria for Underground Plastic Ducts] [LC1014 Reference EG290] [ICC] [2008 Revised 2014]

Cost Impact: Will not increase the cost of construction
By clarifying the proper criteria required to test, list and install plastic ducts underground, cost of construction could potentially be reduced.

M 88-15 : 603.5-PETERS5127

M 89-15

603.5.2 (New), CHAPTER 15

Proponent: Eli Howard, SMACNA, representing SMACNA (ehoward@smacna.org)

2015 International Mechanical Code

Add new text as follows:

603.5.2 Phenolic ducts. Nonmetallic phenolic ducts shall be constructed in accordance with the SMACNA Phenolic Duct Construction Standards.

Add new standard(s) as follows:
SMACNA Phenolic Duct Construction Standard 1st edition 2015

Reason: Phenolic duct is a new air distibution material not presently covered in the IMC for commercial systems. The inclusion of the SMACNA Phenolic Duct Construction Standards will address this issue.

Bibliography: SMACNA Phenolic Duct Construction Standard 1st edition 2015.

Cost Impact: Will not increase the cost of construction
The standard provides means/methods for phenolic duct construction.

Analysis: A review of the standard proposed for inclusion in the code, SMACNA Pheniloc Duct Construction Standards, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 89-15 : 603.5.2 (New)-HOWARD5506

M 90-15

603.6

Proponent: John Hamilton, TABB, representing TABB (jhamilton@tabbcertified.org)

2015 International Mechanical Code

Revise as follows:

603.6 Flexible air ducts and flexible air connectors. Flexible air ducts, both metallic and nonmetallic, shall comply with Sections 603.6.1, 603.6.1.1, 603.6.3 and 603.6.4. Flexible air connectors, both metallic and nonmetallic, shall comply with Sections 603.6.2 through 603.6.4. <u>FlexiIble air ducts shall not be installed in inaccessIble spaces or wall cavities.</u>

Reason: Allowing the use of flex duct in inaccesable areas of a building should not be allowed becasue it is not cleanable.
If any type of event happens such as high humidity, flood, hazordous product in the air. Flex duct can not be cleaned. It is a temporary duct compared to metal ducts. Future cost to replace flex in inaccessable places is a huge burden many building owners face today.

It should not be allowed in non-accesable areas because of documents rodent problems chewing holes in the flex.

When flex is installed in conceld places using nylon straps the straps are failing and allowing the HVAC air to escape into the wall cavity. This is being found with the use of infrared cameras.

Bibliography: The Air Diffusion Coucil

Flexible Duct Performance
& Installation Standards
Fifth Edition

Cost Impact: Will not increase the cost of construction
When flex is installed as per the ADC manual it is more expensive to install than sheet metal ducts.

M 90-15 : 603.6-HAMILTON4927

M 91-15

603.6.1

Proponent: John Hamilton, representing TABB (jhamilton@tabbcertified.org)

2015 International Mechanical Code

Add new text as follows:

603.6.1 Flexible air ducts. Flexible air ducts, both metallic and nonmetallic, shall be tested in accordance with UL 181. Such ducts shall be *listed* and *labeled* as Class 0 or Class 1 flexible air ducts and shall be installed in accordance with Section 304.1. Screws shall not penetrate the inside liner of flexiible air ducts.

Reason: The Air Diffusion Council (ADC) does not allow screws to penatrate the inside liner of flex duct. I can not find one manufacture who allows screws to penatrate the inside liner of flex duct.

Bibliography: From the FAQ section of the ADC:
Can screws be used to fasten Flexible Air Duct core?
ADC does not recommend the use of metal screws for making connections and splices with non-metallic flexible air ducts. Procedures and materials (tapes, mastic, fasteners) for connecting and splicing non-metallic flexible ducts are evaluated using UL181B Standard which does not address the use of metal screws. Potentially, metal screws can damage the components in some non-metallic flexible ducts.

ADC does recommend the use of sheet metal screws for making connections and splices with Metallic flexible air ducts.

http://www.flexibleduct.org/ADC_FAQs.asp

Cost Impact: Will not increase the cost of construction
Not allowing screws to penatrate the inside liner of flex duct would decrease construction cost because less labor would be used.

M 91-15 : 603.6.1-HAMILTON4667

M 92-15

603.6.1.1

Proponent: John Hamilton, representing TABB (jhamilton@tabbcertified.org)

2015 International Mechanical Code

Delete without substitution:

~~**603.6.1.1 Duct length.** Flexible air ducts shall not be limited in length.~~

Reason: Flexiable air ducts are limited in length by the ADC and manufactures. This code leads to improper instalation practices. Example: Installing contrator says I use a whole box 25' of flex to make a 5 foot connection, bucause it is cheaper to install it this way. The way this code reads the installler can do this because the code says flex duct length shall not be limited. That language makes the ADC and manufactures instalation guides useless. Operation cost will go down

Bibliography: ASHRAE RP-1333 on flex duct

Cost Impact: Will not increase the cost of construction
Operation cost will go down when less flex and proper instalation is done.

M 92-15 : 603.6.1.1-HAMILTON3425

M 93-15

603.8, 603.8.3

Proponent: Charles Stock, Spunstrand Inc., representing Spunstrand Inc.

2015 International Mechanical Code

Revise as follows:

603.8 Underground ducts. Ducts shall be *approved* for underground installation. Metallic ducts not having an *approved* protective coating shall be completely encased in not less than 2 inches (51 mm) of concrete. <u>Nonmetallic and plastic ducts shall comply with UL 181.</u>

603.8.3 Plastic ducts and fittings. Plastic ducts shall be constructed <u>only</u> of PVC having a minimum pipe stiffness of 8 psi (55 kPa) at 5-percent deflection when tested in accordance with ASTM D 2412. Plastic duct fittings shall be constructed of either PVC or high-density polyethylene. Plastic duct and fittings shall be utilized in underground installations only <u>and all exposed surfaces shall have a Class 0 or Class 1 flame and smoke rating in accordance with UL 181</u>. The maximum design temperature for systems utilizing plastic duct and fittings shall be 150°F (66°C).

Reason: The further clarification in section 603.8 and the addition of section 603.8.3 are mainly intended to insure that the use of improper materials does not slip through the code cracks. This should eliminate the use of highly flammable and excessive smoke-generating materials in an HVAC duct system regardless of its installation location above or below ground. All duct and fittings used for HVAC systems in the Uniform Mechanical Code and the International Mechanical Code call for the interior of the duct and plenums to be rated Class 0 or Class 1 per UL 181, which is a flame spread of 25 and a smoke development of 50 or less. These standards are used for ducts and plenums for both safety and liability concerns which should apply to underground duct and fittings as well. The indication that PVC or HDPE, which do not meet Class 1 or Class 0 per UL 181, can be used solely because it is buried seems to drastically contradict the other code sections. Duct systems, both above and below ground, should comply with applicable UL 181 standards. It should also be noted that the maximum temperature rating for PVC and HDPE is usually 140deg F. Limit switches on residential and commercial air handlers are normally set at 160deg F and air temperatures in the ductwork can often run up to 140deg F. If a $25 limit switch fails, the temperatures can then easily exceed 140deg F. It is inappropriate to install a material in a duct system in which the air exceeds the ducts maximum temperature rating with no safety factor.

Cost Impact: Will not increase the cost of construction
Any products that are not completely code compliant, meeting UL 181 and ASTM C-518, were not and should not be considered in determining the cost impact of these proposed changes. With that said, there would be no cost impact as there are currently three U.S. manufacturers providing code approved product with numerous others who could if they are willing to enter the market.

M 93-15 : 603.8-STOCK5654

M 94-15

603.8.2

Proponent: Jay Peters, Codes and Standards International, representing AQC Industries (peters.jay@me.com)

2015 International Mechanical Code

Revise as follows:

603.8.2 Sealing. Ducts shall be sealed and secured and then tested with air to a pressure of not less than 2-inches water column (498 Pa) for not less than 5 minutes. Testing shall be performed in the presence of the code official and prior to ~~pouring the~~ encasement in concrete ~~encasement~~or direct burial.

Reason: All duct leakage, whether in the envelope, in the attic or underground are of concern, but undergroound ducts are more likely to casue serious issues due to their location. Underground duct systems have a propensity to leak which causes air exfiltration (loss) and also duct infiltration (gain) of contaminants into the duct system and building. The leakage, in-and-out, not only causees poor air quality, duct system degradation, sick building occupants, mold, mildew and even radon contamination, but also major energy waste. Some estimate that after the combined infiltration from leaks in walls/floors/ceilings, the duct system is the next largest casue of infiltration or building leakage. Underground return ducts are of particular concern due to their intake of impurities due to the negative pressure within the system. All ducts are required to be sealed before they are encased in concrete or placed underground but the code does not designate any sort of test to prove the airtightness, and more importantly, watertightness of underground duct systems. Plastic ducts are typically not subject to concrete encasement but should also be tested for air and water tightness before buried directly into the ground.

Cost Impact: Will increase the cost of construction
This may have a minimal increase in initial cost, but could have potential savings in the long run for buildings utilizing underground duct systems.

M 94-15 : 603.8.2-PETERS5141

M 95-15

603.8.3

Proponent: Terrence Cahill, Crawford Company, representing Crawford Company (tcahill@crawford-company.com)

2015 International Mechanical Code

Revise as follows:

603.8.3 Plastic ducts and fittings. Plastic ducts shall be constructed of ~~PVC~~a Class 0 or Class 1 duct material having a flame spread index of 25 or less and a smoke developement index of 50 or less, when tested in accordance with ASTM E-84 or UL 723. Ducts shall have a minimum pipe stiffness of 8 psi (55 kPa) at 5-percent deflection when tested in accordance with ASTM D 2412. ~~Plastic duct fittings shall be constructed of either PVC or high-density polyethylene.~~ Plastic duct and fittings shall be ~~utilized in~~listed and labeled for underground installations ~~only~~. The maximum design temperature for systems utilizing plastic duct and fittings shall be 150°F (66°C).

Reason: Section 603.8.3 should be updated to include all listed and labeled plastic duct options. Of primary concern is the lack of requirement for a NFPA Class 1 duct material (less than 25 Flame spread, and less than 50 Smoke development) for underground HVAC duct. For Health and Safety reasons we feel that this should be a minimum requirement for all HVAC duct.
Throughout the IMC there is a uniformity that requires Class 0 or Class1, listed and labeled material for nonmetallic duct components. Underground nonmetallic duct, Section 603.8.3 should not be an exception. The following sections are examples of the Class 0 or Class1 requirements:

-510.8 Hazardous Exhaust - Duct construction *1 (see attachment File A)

-602.2.1 Materials within plenums *2

-603.5 Nonmetallic ducts *3

-603.6.2 Flexible air connectors *4

-604.3 Coverings and Linings *5

The Uniform Mechanical Code (UMC) -2012 is also clear on requirements for Class 0 or Class 1 Duct Materials. Reference the following sections:

- 506.1 Product Conveying Ducts - Materials *6

-602.2 Combustibles within Ducts or Plenums *7.

The current IMC code section 603.8.3 limits underground HVAC duct materials to PVC or HDPE, neither of which are a Class 0 or Class 1 duct material. When this code section was written these materials may have been the best choice for corrosion resistant underground duct. There are new duct products that are ICC-ES tested and listed with a PMG listing for underground duct. One of the principle ICC-ES requirements for underground nonmetallic duct is that it be ASTM E84 Class 0 or Class1 material. This code change will acknowledge these new approved materials and set standards that are consistent and uniform as new duct materials are introduced.

After the 9/11disaster FEMA, AWWA, NYPD and others put out independent reports on what improvements could be to the building codes in order to reduce the number of casualties in future disasters. These organizations independently concurred that in the event of catastrophic episode, all ductwork within a building should have the capability of being used for exhaust duct. By requiring Class 0 or Class 1 duct material in section 603.8.3 this recommendation is ensured as these types of duct materials will not readily melt and collapse in fire situations. Both PVC and HDPE will readily melt and HDPE specifically has been shown to easily burn, even in underground applications.

This proposed Code change will ensure reliability, safety and uniformity with all nonmetallic duct applications.

Cost Impact: Will not increase the cost of construction
The proposed code change will have little if any effect on the cost of an installed underground duct systems. Even though the raw material cost of the called out PVC and HDPE are less than the resins used for fiberglass reinforced plastic, the installation requirements tend to even out the installed finished project cost. As an example, corrosion resistant high strength filament wound fiberglass duct does not require concrete encasement as metallic and some nonmetallic duct materials do.
As HVAC design engineers are trending more and more towards designing buildings utilizing Displacement Ventilation systems, larger diameter underground ducts are required. Nonmetallic, code approved duct material options already exist that are more cost effective for large diameter duct than the section 603.8.3 mentioned PVC or HDPE. The proposed code change to Class 0 or Class1 duct material will encourage the development of even more cost effective duct materials that also incorporate this life saving requirement. The real issue is health and safety and that is hard to put a price on.

December 2014 Quoted List Pricing

Size	Price / Foot	90dg Elbow
24"PVC	89.95	1,077.00
24" HDPE	83.88	617.00
24" FRP	35.00	398.00
30" PVC	150.00	1,280.00
30" HDPE	105.62	842.00

30" FRP	45.00	573.00
36" PVC	198.00	1,4130
36"HDPE	135.75	1,083.00
36" FRP	52.00	687.00

PVC pricing from Harrison Machine and Plastic Corporation -see attachment file * B-1 though B-5

HDPE pricing from Blue Duct - see attachment *B -6

FRP pricing from UnderDuct - see attachment * B -7

M 95-15 : 603.8.3-CAHILL3564

M 96-15

603.9

Proponent: Donald Surrena, National Association of Home Builders, representing National Association of Home Builders (dsurrena@nahb.org)

2015 International Mechanical Code

Revise as follows:

603.9 Joints, seams and connections. All longitudinal and transverse joints, seams and connections in metallic and nonmetallic ducts shall be constructed as specified in SMACNA *HVAC Duct Construction Standards—Metal and Flexible* and NAIMA *Fibrous Glass Duct Construction Standards*. All joints, longitudinal and transverse seams and connections in ductwork shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems, liquid sealants or tapes. Tapes and mastics used to seal fibrous glass ductwork shall be listed and labeled in accordance with UL 181A and shall be marked "181 A-P" for pressure-sensitive tape, "181 A-M" for mastic or "181 A-H" for heat-sensitive tape. Tapes and mastics used to seal metallic and flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked "181 B-FX" for pressure-sensitive tape or "181 B-M" for mastic. Duct connections to flanges of air distribution system equipment shall be sealed and mechanically fastened. Mechanical fasteners for use with flexible nonmetallic air ducts shall comply with UL 181B and shall be marked "181 B-C." Closure systems used to seal all ductwork shall be installed in accordance with the manufacturer's instructions.

> **Exception:** For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for continuously welded joints and seams and locking-type joints and seams of other than the snap-lock and buttonlock types<u> for ducts that are located outside of conditioned spaces</u>.

Reason: This proposal will reduce construction cost and still reduce energy loss that would occur due to duct leakage outside conditioned space. Low pressure longitudinal seam duct leakage is very limited and the small amount of leakage within conditioned space is still useful energy.

Bibliography: Estimated Costs of the 2015 IRC Codes Changes, Home Innovation Research Labs, Upper Marlboro, MD, December 2014,Report Reference No: MAT 1, Page 33

Cost Impact: Will not increase the cost of construction
Cost decrease of up to $314 for an average house according to research conducted by Home Innovation Research Labs.

M 96-15 : 603.9-SURRENA5017

M 97-15

603.5, 603.6, 603.6.1.1, 603.6.2.1, 603.5 (New), 603.9, 603.10, 603.10.1 (New), Chapter 15

Proponent: Ralph Koerber, ATCO Rubber Products, Inc, representing Air Diffusion Council (ADC) (rkoerber@atcoflex.com)

2015 International Mechanical Code

Revise as follows:

603.5 Nonmetallic ducts. Nonmetallic ducts shall be constructed with Class 0 or Class 1 duct material and shall comply with UL 181. Fibrous duct construction shall conform to the SMACNA *Fibrous Glass Duct Construction Standards* or NAIMA *Fibrous Glass Duct Construction Standards.* Flexible air ducts and air connectors shall comply with the ADC *Flexible Duct Performance & Installation Standards.* The air temperature within nonmetallic ducts shall not exceed 250°F (121°C).

603.6 Flexible air ducts and flexible air connectors. Flexible air ducts, both metallic and nonmetallic, shall comply with Sections 603.6.1, 603.6.1.1, 603.6.3, 603.6.4 and ~~603.6.4~~603.6.5. Flexible air connectors, both metallic and nonmetallic, shall comply with Sections 603.6.2 through ~~603.6.4~~603.6.5.

603.6.1.1 Duct length. Flexible air ducts shall not be limited in length. Flexible air ducts shall be installed fully extended with minimal longitudinal compression. The provision of excess duct length for the purpose of possible future relocation of air terminal devices shall be prohibited.

603.6.2.1 Connector length. Flexible air connectors and multiple lengths of flexible air connector that have been joined together shall be limited in length to 14 feet (4267 mm). Flexible air connectors shall be installed fully extended with minimal longitudinal compression.

Add new text as follows:

603.5 Flexible air duct and air connector bends. Where flexible air ducts and air connectors are used in place of metallic elbows, the bend radius shall be greater than or equal to one duct diameter.

Revise as follows:

603.9 Joints, seams and connections. All longitudinal and transverse joints, seams and connections in metallic and nonmetallic ducts shall be constructed as specified in SMACNA *HVAC Duct Construction Standards—Metal and Flexible*, ~~and~~ NAIMA *Fibrous Glass Duct Construction Standards*, or ADC *Flexible Duct Performance & Installation Standards*. All joints, longitudinal and transverse seams and connections in ductwork shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems, liquid sealants or tapes. Tapes and mastics used to seal fibrous glass ductwork shall be listed and labeled in accordance with UL 181A and shall be marked "181 A-P" for pressure-sensitive tape, "181 A-M" for mastic or "181 A-H" for heat-sensitive tape. Tapes and mastics used to seal metallic and flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked "181 B-FX" for pressure-sensitive tape or "181 B-M" for mastic. Fittings used in combination with flexible air ducts and air connectors shall have a flange length of not less than 2 inches (51 mm) for connection of the flexible duct. Flexible duct and air connector inner cores shall be installed at not less than 1 inch (25.4 mm) onto the fitting prior to taping and application of the mechanical fastener. Mastic shall be applied in accordance with the mastic manufacturer's instructions prior to pulling the inner core onto the fitting and applying the mechanical fastener. Duct connections to flanges of air distribution system equipment shall be sealed and mechanically fastened. ~~Mechanical~~Non-metallic mechanical fasteners for use with flexible ~~nonmetallic~~air ducts and air ~~ducts~~connectors shall comply with UL 181B and shall be marked "181 B-C." Where non-metallic mechanical fasteners are used, the fittings shall be beaded. Insulation and outer vapor barriers of flexible ducts shall be sealed to the fitting using 2 wraps of approved tape, a mechanical fastener or both. Closure systems used to seal ~~all~~ ductwork shall be installed in accordance with the manufacturer's instructions.

> **Exception:** For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for continuously welded joints and seams and locking-type joints and seams of other than the snap-lock and buttonlock types.

603.10 Supports. Ducts shall be supported in accordance with SMACNA *HVAC Duct Construction Standards—Metal and Flexible.* ~~Flexible and other factory-made~~Factory-made ducts shall be supported in accordance with the manufacturer's instructions.

Add new text as follows:

603.10.1 Flexible Duct Supports Flexible air ducts and air connectors shall be supported at intervals not to exceed 4 feet (1219mm) where installed horizontally and at intervals not to exeed 6 feet (1829mm) where installed as vertical risers and shall be in accordance with the manufacturer's instructions and the ADC *Flexible Duct Performance & Installation Standards*. Supports shall be not less than 1.5 inch (38mm) in width. Sag between supports shall not exceed 1/2 inch (13mm) for each foot (309 mm) of duct between supports.

Add new standard(s) as follows:

Air Diffusion Council
1901 N. Roselle Road, Suite 800
Schaumburg, IL 60195

ADC *Flexible Duct Performance & Installation Standards* (5th Edition)

Reason: The changes and revisions included in this proposal seek to clarify important aspects of proper flexible duct installation.
All of the language, to my knowledge, is currently included either within the manufacturer's installation instructions supplied with flexible ducts that are listed and labeled to the Ul181 Standard, the UL181B Standard for Closure Systems, and within the Air Diffusion Council Flexible Duct Performance & Installation Standards.

Although the code language currently requires that products be installed per their listing and per the manufacturer's installation instructions, this added text within the code sections should help clarify important aspects of proper flexible duct installations.

Cost Impact: Will not increase the cost of construction
Since the intent of the proposal is to clarify existing requirements (per the manufacturer's installation instructions currently required), there should be no additional cost impact if these revisions are included.

Analysis: A review of the standard proposed for inclusion in the code, ADC Flexible Duct Performance & Installation Standards, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 97-15 : 603.10.1 (New)-KOERBER5134

M 98-15

604.3, 604.4

Proponent: Mike Fischer, Kellen Company, representing The Center for the Polyurethanes Industry of the American Chemistry Council (mfischer@kellencompany.com)

2015 International Mechanical Code

Revise as follows:

604.3 Coverings and linings. Coverings and linings, including adhesives where used, shall have a flame spread index not more than 25 and a smoke-developed index not more than 50, when tested in accordance with ASTM E 84 or UL 723, using the specimen preparation and mounting procedures of ASTM E 2231. Duct coverings and linings shall not flame, glow, smolder or smoke when tested in accordance with ASTM C 411 at the temperature to which they are exposed in service. The test temperature shall not fall below 250°F (121°C). Coverings and linings shall be listed and labeled.

Exception: Polyurethane foam insulation that is spray applied to the exterior of ducts in attics and crawlspaces shall have a smoke-developed index not greater than 450, subject to all of the following requirements:

1. The foam plastic insulation complies with the requirements of Section 2603 of the *International Building Code.*
2. The foam plastic insulation is protected against ignition in accordance with the requirements of Section 2603.4.1.6 of the *International Building Code.*

Delete without substitution:

~~**604.4 Foam plastic insulation.** Foam plastic used as duct coverings and linings shall conform to the requirements of Section 604.~~

Reason: The proposal adds an exception allowing a greater smoke-developed index for some applications of foam plastic insulation on the exterior surfaces of ducts in attics or crawlspaces under certain specified conditions. The exception applies only to foam insulation meeting the requirements of IBC Section 2603 and the ignition barrier requirements in IBC Section 2603.4.1.6. This additional option is consistent with the options in Section M1601.3 of the IRC.
Additionally the proposal removes a circular reference in Section 604.4.

Cost Impact: Will not increase the cost of construction
the proposal clarifies existing requirements and adds an option consistent with the IRC; it adds no additional mandatory provisions.

M 98-15 : 604.3-FISCHER5593

M 99-15

604.7, 202 (New), Chapter 15

Proponent: Lamont Millspaugh, Reflectix, Inc., representing Reflective Insulation Manufacturers Association International (monty.millspaugh@reflectixinc.com)

2015 International Mechanical Code

Revise as follows:

604.7 Identification. External duct insulation, except spray polyurethane foam, and factory-insulated flexible duct shall be legibly printed or identified at intervals not greater than 36 inches (914 mm) with the name of the manufacturer, the thermal resistance *R*-value at the specified installed thickness and the flame spread and smoke-developed indexes of the composite materials. ~~Duct~~<u>For other than reflective duct insulation, duct</u> insulation product *R*-values shall be based on insulation only, excluding air films, vapor retarders or other duct components, and shall be based on tested *C*-values at 75°F (24°C) mean temperature at the installed thickness, in accordance with recognized industry procedures. The <u>R-value for external reflective duct insulation shall be determined in accordance with ASTM C1668 and the installed thickness shall include the enclosed air spaces.The </u>installed thickness of duct insulation used to determine its *R*-value shall be determined as follows:

1. For duct board, duct liner and factory-made rigid ducts not normally subjected to compression, the nominal insulation thickness shall be used.
2. For duct wrap, the installed thickness shall be assumed to be 75 percent (25 percent compression) of nominal thickness.
3. For factory-made flexible air ducts, the installed thickness shall be determined by dividing the difference between the actual outside diameter and nominal inside diameter by two.
4. For spray polyurethane foam, the aged *R*-value per inch, measured in accordance with recognized industry standards, shall be provided to the customer in writing at the time of foam application.

Add new definition as follows:

SECTION 202 DEFINITIONS

<u>**REFLECTIVE DUCT INSULATION**</u> <u>A thermal insulation assembly consisting of one or more surfaces that have an emittance of 0.1 or less and that bound an enclosed air space or spaces.</u>

Add new standard(s) as follows:
<u>ASTM C1668-12 Standard Specification for Externally Applied Reflective Insulation Systems on Rigid Duct in Heating, Ventilation, and Air Conditioning (HVAC) Systems</u>

Reason: The purpose of this proposal is to provide clear and specific requirements for reflective duct insulation. This language improves the code by providing installers and building officials with a clear path on the specifications that pertain to this product, as well as adding the appropriate definition and an ASTM standard. The same definition and similar language for reflective duct insulation was approved into the 2015 IRC Section M 1601.3. Reflective duct insulation is a well-established type of material/system and it has an ASTM standard specification, namely ASTM C 1668 Standard Specification for Externally Applied Reflective Insulation Systems on Rigid Duct in Heating, Ventilation, and Air Conditioning (HVAC) Systems. It has been in the market for over 10 years and has nationwide distribution and installation.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction. The proposal only clarifies the requirements for a type of insulation material that is currenly not properly regulated by the code. It incorporates standard industry practice not presently reflected in the code, but does not make this type of insulation mandatory.

Analysis: A review of the standard proposed for inclusion in the code, ASTM C1668, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 99-15 : 604.7-MILLSPAUGH4868

M 100-15

604.11

Proponent: Mike Fischer, Kellen Company, representing the Center for the Polyurethanes Industry of the American Chemistry Council (mfischer@kellencompany.com)

2015 International Mechanical Code

Revise as follows:

604.11 Vapor retarders. Where ducts used for cooling are externally insulated, the insulation shall be covered with a vapor retarder having a maximum permeance of 0.05 perm [2.87 ng/(Pa • s • m^2)] or aluminum foil having a minimum thickness of 2 mils (0.051 mm). Insulations having a permeance of 0.05 perm [2.87 ng/(Pa • s • m^2)] or less shall not be required to be covered. All joints and seams shall be sealed to maintain the continuity of the vapor retarder.

> <u>**Exception:** A vapor retarder is not required for spray polyurethane foam insulation having a water vapor permeance of not greater than of 3 perm per inch [1722 ng/(s · m2 · Pa)] at the installed thickness.</u>

Reason: The proposal adds an option to the vapor retarder requirements for duct insulation of the IMC. The proposal is consistent with the vapor retarder requirements of M1601.4.6 of the 2015 IRC.

Cost Impact: Will not increase the cost of construction
The proposal adds options for the code; does not add any new mandatory requirements.

M 100-15 : 604.11-FISCHER5514

M 101-15

605.4 (New)

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Mechanical Code

Add new text as follows:

605.4 Bypass pathways Air handling equipment and HVAC equipment shall be designed and installed to limit the amount of airflow that bypasses the air filters and shall comply with the following:

1. Channels, racks and other filter retaining constructions that do not seal tightly to the filter frame by means of a friction fit shall be provided with a means to seal the filter frame to the filter retaining construction.
2. Where standard size filters are installed in banks of multiple filters, gaskets shall seal the gap between the frames of adjacent filters. As an alternative to gaskets, the frames of adjacent filters shall be compressed by means of spring elements that are built into the filter retaining construction.
3. Channels, racks and other filter retaining constructions shall be sealed to the duct or housing of the HVAC equipment served by the filters.
4. Filter access doors in ducts and HVAC equipment shall be designed to limit the amount of airflow that bypasses the filters.
5. Field or shop fabricated spacers shall not be installed for the purpose of replacing the intended size filter with a smaller size filter.
6. Gaskets and seals shall be provided with access for repair, maintenance and replacement.

Reason: The proposed text is taken from the 2015 IGCC.
This important fundamental requirement to prevent airflow from bypassing air filters should be a basic requirement in the IMC, not just in a high performance green building code.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because sealing and/or gaskets will be required beyond that which is normally provided in air handling systems.

M 101-15 : 802.2-SNYDER3269

M 102-15

805.7 (New)

Proponent: Gregg Achman, Hearth & Home Technologies, representing Hearth & Home Technologies (achmang@hearthnhome.com)

2015 International Mechanical Code

Add new text as follows:

805.7 Insulation shield Where factory-built chimneys pass through insulated assemblies, an insulation shield constructed of steel having a thickness of not less than 0.0187 inch (0.4712 mm) (No. 26 gage) shall be installed to provide clearance between the chimney and the insulation material. The clearance shall be not less than the clearance to combustibles specified by the chimney manufacturer's installation instructions. Where chimneys pass through attic space, the shield shall terminate not less than 2 inches (51 mm) above the insulation materials and shall be secured in place to prevent displacement. Insulation shields provided as part of a *listed* chimney system shall be installed in accordance with the manufacturer's instructions.

Reason: The code currently requires an insulation shield for vents (802.8) to ensure proper clearance to insulation so as not to cause a fire hazard, the code should also require insulation shields for factory-built and metal chimneys as they also require clearance to insulation and represents a fire hazard when one is not installed.

Cost Impact: Will not increase the cost of construction
There technically is no cost impact since the insulation shield should already be installed where needed to ensure a proper and safe installation.

M 102-15 : 805.7 (New)-ACHMAN4864

M 103-15

805.7 (New)

Proponent: Tom Stroud, representing Hearth, Patio & Barbecue Association (stroud@hpba.org)

2015 International Mechanical Code

Add new text as follows:

805.7 **Insulation shield.** Where masonry and factory-built chimneys pass through insulated assemblies, an insulation shield constructed of steel having a minimum thickness of 0.0187 inch (0.4712 mm) (No. 26 gage) shall be installed to provide clearance between the chimney and the insulation material. The clearance shall not be less than the clearance to combustibles specified by the chimney manufacturer's installation instructions. Where chimneys pass through attic space, the shield shall terminate not less than 2 inches (51 mm) above the insulation materials and shall be secured in place to prevent displacement. Insulation shields provided as part of a listed chimney system shall be installed in accordance with the manufacturer's installation instructions.

Reason: Insulation is currently often exceding the lengths of protective shields and it is necessary to make sure that insulation does not contact the chmney and change the safety of the chimney by not allowing free air around the vent.

Cost Impact: Will increase the cost of construction
Cost may increase slightly for longer vent protection.

M 103-15 : 805.7 (New)-STROUD5095

M 104-15

916.1, CHAPTER 15

Proponent: Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org)

2015 International Mechanical Code

Revise as follows:

916.1 General. Pool and spa heaters shall be installed in accordance with the manufacturer's instructions. Oil-fired pool and spa heaters shall be tested in accordance with UL 726. Electric pool and spa heaters shall be tested in accordance with UL 1261, UL 1563 or CSA C22.2 No. 218.1. Gas-fired pool heaters shall comply with ANSI Z21.56/CSA 4.7. Pool and spa heat pump water heaters shall comply with UL 1995, AHRI 1160, or CSA C22.2 No. 236.

Add new standard(s) as follows:

AHRI 1160 (I-P) -09 Performance rating of Heat Pump Pool Heaters

ANSI Z21.56a/CSA 4.7 -2013 Gas Fired Pool Heaters

CSA C22.2 No. 236-11 Cooling Equipment

CSA C22.2 No. 218.1-M89(R2011) Spas, Hot Tubs and Associated Equipment

UL 1563-2009 Standard for Electric Spas, Hot Tubs and Associated Equipment-with revisions through July 2012

Reason: This proposal is needed to ensure consistency with what standards are required for the various pool heaters in Section 316.2 and Table 316.2 of the International Swimming Pool & Spa Code. This same proposal has been submitted to Section M2006.1 of the IRC.

Bibliography: International Swimming Pool & Spa Code, Section 316.2 & Table 316.2

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction and ensures the applicable standards for the various pool heaters are provided within all the I-codes that address pool heaters.

Analysis: A review of the standard proposed for inclusion in the code, AHRI 1160 (I-P), ANSI Z21.56a/CSA 4.7, CSA C22.2 No. 236, CSA C22.2 No. 218.1, UL 1563, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 104-15 : 916.1-HATFIELD5749

M 105-15

929 (New), 929.1 (New)

Proponent: Mark Metzner, representing Self (markmetzner@shaw.ca); Muktha Tumkur (muktha.tumkur@csagroup.org)

2015 International Mechanical Code

Add new text as follows:

SECTION 929
GROUND SOURCE HEAT PUMP SYSTEMS

929.1 Design and installation of ground source heat pump systems. The design and installation of ground source heat pump systems shall conform to ANSI/CSA C448.

Reason: The CSA C448 is an ANSI designated bi-national consensus Standard for the design and installation of ground source heat pump systems. The Standard includes performance based criteria that provide a consistent application of requirements and best practices throughout the United States and Canada. This Standard will ensure that stakeholders in the ground source heat pump systems market sector will supply and receive heating / cooling systems that perform to design efficiency expectations and deliver tru, long-term value. This Standard has been developed by a bi-national Technical Committee which comprised of the industry's leaders and it provides a strong foundation for increased market penetration of this technology into the HVAC market.
The Standard harmonizes the differences between existing resources, simplifies referencing in regulations and contracts, incorporates the latest advancements, clarifies compliance using standards language, and provides credibility through an accredited neutral standards development process.

This Standard includes performance based minimum requirements for industrial, commercial, institutional and residential applications and addresses the following items related to ground source heat pump systems:

- equipment and material selection

- site survey - geological and hydrogeological

open and closed loop ground source heat pump system design / engineering

- direct expansion (DX) systems

- installation

- testing and verification

- documentation

- commissioning and decommissioning

The Standard will apply to all ground source heat pump systems using external building heat exchangers as a thermal source or sink for heating and cooling, with or without a supplementary heating or cooling source. External building heat exchangers that will be covered by this Standard include:

- ground heat exchangers - vertical and horizontal;

- open-loop systems - drilled well and surface water;

- submerged closed loop systems - fresh water and sea water;

- standing colum wells

This Standard applies to new and retrofit installations in industrial, commercial, institutional and residential applications and includes thermal energy storage systems.

The bi-national Committee consisted of representatives from the following industry associations:

- American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)

- Geothermal Exchange Organization (GEO)

- International Ground Source Heat Pump Association (IGSPHA)

- International Ground Source Heat Pump Association Canada (IGSPHA - Canada)

- National Ground Water Association (NGWA)

- Plastics Pipe Institute (PPI)

- Geothermal National & International Initiative (GEONII)

- Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI)

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of constructin of ground source heat pump systems.
Justification:

Currently, a US standard for the design and installation of ground source heat pump systems, similar to the C448, does not exist. The C448 is a system for the design and installation of ground source heat pump systems and it inlcudes requirements and best practices related to the installation of these systems. The systems would include pumps, pipe, grout etc., which most likely have manufacturing requirements and certification requirements within other standards, but that is not within our scope. The C448 is not a certification standard for any manufactured goods.

The C448 is generally a performance based standard which contains design requirements and best practices typically accepted and used currently by US and Canadian designers. Ground source heat pump systems that adhere to C448 will be properly designed and installed to the expectation of the owner or end user and as such will represent the minimum baseline performance of such systems. In most cases, alternate materials and installation methods are allowed. Also, in some cases, alternate innovative materials are allowed if reviewed and approved by an engineer.

M 105-15 : 929 (New)-METZNER5500

M 106-15

929 (New), 929.1 (New), 929.2 (New), 929.3 (New), 929.4 (New), 929.5 (New), 929.6 (New), 929.7 (New), CHAPTER 15

Proponent: Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

2015 International Mechanical Code

Add new text as follows:

SECTION 929
UNVENTED ALCOHOL FUEL-BURNING DECORATIVE APPLIANCES

929.1 General Unvented alcohol fuel-burning decorative appliances shall be listed and labeled in accordance with UL 1370 and shall be installed in accordance Section 304.1.

929.2 Prohibited use Unvented alcohol fuel-burning decorative appliances shall not be used as the sole source of comfort heating in a dwelling unit.

929.3 Input rating Unvented alcohol fuel-burning decorative appliances shall not have an input rating in excess of 0.25 gallons of fuel per hour (0.95 liters per hour).

929.4 Prohibited locations Unvented alcohol fuel-burning decorative appliances shall not be installed within occupancies in Groups E and I. The location of unvented alcohol fuel-burning decorative appliances shall comply with Section 303.

929.5 Fuel Unvented alcohol fuel-burning decorative appliances shall be used only with the specific fuel marked on the appliance nameplate.

929.6 Ventilation Fresh air infiltration into the room in which the unvented alcohol fuel-burning decorative appliance is installed shall be provided in accordance with the markings on the appliance and the manufacturer's instructions.

929.7 Installation in fireplaces An unvented alcohol fuel-burning decorative appliance shall not be installed in a factory-built fireplace or masonry fireplace except where specifically identified for such use in accordance with the appliance manufacturer's installation instructions.

Add new standard(s) as follows:
UL 1370-11, Unvented Alcohol Fuel Burning Decorative Appliances, with revisions through January, 2014

Reason: This proposal provides requirements for the installation of unvented, self-contained alcohol-fuel-burning appliances. These appliances are intended for decorative purposes, though there may be limited radiant and convection-air comfort heating. They are not intended to be utilized as a primary heat source. They are not provided with means for duct connection nor is there electrical/mechanical assist of heated air movement, such as a fan-blower assembly. The basic standard used to test and list these products is UL 1370, "Unvented Alcohol Fuel Burning Decorative Appliances", which is an ANSI consensus standard. There are five manufacturers of these appliances.

Denatured alcohol is formulated for the application. As part of the requirements of UL 1370, the appliances are tested for use only with the specific fuel marked on the appliance nameplate. These appliances are limited to a maximum input rate of 0.25 gallons of fuel per hour (0.95 liters per hour). Installation is intended to be in accordance with local codes, the manufacturer's installation instructions and any markings on the appliance. These appliances may be floor mounted or wall mounted. They may be installed in a solid-fuel-burning fireplace adapted for the purpose and, when so marked, in a factory-built solid-fuel-burning fireplace in accordance with the manufacturer's instructions. They are not intended for use in bathrooms or bedrooms nor for institutional use.

Cost Impact: Will not increase the cost of construction
This would permit the use of a new type of equipment to be installed.

Analysis: A review of the standard proposed for inclusion in the code, UL 1370, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 106-15 : 929 (New)-ROBERTS4108

M 107-15

202 (New), 929 (New), 929.1 (New), CHAPTER 15

Proponent: Amanda Hickman, InterCode Incorporated, representing Air Movement and Control Association International (amanda@intercodeinc.com)

2015 International Mechanical Code

Add new definition as follows:

SECTION 202 DEFINITIONS

HIGH VOLUME LOW SPEED FAN. A ceiling fan that circulates high volumes of air at low rotational speeds. Such fans are greater than 7 feet in diameter.

Add new text as follows:

SECTION 929
HIGH VOLUME LOW SPEED FANS

929.1 General. High volume low speed fans shall be tested in accordance with AMCA 230 and installed in accordance with the manufacturer's instructions.

Add new standard(s) as follows:
AMCA 230-CD1 Laboratory Methods of Testing Air Circulating Fans for Rating and Certification

Reason: The proposed language adds the appropriate test standard, installation instructions, and a definition for high volume low speed fans to the code.
The definition is based on the Department of Energy's current rule making activity on ceiling fans efficiency requirements. The test method AMCA 230 is the most current and most widely used method for fan rating and certification.

The formatting used in this proposal is consistent with the formatting in Section 928.1.

Cost Impact: Will not increase the cost of construction
This code change will not increase the cost of construction because high volume low speed fans are not being made mandatory.

Analysis: A review of the standard proposed for inclusion in the code, AMCA 230, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 107-15 : 929.1 (New)-HICKMAN4418

M 108-15

202 (New), 929 (New), 929.1 (New), CHAPTER 35

Proponent: Vickie Lovell, InterCode Incorporated, representing MacroAir (vickie@intercodeinc.com)

2015 International Mechanical Code

Add new definition as follows:

SECTION 202 DEFINITIONS

<u>**HIGH VOLUME LARGE DIAMETER FAN.** A low speed ceiling fan that circulates large volumes of air and that is greater than 7 feet (2134 mm) in diameter.</u>

Add new text as follows:

<u>**SECTION 929**</u>
<u>**HIGH VOLUME LARGE DIAMETER FANS**</u>

<u>**929.1 General.** High volume large diameter fans shall be tested in accordance with AMCA 230 and Installed in accordance with the manufacturer's instructions.</u>

Add new standard(s) as follows:
<u>AMCA 230-CD1 Laboratory Methods of Testing Air Circulating Fans for Rating and Certification.</u>

Reason: The proposed language adds the appropriate test standard, installation instructions, and a definition for high volume large diameter fans to the code.
The definition is based on the Department of Energy's current rule making activity on ceiling fans efficiency requirements. The test method AMCA 230 is the most current and most widely used method for fan rating and certification.

The formatting used in this proposal is consistent with the formatting in Section 928.1.

Cost Impact: Will not increase the cost of construction
The code change will not increase the cost of construction because high volume large diameter fans are not being made mandatory.

Analysis: A review of the standard proposed for inclusion in the code, AMCA 230 , with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 108-15 : 929.1 (New)-LOVELL4960

M 109-15

Part I:

929.1 (New)

Part II:

305.13 (New)

Part III:

M1602.3 (New)

THIS IS A 3 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IFGC COMMITTEE. PART III WILL BE HEARD BY THE IRC-MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Mechanical Code

Add new text as follows:

929.1 Air-handler enclosures. Where an air-handler, electric furnace or heat pump unit is installed in an enclosure with a fuel-fired appliance, the circulating air for the air-handler, furnace and heat pump shall be conveyed to the blower housing from outside of the enclosure by continuous air-tight ducts.

Part II

2015 International Fuel Gas Code

Add new text as follows:

305.13 Air handler enclosures. Where an air-handler, electric furnace or heat pump unit is installed in an enclosure with a fuel-fired appliance, the circulating air for the air-handler, furnace and heat pump shall be conveyed to the blower housing from outside of the enclosure by continuous air-tight ducts.

Part III

2015 International Residential Code

Add new text as follows:

M1602.3 Air-handler enclosures. Where an air-handler, electric furnace or heat pump unit is installed in an enclosure with a fuel-fired appliance, the circulating air for the air-handler, furnace and heat pump shall be conveyed to the blower housing from outside of the enclosure by continuous air-tight ducts.

Reason: Section 918.4 of the IMC, Section 618.7 of the IFGC and Section G2442.7 of the IRC all address this issue well for fuel-fired warm-air furnaces, but, are silent on other appliances such as fuel-fired water heaters and boilers that are likely to be in the same enclosure. Heat pump units, cooling air-handlers and electric furnaces would have the same effect on appliance vents if the return air was not ducted back to the blower housing. It is not just warm-air furnaces that the code should be concerned about. Any blower can create strong negative pressures in the enclosure where the return is pulled through louvered doors or grilles instead of ducts connected to the blower. A fuel-fired water heater or boiler in the enclosure should be addressed as well as the warm-air furnace in the same enclosure.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact:

Part I: Will increase the cost of construction
This proposal will increase the cost of construction in those cases where the return air for an air handler, heat pump or electric furnace would have been pulled through a louvered door or grille and through the enclosure, instead of through ductwork connected directly to the unit.

Part II: Will increase the cost of construction
This proposal will increase the cost of construction in those cases where the return air for an air handler, heat pump or electric furnace would have been pulled through a louvered door or grille and through the enclosure, instead of through ductwork connected directly to the unit.

Part III: Will increase the cost of construction

This proposal will increase the cost of construction in those cases where the return air for an air handler, heat pump or electric furnace would have been pulled through a louvered door or grille and through the enclosure, instead of through ductwork connected directly to the unit.

M 109-15 : 928-SNYDER3270

M 110-15

1002.1, 1401.4, 1401.4.1 (New), CHAPTER 15

Proponent: Rex Gillespie (rex.gillespie@caleffi.com)

2015 International Mechanical Code

Revise as follows:

1002.1 General. Potable water heaters and hot water storage tanks shall be listed and labeled and installed in accordance with the manufacturer's instructions, the *International Plumbing Code* and this code. All water heaters shall be capable of being removed without first removing a permanent portion of the building structure. The potable water connections and relief valves for all water heaters shall conform to the requirements of the *International Plumbing Code*. Domestic electric water heaters shall comply with UL 174 or UL 1453. Commercial electric water heaters shall comply with UL 1453. Oil-fired water heaters shall comply with UL 732. Solid-fuel-fired water heaters shall comply with UL 2523. ~~Thermal solar~~Solar thermal water ~~heaters~~heating systems shall comply with Chapter 14 and ~~UL 174 or UL 1453.~~SRCC 300.

1401.4 Solar ~~energy~~thermal equipment and appliances. Solar ~~energy~~thermal*equipment* and appliances shall conform to the requirements of this chapter. Solar thermal systems shall be listed and labeled to SRCC 300 and shall be installed ~~in~~ accordance with the ~~manufacturer's~~manufacturers' instructions and SRCC 300.

Add new text as follows:

1401.4.1 Collectors and panels Solar thermal collectors and panels shall be listed and labeled in accordance with SRCC 100 or SRCC 600, as applicable.

Add new standard(s) as follows:

SRCC Standard 100-13, Minimum Standard for Solar Thermal Collectors, January 3, 2013, Solar Rating and Certification Corporation.

SRCC Standard 300-13, Minimum Standard for Solar Thermal Water Heating Systems, January 3, 2013, Solar Rating and Certification Corporation.

SRCC Standard 600-13, Minimum Standard for Solar Thermal Concentrating Collectors, January 2, 2013, Solar Rating and Certification Corporation.

Reason: Updates standard citations for solar thermal water heaters. The UL 174 and UL 1453 are not appropriate standard references because they address electric water heaters. They are removed in favor of SRCC Standard 300 which addresses solar water heating systems and is also referenced in the 2015 IRC for the same purpose.
Additional references to SRCC 100 and 600 for solar collectors are added to ensure that collectors meet minium requirements and freeing the code official from inspecting the internal components of solar collectors. Identical references to the 100 and 600 standards also appear in the 2015 IRC. These standards are already cited in most states for incentive and rebate programs, and therefore do not create an additional burden for manufacturers.

Bibliography:
SRCC Standard 100, Minimum Standard for Solar Thermal Collectors, January 3, 2013.

SRCC Standard 600, Minimum Standard for Solar Thermal Concentrating Collectors, January 2, 2013.

SRCC Standard 300, Minimum Standard for Solar Thermal Water Heating Systems, January 3, 2013

Cost Impact: Will not increase the cost of construction
The proposed changes are not anticipated to impact the cost of installation. No new equipment or features are required, and no new requirements are placed on manufacturers impacting certification or manufacturing costs. Proposed provisions provide additional clarity and direction for installers and code officials at inspection.

Analysis:
A review of the standard proposed for inclusion in the code, SRCC-100, SRCC-300, SRCC-600, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 110-15 : 1002.1-GILLESPIE4023

M 111-15

1006.6, CHAPTER 15

Proponent: Guy McMann, Jefferson County, Colorado, representing Colorado Associatoin of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Mechanical Code

Revise as follows:

1006.6 Safety and relief valve discharge. Safety and relief valve discharge pipes shall be of rigid pipe that is *approved* for the temperature of the system. ~~The discharge pipe shall be the same diameter as the safety or relief valve outlet. Safety and relief valves shall not discharge so as to be a hazard, a potential cause of damage or otherwise a nuisance.~~ Highpressure-steam safety valves shall be vented to the outside of the structure. ~~Where a low-pressure safety valve or a~~The discharge piping serving pressure relief ~~valve discharges~~valves, temperature relief valves and combinations of such valves shall:

1. Not be directly connected to the drainage system~~,~~.
2. Discharge through an air gap located in the ~~installation~~same room as the appliance.
3. Not be smaller than the diameter of the outlet of the valve served and shall ~~conform~~discharge full size to the air gap.
4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.
5. Discharge to the floor, to the pan serving the boiler or storage tank, to a waste receptor or to the outdoors.
6. Discharge in a mannor that does not cause personal injury or structural damage.
7. Discharge to a termination point that is readily observable by the building occupants.
8. Not be trapped.
9. Be installed so as to flow by gravity.
10. Not terminate more than 6 inches (152 mm) above the floor or waste receptor.
11. Not have a threaded connection at the end of such piping.
12. Not have valves or tee fittings.
13. Be constructed of those materials listed in Section 605.4 of the*International Plumbing Code*~~.~~ or materials tested, rated and approved for such use in accordance with ASME A112.4.1

Add new standard(s) as follows:
ASME A112.4.1 Water Heater Relief Valve Drain Tubes

Reason: This section lacks the detail needed and doesn't paint a complete picture. Why must the user jump to another code to find and use these requirements? It's very helpful to find all the requirements in any given Section that will complete the picture of what needs to be done to complete an installation.

Cost Impact: Will not increase the cost of construction
There will be no addional cost as this in only an editorial modification and clarification which provides information from other codes. No new requirements.

Analysis: A review of the standard proposed for inclusion in the code, ASME A112.4.1, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 111-15 : 1006.6-MCMANN3582

M 112-15

1006.9 (New)

Proponent: Timothy Manz, City of Blaine, representing Association of Minnesota Building Officials (tmanz@ci.blaine.mn.us)

2015 International Mechanical Code

Add new text as follows:

1006.9 **Boiler shutdown switch.** A manually operated remote shutdown switch shall be provided and located as required by ASME CSD-1.

Exception: A single hot water boiler with a rated input of less than 400,000 Btu/hr (117kW).

Reason: ASME CSD-1-2012, Controls and Safety Devices for Automatically Fired Boilers, is the defacto standard in the boiler industry for controls and safety devices for boilers and is adopted by reference in most state boiler inspection programs, so this provision should be included in the IMC for clarity and consistency.

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of construction in states or jurisdictions that have adopted the ASME boiler codes, so in most installations there is not an increase in cost for this requirement.

M 112-15 : 1006.9 (New)-MANZ5806

M 113-15

202 (New), 1009.1, Chapter 15

Proponent: Rex Gillespie (rex.gillespie@caleffi.com)

2015 International Mechanical Code

Revise as follows:

1009.1 Where required. An expansion tank shall be installed in every hot water system. For multiple boiler installations, not less than one expansion tank is required. Expansion tanks shall be of the closed or open type. Tanks shall be rated for the pressure of the hot water system.

Exception: Expansion tanks shall not be required in the collector loop of *drain-back systems.*

Add new definitions as follows:

SECTION 202 DEFINITIONS

DIRECT SYSTEM. A solar thermal system in which the gas or liquid in the solar collector loop is not separated from the load.

DRAIN-BACK SYSTEM. A solar thermal system in which the fluid in the solar collector loop is gravity drained from the collector into a holding tank under prescribed circumstances.

FOOD GRADE FLUID. Potable water or a fluid containing additives listed in accordance with the Code of Federal Regulations, Title 21, Food and Drugs, Chapter 1, Food and Drug Administration, Parts 174-186,

INDIRECT SYSTEM. A solar thermal system in which the gas or liquid in the solar collector loop circulates between the solar collector and a heat exchanger and such gas or liquid is not drained from the system or supplied to the load during normal operation.

NO-FLOW CONDITION. A condition where thermal energy is not transferred from a solar thermal collector by means of flow of a heat transfer fluid.

NON-FOOD GRADE FLUID. Any fluid that is not designated as a food grade fluid.

SOLAR THERMAL SYSTEM. A system that converts solar radiation to thermal energy for use in heating or cooling.

SECTION 1401
GENERAL

Revise as follows:

1401.1 Scope. This chapter shall govern the design, construction, installation, *alteration* and repair of solar thermal systems, *equipment* and appliances intended to utilize solar energy for space heating or cooling, domestic hot water heating, swimming pool heating or process heating.

1401.4 Solar ~~energy~~thermal equipment and appliances. Solar ~~energy~~thermal*equipment* and appliances shall conform to the requirements of this chapter and SRCC 300 and shall be installed in accordance with the manufacturer's instructions.

SECTION 1402
DESIGN AND INSTALLATION

Add new text as follows:

1402.1 General The design and installation of solar thermal systems shall comply with Sections 1402.1 through 1402.8. Solar thermal systems shall be listed and labeled to SRCC 300 and shall be installed in accordance with the manufacturer's instructions and SRCC 300.

Revise as follows:

~~1402.1~~1402.2 Access. Access shall be provided to solar ~~energy~~thermal*equipment*~~and appliances~~ for maintenance. Solar thermal systems and appurtenances shall not obstruct or interfere with the operation of any doors, windows or other building components requiring operation or access. Roof-mounted solar thermal equipment shall not obstruct or interfere with the operation of roof-mounted equipment, appliances, chimneys, plumbing vents, roof hatches, smoke vents, skylights and other roof penetrations and openings.

~~**1402.5.1**~~**1402.3 Pressure and temperature.** Solar ~~energy~~thermal system components containing pressurized fluids shall be protected against pressures and temperatures exceeding design limitations with ~~a~~ pressure and temperature relief ~~valve~~valves or pressure relief valves. ~~Each section of the system in which excessive pressures are capable of developing~~System components shall have a ~~relief device located so that a section cannot be valved off or otherwise isolated from a~~working pressure rating of not less than the setting of the pressure relief device. ~~Relief valves shall comply with the requirements of Section 1006.4 and discharge in accordance with Section 1006.6.~~

Add new text as follows:

1402.3.1 Relief device Each section of the system in which excessive pressures are capable of developing shall have a relief device located so that a section cannot be valved off or otherwise isolated from a relief device. Relief valves shall comply with the requirements of Section 1006.6. For indirect systems, pressure relief valves in solar loops shall also comply with SRCC 300.

Revise as follows:

~~**1402.5.2**~~**1402.3.2 Vacuum.** ~~The solar energy system~~
System components that ~~are~~might be subjected to a vacuum while in operation or during shutdown shall be designed to withstand such vacuum or shall be protected with vacuum relief valves.

~~**1402.5.3**~~**1402.4 Protection from freezing.** System components shall be protected from damage by freezing of heat transfer liquids at the lowest ambient temperatures that will be encountered during the operation of the system. Freeze protection shall be provided in accordance with SRCC 300. Drain-back systems shall be installed in compliance with Section 1402.4.1 and systems utilizing freeze protection valves shall comply with Section 1402.4.2.

Add new text as follows:

1402.4.1 Drain-back systems. Drain-back systems shall be designed and installed to allow for manual gravity draining of fluids from areas subject to freezing to locations not subject to freezing, and air filling of the components and piping. Such piping and components shall maintain a horizontal slope in the direction of flow of not less than one-fourth unit vertical in 12 units horizontal (2-percent slope). Piping and components subject to manual gravity draining shall permit subsequent air filling upon drainage and air storage or venting upon refilling.

1402.4.2 Freeze protection valves. Freeze protection valves shall discharge in a manner that does not create a hazard or structural damage.

1402.5 Protection of potable water. Where a solar thermal system heats potable water to supply a potable *hot water* distribution or any other type of heating system, the solar thermal system shall be in accordance wtih Sections 1402.5.1 through 1402.5.3 as applicable.

1402.5.1 Indirect systems. Water supplies of any type shall not be connected to the solar heating loop of an indirect solar thermal *hot water* heating system. This requirement shall not prohibit the presence of inlets or outlets on the solar heating loop for the purposes of servicing the fluid in the solar heating loop.

1402.5.2 Direct systems for potable water distribution systems. Where a solar thermal system directly heats potable water for a potable water distribution system, the pipe, fittings, valves and other components that are in contact with the potable water in the system shall comply with the requirements of the *International Plumbing Code*.

1402.5.3 Direct systems for other than potable water distribution systems. Where a solar thermal system directly heats water for a system other than a potable water distribution system, a potable water supply connected to such system shall be protected by a backflow preventer with an intermediate atmospheric vent complying with ASSE 1012. Where solar thermal system directly heats chemically treated water for a system other than a potable water distribution system, a potable water supply connected to such system shall be protected by a reduced pressure principle backflow prevention assembly complying with ASSE 1013.

Revise as follows:

~~**1402.2**~~**1402.6 Protection of equipment.** Solar thermal *equipment* exposed to vehicular traffic shall be installed not less than 6 feet (1829 mm) above the finished floor.

> **Exception:** This section shall not apply where the *equipment* is protected from motor vehicle impact.

Add new text as follows:

1402.7 Protection of structure In the process of installing or repairing any part of a solar thermal system, the building or structure shall be left in a safe structural condition in accordance with Section 302 and Sections 1402.7.1 through 1402.7.2.

Revise as follows:

~~1402.3~~1402.7.1 **Controlling condensation.** Where attics or structural spaces are part of a passive solar system, ventilation of such spaces, as required by Section 406, is not required where other *approved* means of controlling condensation are provided.

~~1402.6~~1402.7.2 **Penetrations.** Roof and wall penetrations shall be flashed and sealed to prevent entry of water, rodents and insects in accordance with Section 302.

~~1402.5~~1402.8 **Equipment.** The solar ~~energy~~ thermal system shall be equipped in accordance with the requirements of Sections ~~1402.5.1~~1402.8.1 through ~~1402.5.4~~1402.8.5.

Add new text as follows:

1402.8.1 Collectors and panels. Solar collectors and panels shall comply with Sections 1401.2.2.1 through 1401.2.2.3.

1402.8.1.1 Design. Solar thermal collectors and panels shall be listed and labeled in accordance with SRCC 100 or SRCC 600, as applicable.

Revise as follows:

~~1402.4.1~~1402.8.1.2 ~~**Collectors mounted above the roof.**~~**Rooftop-mounted solar thermal collectors and systems** The roof shall be constructed to support the loads imposed by roof mounted solar collectors. Where mounted on or above the roof covering, the collector array and supporting construction shall be constructed of noncombustible materials or fire-retardant-treated wood conforming to the *International Building Code* to the extent required for the type of roof construction of the building to which the collectors are accessory.

> ~~**Exception:** The use of plastic solar collector covers shall be limited to those *approved* plastics meeting the requirements for plastic roof panels in the *International Building Code*.~~

~~1402.4~~1402.8.1.3 ~~**Roof-mounted collectors.**~~**Collectors as roof covering** Roof-mounted solar collectors that also serve as a roof covering shall conform to the requirements for roof coverings in accordance with the *International Building Code*.

> **Exception:** The use of plastic solar collector covers shall be limited to those *approved* plastics meeting the requirements for plastic roof panels in the *International Building Code.*

Add new text as follows:

1402.8.1.4 Collector sensors. Collector sensor installation, sensor location and the protection of exposed sensor wires from degradation shall be in accordance with SRCC 300, NFPA 70 and the collector manufacturer's instructions.

Revise as follows:

~~1401.5~~1402.8.2 **Ducts.** *No change to text.*

~~1402.7~~1402.8.2.1 **Filtering.** Air transported to occupied spaces through ~~rock or~~ dust-producing materials by means other than natural convection shall be filtered ~~at~~before entering the ~~outlet from the heat storage system.~~occupied space in accordance with Section 605.

Add new text as follows:

1402.8.3 Piping. Potable piping shall be installed in accordance with the *International Plumbing Code*. Hydronic piping shall be installed in accordance with Chapter 10 of this code. Mechanical system piping shall be supported in accordance with Section 305.

1402.8.3.1 Piping insulation. Piping shall be insulated in accordance with the requirements of the *International Energy Conservation Code*. Exterior insulation shall be protected from degradation. The entire solar loop shall be insulated. Where split-style insulation is used, the seam shall be sealed. Fittings shall be fully insulated. Insulation shall comply with Section 1204.1.

Exceptions:

1. Those portions of the piping that are used to help prevent the system from overheating shall not be required to be insulated.
2. Those portions of piping that are exposed to solar radiation, made of the same material as the solar collector absorber plate and are covered in the same manner as the solar collector absorber, or that are used to collect additional solar energy, shall not be required to be insulated.
3. Piping in solar thermal systems using unglazed solar collectors to heat a swimming pool shall not be required to be insulated.

Revise as follows:

~~1401.3~~1402.8.4 **Heat exchangers.** Heat exchangers used in domestic water-heating systems shall be *approved* for the intended use. The system shall have adequate protection to ensure that the potability of the water supply and distribution system is properly safeguarded.

Add new text as follows:

1402.8.4.1 Double-wall heat exchangers. Heat exchangers utilizing a *non-food grade fluid* shall be separated from the potable water by double-wall construction. An *air gap* open to the atmosphere shall be provided between the two walls. The discharge location from the double-wall heat exchanger shall be visible.

1402.8.4.2 Single-wall heat exchangers. Single-wall heat exchangers shall be permitted to be used where *food grade fluid* is used as the heat transfer fluid.

1402.8.5 Water heaters and hot water storage tanks. Auxiliary water heaters, boilers and water storage tanks associated with solar thermal systems shall comply with Chapter 10 of this code and SRCC 300.

1402.8.5.1 Hot water storage tank insulation. Hot water storage tanks shall be insulated and such insulation shall have an R value of not less than R-12.5.

1402.8.5.2 Outdoor locations. Storage tanks and heating equipment installed in outdoor locations shall be designed for outdoor installation.

1402.8.5.3 Storage tank sensors. Storage tank sensors shall comply with SRCC 300.

1402.8.6 Solar loop. Solar loops shall be in accordance with Sections 1402.8.6.1 and 1402.8.6.2.

1402.8.6.1 Solar loop isolation.
Valves shall be installed to allow the solar loop to be isolated from the remainder of the system.

1402.8.6.2 Drain and fill valve caps. Drain caps shall be installed on drain and fill valves.

Revise as follows:

~~1402.5.4~~1402.8.7 Expansion tanks. Liquid single-phase solar energy systems shall be equipped with expansion tanks sized in accordance with Section 1009, except that additional expansion tank acceptance volume equal to the total volume of liquid contained in the installed solar collectors and piping above the collectors shall be included.

SECTION 1403
HEAT TRANSFER FLUIDS

1403.1 Flash point. The flash point of the~~ actual~~ heat transfer fluid utilized in a solar system shall be not less than 50°F (28°C) above the design maximum nonoperating (no-flow) temperature of the fluid attained in the collector.

Add new text as follows:

1403.2 Heat transfer fluids Heat transfer gases and liquids shall be rated to withstand the system's maximum design temperature under operating conditions without degradation. Heat transfer fluids shall be in accordance with SRCC 300.

1403.3 Food grade additives. Any *food grade fluid* used as a heat transfer fluid containing additives shall be third party listed by an approved agency to the approporiate section of the *Code of Federal Regulations, Title 21, Food and Drugs, Chapter 1, Food and Drug Administration, Parts 174-186.*

1403.4 Toxicity The use of *toxic fluids* shall comply with *Title 15 of the Federal Hazardous Substances Act* and Chapter 60 of the *International Fire Code.*

SECTION 1404
~~MATERIALS~~LABELING

Revise as follows:

1404.1 Collectors. Factory-built collectors shall~~ be *listed* and *labeled*, and~~ bear a label showing the manufacturer's name and address, model number~~, collector dry weight, collector maximum allowable operating~~ and ~~nonoperating temperatures and pressures, minimum allowable temperatures and the types of heat transfer fluids that are compatible with the collector. The label shall clarify that these specifications apply only to the collector.~~serial number.

1404.2 ~~Thermal~~Water storage ~~units~~tanks. Pressurized ~~thermal~~water storage ~~units~~ tanks shall~~ be *listed* and *labeled*, and~~ bear a label showing the manufacturer's name and address, model number, serial number, storage unit maximum and minimum allowable operating temperatures, and storage unit maximum and minimum allowable operating pressures~~ and the types of heat transfer fluids compatible with the storage unit~~. The label shall clarify that these specifications apply only to the ~~thermal~~water storage ~~unit~~tanks.

Add new text as follows:

1404.3 Fluid safety labeling Drain and fill valves shall be labeled with a description and warning that identifies the fluid in that loop as "Potable Water", Food Grade Fluid", "Non-Food Grade Fluid" or "Toxic". Labeling shall also be provided that reads as follows: "Fluid could be discharged at high temperature or pressure or both. Unauthorized alterations to this system could result in a health hazard or a hazardous condition."

1404.4 Heat exchangers. Heat exchangers shall be labeled to indicate the heat exchanger type with one of the following:

1. "Single-wall without leak protection"
2. "Double-wall with no leak protection"
3. "Double-wall with leak protection"

Add new standard(s) as follows:

Solar Rating and Certification Corporation

400 High Point Drive, Suite 400

Cocoa, FL 32926

SRCC Standard 100-13, Minimum Standard for Solar Thermal Collectors, January 3, 2013.

SRCC Standard 300-13, Minimum Standard for Solar Thermal Water Heating Systems, January 3, 2013.

SRCC Standard 600-13, Minimum Standard for Solar Thermal Concentrating Collectors, January 3, 2013.

Code of Federal Regulations, Title 21, Food and Drugs, Chapter 1, Food and Drug Administration, Parts 174-186.

Title 15 of the Federal Hazardous Substances Act.

Reason: The solar thermal provisions in the 2015 IRC were signficantly revised by proposals submitted by a Solar Task Group working under the SEPHCAC. These same changes were not submitted for the IMC, however, due to time constraints. This proposal seeks to extend these updates to the solar thermal provisions in the IMC to align with the language that appears in the 2015. As the language currently stands there are conflicts and key differences for freeze protection, labeling, expansion tanks, pressure and temperature control and many other items. The changes add a citation to three standards from the Solar Rating and Certification Corporation (SRCC) as was done in the 2015 IRC. These standards are already cited in most states for incentive and rebate programs.
Several other improvements that do not currently appear in the IRC Chapter 23 were also proposed. Identical language was also proposed for the 2018 IRC during this cycle to ensure that they align in the next version, if approved. They include:

- Access provisions were revised to clarify that roof-mounted solar collectors and equipment should not interfere with the operation of key safety components and features from other systems. While this can reasonably assumed, providing this provisions will provide code officials more clear language to reference when inspecting installations.
- New language has been added to the freeze protection section to address specific issues with two of the most common freeze protection approachs: drainback systems and freeze protection valves. Drainback systems allow the liquid to drain from the external collector to conditioned space when flow is not occuring. As a result proper slope is critical to ensure operation. Inspection of the installation and workmanship is necessary to ensure that the slope is consistent and the freeze protection is fully functional. Freeze protection valves discharge a small amount of water in freezing conditions and therefore should be addressed in a way similar to T&P valves to ensure that the discharge does not damage the roof or create a hazard (e.g. freezing on a pedestrian walkway). Identical language has also been proposed for Chapter 14 of the IMC.
- The provisions relating to collector and hot water storage tank labeling were simplified since this information and more can be found in manuals and specifications. The language for storage units (tanks) was also revised to clarify that they are only to apply to hot water storage tanks.

Bibliography: SRCC Standard 100-13, Minimum Standard for Solar Thermal Collectors, January 3, 2013.
SRCC Standard 300-13, Minimum Standard for Solar Thermal Water Heating Systems, January 3, 2013.

SRCC Standard 600-13, Minimum Standard for Solar Thermal Concentrating Collectors, January 2, 2013.

Cost Impact: Will not increase the cost of construction
The proposed changes are not anticipated to raise the cost of construction. Most solar thermal systems and collectors are already certified to these standards in order to meet state requirements, those of the Internal Revenue Service for federal rebates, or to comply with the requiements of the 2015 IRC. Therefore, no additional product certifications are required. It is possible that costs reductions will result from the correlation of requirements between codes and these standards.

Analysis: A review of the standard proposed for inclusion in the code, SRCC Standard 100, SRCC Standard 300-13, SRCC Standard 600-13, Code of Federal Regulations, Title 21, Food and Drugs, Chapter 1, Food and Drug Administration, Parts 174-186. Title 15 of the Federal Hazardous Substances Act , with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 113-15 : 1009.1-GILLESPIE3858

M 114-15

1101.6

Proponent: Jeffrey Shapiro, International Institute of Ammonia Refrigeration, representing International Institute of Ammonia Refrigeration (jeff.shapiro@intlcodeconsultants.com)

2015 International Mechanical Code

Revise as follows:

1101.6 General. Refrigeration systems shall comply with the requirements of this code and, except as modified by this code, ASHRAE 15. Ammonia-refrigerating systems shall comply with this code and, except as modified by this code, ~~ASHRAE 15 and~~ IIAR 2.

Reason: IIAR 2-2014 was entirely rewritten, and the standard is now a stand-alone document that no longer relies on ASHRAE 15. During the rewrite process, ASHRAE 15 was reviewed, and provisions deemed appropriate for regulating ammonia were incorporated into the IIAR 2. Therefore, the reference to ASHRAE 15 for ammonia refrigeration is no longer necessary.

Cost Impact: Will not increase the cost of construction
This proposal may reduce the cost of construction by simplifying the design/review process to only involve a single standard for ammonia refrigeration system installations.

M 114-15 : 1101.6-SHAPIRO4849

M 115-15

1101.6, CHAPTER 15

Proponent: Jeffrey Shapiro, International Institute of Ammonia Refrigeration, representing International Institute of Ammonia Refrigeration

2015 International Mechanical Code

Revise as follows:

1101.6 General. Refrigeration systems shall comply with the requirements of this code and, except as modified by this code, ASHRAE 15. Ammonia-refrigerating systems shall comply with this code and, except as modified by this code, ASHRAE 15 and IIAR 2<u>, IIAR 3, IIAR 4 and IIAR 5</u>.

Add new standard(s) as follows:

<u>IIAR 3-2012 Ammonia Refrigeration Valves</u>

<u>IIAR 4-2015 (pending completion) Installation of Closed-Circuit Ammonia Mechanical Refrigerating Systems</u>

<u>IIAR 5-2013 Start up and Commissioning of Ammonia Refrigeration Systems</u>

Reason: These are ANSI standards that are already applicable for ammonia refrigeration facilities. Including references in the IMC will ensure that the standards can be enforced by the mechanical code official so that proper valves are used on ammonia refrigeration systems and that these systems are properly installed and commissioned.

Cost Impact: Will not increase the cost of construction
The IMC reference will correlate with what should already be industry practice.

Analysis:
A review of the standard proposed for inclusion in the code, IAR 3 , IIAR 4 and IIAR 5, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 115-15 : 1101.6-SHAPIRO5681

M 116-15

Table 1103.1

Proponent: Steven Ferguson, representing ASHRAE (sferguson@ashrae.org)

2015 International Mechanical Code

Revise as follows:

TABLE 1103.1
REFRIGERANT CLASSIFICATION, AMOUNT AND OEL

Chemical Refrigerant	Formula	Chemical Name of Blend	Refrigerant Classification	Pounds per 1000 CF of spac	ppm	g/m^3	OEL[e]	[F] Degrees of Hazard [a]
R-444B	zeotrope	R-32/152a/1234ze(E) (41.5/10.0/48.5)	A2[f]	4.3	23,000	69	890	-
R-448A	zeotrope	R-32/125/1234yf/134a/1234ze(E) (26.0/26.0/20.0/21.0/7.0)	A1	24	110,000	390	890	-
R-449A	zeotrope	R-32 /125 /1234yf /134a (24.3/24.7/25.3/25.7)	A1	23	100,000	370	830	-
R-450A	zeotrope	R-134a /1234ze(E) (42.0/58.0)	A1	20	72,000	320	880	-
R-1233zd(E)	CF3 CH=CHCl	trans-1-chloro-3,3,3-trifluoro-1-propene	A1	5.3	16,000	85	800	-
R-417C	zeotrope	R-125/134a/600 (19.5/78.8/1.7)	A1	5.4	21,000	87	1,000	-
R-419B	zeotrope	R-125/134a/E170 (48.5/48.0/3.5)	A2	4.6	17,000	74	1,000	-
R-422E	zeotrope	R-125/134a/600a (58.0/39.3/2.7)	A1	16	57,000	260	1,000	-
R-445A	zeotrope	R-744/134a/1234ze(E) (6.0/9.0/85.0)	A2[f]	4.2	16,000	67	930	-
R-446A	zeotrope	R-32/1234ze(E)/600 (68.0/29.0/3.0)	A2[f]	2.5	16,000	39	960	-
R-447A	zeotrope	R-32/125/1234ze(E) (68.0/3.5/28.5)	A2[f]	2.6	16,000	42	900	-

R-30	CH2Cl2	dichloromethane (methylene chloride)	B1	-	-	-	-	-
R-40	CH3Cl	chloromethane (methyl chloride)	B2	-	-	-	-	-
R-50	CH4	methane	A3	-	-	-	1,000	-
R-443A	zeotrope	R-1270/290/600a (55.0/40.0/5.0)	A3	0.19	1,700	3.1	580	-
R-444A	zeotrope	R-32/152a/1234ze(E) (12.0/5.0/83.0)	A2[f]	5.1	21,000	81	850	-
R-445A	zeotrope	R-744/134a/1234ze(E) (6.0/9.0/85.0)	A2[f]	4.2	16,000	67	930	-
R-610	ethoxyethane (ethyl ether)	CH3CH2OCH2CH3	-	-	-	-	400	-
R-611	methyl formate	HCOOCH3	B2	-	-	-	100	-
R-451A	zeotrope	R-1234yf/134a (89.8/10.2)	A2f	5.3	18,000	81	520	-
R-451B	zeotrope	R-1234yf/134a (88.8/11.2)	A2f	5.3	18,000	81	530	-
R-452A	zeotrope	R-32/125/1234yf (11.0/59.0/30.0)	A1	27	100,000	440	780	-
R-513A	azeotrope	R-1234yf/134a (56.0/44.0)	A1	20	72,000	320	650	-

(Portions of table not shown remain unchanged)

For SI: 1 pound = 0.454 kg, 1 cubic foot = 0.0283 m ^{3}.

a. Degrees of hazard are for health, fire, and reactivity, respectively, in accordance with NFPA 704.

b. Reduction to 1-0-0 is allowed if analysis satisfactory to the code official shows that the maximum concentration for a rupture or full loss of refrigerant charge would not exceed the IDLH, considering both the refrigerant quantity and room volume .

c. For installations that are entirely outdoors, use 3-1-0.

d. Class I ozone depleting substance; prohibited for new installations.

e. Occupational Exposure Limit based on the OSHA PEL, ACGIH TLV-TWA, the ~~AIHA~~TERA WEEL or consistent value on a time-weighted average (TWA) basis (unless noted C for ceiling) for an 8 hr/d and 40 hr/wk.

f. The ASHRAE Standard 34 flammability classification for this refrigerant is 2L, which is a subclass of Class 2.

Reason: The Refrigerant Classifications (except Degrees of Hazard) are determined by ASHRAE SSPC 34 and published in ASHRAE Standard 34 . This proposal seeks to update the refrigerant table with the new refrigerants added to Standard 34 since the last code cycle. The reasons for the additions of new refrigerants can be found at https://www.ashrae.org/standards-research--technology/standards-addenda . The following four addenda may not be published by the time this monograph is published, so here is the information related to those refrigerants. No review comments were received during the public comment period and expected to be reviewed for publication approval at the end of January 2015.
R-451A: The recommended flammability classification 2 (2L in Standard 34 per footnote f of this table) is based on an LFL of 7.0 vol. %, a heat of combustion of 9790 kJ/kg (4209 Btu/lb), and a burning velocity less than 4 cm/s. The recommended toxicity classification A is based on an adopted OEL of 520 ppm v/v. The recommended ATEL is 100,000 ppm v/v.

R-451B: The recommended flammability classification 2 (2L in Standard 34 per footnote f of this table) is based on an LFL of 7.0 vol. %, a heat of combustion of 9790 kJ/kg (4209 Btu/lb), and a burning velocity less than 4 cm/s. The recommended toxicity classification A is based on an adopted OEL of 530 ppm v/v. The recommended ATEL is 100,000 ppm v/v.

R-513A: The recommended flammability classification is 1. The recommended toxicity classification A is based on an adopted OEL of 650 ppm v/v.

The recommended ATEL is 72,000 ppm v/v.

R-452A: The recommended flammability classification is 1. The recommended toxicity classification A is based on an adopted OEL of 780 ppm v/v. The recommended ATEL is 100,000 ppm v/v.

Additionally, three small/significant figure edits or corrections have been made to R-436B (8.1 g/m3 should be 8.2 g/m3 for consistency), R-1270 (the lbs/1000 cf changes from 0.1 to 0.11 due to significant digits in the analysis by SSPC 34), and the WEELs (workplace environmental exposure levels) which were previously issued by the American Industrial Hygiene Association (AIHA) are now set by The Toxicology Excellense for Risk Assessment (TERA) Occupational Alliance for Risk Science (see addendum d to ASHRAE Standard 34-2013 for more information).

If approved, the intent is for the refrigerants in this table to be re-organized in numerical order.

Bibliography: ASHRAE Standard 24-2013

Cost Impact: Will not increase the cost of construction
This proposal only classifies refrigerants. How a refrigerant is classified has no impact on the cost of construction.

M 116-15 : T1103.1-FERGUSON3779

M 117-15

Table 1103.1

Proponent: Mike Fischer, Kellen Company, representing the Responsible Refrigerants Codes Council (mfischer@kellencompany.com)

2015 International Mechanical Code

Revise as follows:

TABLE 1103.1
REFRIGERANT CLASSIFICATION, AMOUNT AND OEL

CHEMICAL REFRIGERANT	FORMULA	CHEMICAL NAME OF BLEND	REFRIGERANT CLASSIFICATION	AMOUNT OF REFRIGERANT PER OCCUPIED SPACE				[F] DEGREES OF HAZARD [a]
				Pounds per 1,000 cubic feet	ppm	g/m^3	OEL [e]	
R-1234yf	$CF_3CF=CH_2$	2,3,3,3-tetrafluoro-1 propene	A2 [f,g]	4.7	16,000	75	500	—
R-1234ze(E)	$CF_3CH=CHF$	trans-1,3,3,3-tetrafluoro-1-propene	A2 [f,g]	4.7	16,000	75	800	—

(Portions of table not shown remain unchanged)

For SI: 1 pound = 0.454 kg, 1 cubic foot = 0.0283 m^3.

a. Degrees of hazard are for health, fire, and reactivity, respectively, in accordance with NFPA 704.

b. Reduction to 1-0-0 is allowed if analysis satisfactory to the code official shows that the maximum concentration for a rupture or full loss of refrigerant charge would not exceed the IDLH, considering both the refrigerant quantity and room volume .

c. For installations that are entirely outdoors, use 3-1-0.

d. Class I ozone depleting substance; prohibited for new installations.

e. Occupational Exposure Limit based on the OSHA PEL, ACGIH TLV-TWA, the AIHA WEEL or consistent value on a time-weighted average (TWA) basis (unless noted C for ceiling) for an 8 hr/d and 40 hr/wk.

f. The ASHRAE Standard 34 flammability classification for this refrigerant is 2L, which is a subclass of Class 2.

g. The ASHRAE Standard 34 flammability classification for this refrigerant is 2L, which is a subclass of Class 2, and the refrigerant shall be treated as a Refrigerant Class A1.

Reason: The proposal revises the Classification requirements for two refrigerants, R1234YF and R1234ZE to indicate that Class A1 refrigerent requirements are applicable. This change is consistent with current referenced standards discussions at ASHRAE 34; it is important to get this change in place in case the ASHRAE standard update is not ready in time for the 2018 IMC. These refrigerants may be used in air conditioning products for all applications, provided the burning velocity is below 5 cm/sec and the end use product is listed by UL or other approved agency. All other provisions for A1 refrigerants shall apply.

Cost Impact: Will not increase the cost of construction
The proposal increases available product options.

M 117-15 : T1103.1-FISCHER5589

M 118-15

1104.2.2

Proponent: Jeffrey Shapiro, International Institute of Ammonia Refrigeration, representing International Institute of Ammonia Refrigeration

2015 International Mechanical Code

Revise as follows:

1104.2.2 Industrial occupancies and refrigerated rooms. This section applies only to industrial occupancies and refrigerated rooms for manufacturing, food and beverage preparation, meat cutting, other processes and storage. ~~Machinery rooms are~~Where a machinery room would otherwise be required by Section 1104.2, a machinery room shall not be required where all of the following conditions are met:

1. The space containing the machinery is separated from other occupancies by tight construction with tight-fitting doors.
2. Access is restricted to authorized personnel.
3. The floor area per occupant is not less than 100 square feet (9.3 m^2) where machinery is located on floor levels with exits more than 6.6 feet (2012 mm) above the ground. Where provided with egress directly to the outdoors or into *approved* building exits, the minimum floor area shall not apply.
4. Refrigerant detectors are installed as required for machinery rooms in accordance with Section 1105.3.
5. Surfaces having temperatures exceeding 800°F (427°C) and open flames are not present where any Group A2, B2, A3 or B3 refrigerant is used (see Section 1104.3.4).
6. All electrical *equipment* and appliances conform to Class 1, Division 2, *hazardous location* classification requirements of NFPA 70 where the quantity of any Group A2, B2, A3 or B3 refrigerant, other than ammonia, in a single independent circuit would exceed 25 percent of the lower flammability limit (LFL) upon release to the space.
7. All refrigerant-containing parts in systems exceeding 100 horsepower (hp) (74.6 kW) drive power, except evaporators used for refrigeration or dehumidification; condensers used for heating; control and pressure relief valves for either; and connecting piping, shall be located either outdoors or in a *machinery room*.

Reason: The proposal clarifies that Section 1104.2.2 only applies when a machinery room is otherwise required. As currently written, the code could be interpreted such that the special regulations in 1104.2.2 are applicable even if a machinery room weren't otherwise required, such as a case where the primary refrigerant is a brine solution. This revision will make it clear that this is not a proper application of the IMC.

Cost Impact: Will not increase the cost of construction
The proposal only clarifies the intended application of the current provisions.

M 118-15 : 1104.2.2-SHAPIRO4711

M 119-15

202 (New), 1104.2.2

Proponent: Jeffrey Shapiro, International Institute of Ammonia Refrigeration, representing International Institute of Ammonia Refrigeration (jeff.shapiro@intlcodeconsultants.com)

2015 International Mechanical Code

Add new definition as follows:

SECTION 202 DEFINITIONS

LOW-PROBABILITY PUMP. A pump that does not rely on a dynamic shaft seal as a singular means of containment to prevent atmospheric release of the pumped fluid.

Revise as follows:

1104.2.2 Industrial occupancies and refrigerated rooms. This section applies only to industrial occupancies and refrigerated rooms for manufacturing, food and beverage preparation, meat cutting, other processes and storage. Machinery rooms are not required where all of the following conditions are met:

1. The space containing the machinery is separated from other occupancies by tight construction with tight-fitting doors.
2. Access is restricted to authorized personnel.
3. The floor area per occupant is not less than 100 square feet (9.3 m^2) where machinery is located on floor levels with exits more than 6.6 feet (2012 mm) above the ground. Where provided with egress directly to the outdoors or into *approved* building exits, the minimum floor area shall not apply.
4. Refrigerant detectors are installed as required for machinery rooms in accordance with Section 1105.3.
5. Surfaces having temperatures exceeding 800°F (427°C) and open flames are not present where any Group A2, B2, A3 or B3 refrigerant is used (see Section 1104.3.4).
6. All electrical *equipment* and appliances conform to Class 1, Division 2, *hazardous location* classification requirements of NFPA 70 where the quantity of any Group A2, B2, A3 or B3 refrigerant, other than ammonia, in a single independent circuit would exceed 25 percent of the lower flammability limit (LFL) upon release to the space.
7. All refrigerant-containing parts in systems with a total connected compressor power exceeding 100 horsepower (hp) (74.6 kW) ~~drive power~~, except evaporators used for refrigeration or dehumidification; condensers used for heating; control and pressure relief valves for either; low-probability pumps; and connecting piping, shall be located either outdoors or in a *machinery room*.

Reason: The modification of the 100 HP power threshold in Item 7 clarifies that this is compressor drive power, which is the terminology used in IIAR 2 Section 4.2.3 and ASHRAE 15 Section 7.2.2(g). The change ensures that the drive power for liquid pumps and other motorized equipment attached to the system is not improperly added.
Recognition of low-probability pumps acknowledges the superior leak resistance of these pumps and encourages their use to increase safety. The approach is modeled after the current IMC approach for low-probability systems, as defined in Chapter 2. Because low-probability systems are inherently more resistant to atmospheric releases than high-probability systems, the IMC permits more widespread use of low-probability systems. With respect to pumps, experience has shown that pump leaks are typically associated with failed seals on rotating (dynamic) parts, which can result in events ranging from a simple nuisance release to a hazardous condition requiring an emergency response. This proposal will encourage the use of pumps that are hermetically sealed or similar in lieu of pumps that rely on dynamic seals to contain refrigerant.

Cost Impact: Will not increase the cost of construction
The proposal will not increase the cost of construction because the first portion of the change is a clarification of current provisions, and the second portion of the change is an optional path to compliance. Standard pumps will continue to be permitted when they are located in refrigerant machinery rooms.

M 119-15 : 1104.2.2-SHAPIRO4766

M 120-15

1104.2.2

Proponent: Jeffrey Shapiro, International Institute of Ammonia Refrigeration, representing International Institute of Ammonia Refrigeration (jeff.shapiro@intlcodeconsultants.com)

2015 International Mechanical Code

Revise as follows:

1104.2.2 Industrial occupancies and refrigerated rooms. This section applies only to industrial occupancies and refrigerated rooms for manufacturing, food and beverage preparation, meat cutting, other processes and storage. Machinery rooms are not required where all of the following conditions are met:

1. The space containing the machinery is separated from other occupancies by tight construction with tight-fitting doors.
2. Access is restricted to authorized personnel.
3. ~~The floor area per occupant is not less than 100 square feet (9.3 m²) where machinery is located on floor levels with exits more than 6.6 feet (2012 mm) above the ground. Where provided with egress directly to the outdoors or into *approved* building exits, the minimum floor area shall not apply.~~
3. Refrigerant detectors are installed as required for machinery rooms in accordance with Section 1105.3.
4. Surfaces having temperatures exceeding 800°F (427°C) and open flames are not present where any Group A2, B2, A3 or B3 refrigerant is used (see Section 1104.3.4).
5. All electrical *equipment* and appliances conform to Class 1, Division 2, *hazardous location* classification requirements of NFPA 70 where the quantity of any Group A2, B2, A3 or B3 refrigerant, other than ammonia, in a single independent circuit would exceed 25 percent of the lower flammability limit (LFL) upon release to the space.
6. All refrigerant-containing parts in systems exceeding 100 horsepower (hp) (74.6 kW) drive power, except evaporators used for refrigeration or dehumidification; condensers used for heating; control and pressure relief valves for either; and connecting piping, shall be located either outdoors or in a *machinery room*.

Reason: The section proposed for deletion is archaic, makes no sense, and doesn't typically apply because the second sentence largely negates the first. Simply by having a direct outside exit or an "approved" building exit (why would an exit not be approved, and how is a building exit different than an exit?), the occupant density limit is waived. Nevertheless, there is no logical reason for this section to establish an maximum occupancy limit based on providing a minimum floor area per occupant simply because someone is in a refrigerated area. Note that fixing a hard limit on the number of people permitted in an industrial space is very different than a typical occupant load calculation that is only for the purpose of designing the required means of egress.

Cost Impact: Will not increase the cost of construction
The proposal is unlikely to impact the cost of construction because the deleted text is probably never applied anyway.

M 120-15 : 1104.2.2-SHAPIRO4847

M 121-15

1104.2.2

Proponent: Jeffrey Shapiro, International Institute of Ammonia Refrigeration, representing International Institute of Ammonia Refrigeration (jeff.shapiro@intlcodeconsultants.com)

2015 International Mechanical Code

Revise as follows:

1104.2.2 Industrial occupancies and refrigerated rooms. This section applies only to industrial occupancies and refrigerated rooms for manufacturing, food and beverage preparation, meat cutting, other processes and storage. Machinery rooms are not required where all of the following conditions are met:

1. The space containing the machinery is separated from other occupancies by tight construction with tight-fitting doors.
2. Access is restricted to authorized personnel.
3. The floor area per occupant is not less than 100 square feet (9.3 m^2) where machinery is located on floor levels with exits more than 6.6 feet (2012 mm) above the ground. Where provided with egress directly to the outdoors or into *approved* building exits, the minimum floor area shall not apply.
4. Refrigerant detectors are installed as required for machinery rooms in accordance with Section 1105.3.
   <u>**Exceptions:**</u>
   <u>1. Refrigerant detectors are not required in unoccupied areas that contain only continuous piping that does not include valves, valve assemblies, equipment, or equipment connections.</u>
   <u>2. Where approved alternatives are provided, refrigerant detectors are not required for rooms or areas that are always occupied, and for rooms or areas that have high humidity or other harsh environmental conditions that are incompatible with detection devices.</u>
5. Surfaces having temperatures exceeding 800°F (427°C) and open flames are not present where any Group A2, B2, A3 or B3 refrigerant is used (see Section 1104.3.4).
6. All electrical *equipment* and appliances conform to Class 1, Division 2, *hazardous location* classification requirements of NFPA 70 where the quantity of any Group A2, B2, A3 or B3 refrigerant, other than ammonia, in a single independent circuit would exceed 25 percent of the lower flammability limit (LFL) upon release to the space.
7. All refrigerant-containing parts in systems exceeding 100 horsepower (hp) (74.6 kW) drive power, except evaporators used for refrigeration or dehumidification; condensers used for heating; control and pressure relief valves for either; and connecting piping, shall be located either outdoors or in a *machinery room*.

Reason: The proposed exceptions are derived from IIAR 2. In areas that only contain fixed piping, there are no expected leak sources, so detection is unnecessary regardless of the refrigerant type. This is not unlike how the IFC and IBC don't count quantities of some materials in piping systems towards MAQ amounts. The proposed exception recognizing alternative detection protocols for ammonia in areas that are continuously occupied and areas where the environmental conditions would damage or diminish the reliability of fixed detectors provides flexibility for the mechanical code official and the designer to accommodate conditions that sometimes arise for specific applications and facilities. Because of ammonia's strong self-alarming odor, it is common for facilities to have emergency plans in place that respond to an ammonia odor, which is detectable at a fraction of the thresholds at which a health or fire hazard may occur.

Cost Impact: Will not increase the cost of construction
The proposed exceptions are optional. Therefore the will never increase the cost of construction. The cost of construction may decrease depending on whether the exceptions provide a more cost effective option for leak detection.

M 121-15 : 1104.2.2-SHAPIRO4848

M 122-15

202, 1104.2.2

Proponent: Jeffrey Shapiro, International Institute of Ammonia Refrigeration, representing International Institute of Ammonia Refrigeration (jeff.shapiro@intlcodeconsultants.com)

2015 International Mechanical Code

Delete without substitution:

SECTION 202 DEFINITIONS

~~**REFRIGERATED ROOM OR SPACE.**~~

~~A room or space in which an evaporator or brine coil is located for the purpose of reducing or controlling the temperature within the room or space to below 68°F (20°C).~~

Revise as follows:

1104.2.2 Industrial occupancies and refrigerated rooms. This section applies only to rooms and spaces that are within industrial occupancies, that contain a refrigerant evaporator, that are maintained at temperatures below 68°F (20°C) and ~~refrigerated rooms~~that are used for manufacturing, food and beverage preparation, meat cutting, other processes and storage.

Machinery rooms are not required where all of the following conditions are met:

1. The space containing the machinery is separated from other occupancies by tight construction with tight-fitting doors.
2. Access is restricted to authorized personnel.
3. The floor area per occupant is not less than 100 square feet (9.3 m^2) where machinery is located on floor levels with exits more than 6.6 feet (2012 mm) above the ground. Where provided with egress directly to the outdoors or into *approved* building exits, the minimum floor area shall not apply.
4. Refrigerant detectors are installed as required for machinery rooms in accordance with Section 1105.3.
5. Surfaces having temperatures exceeding 800°F (427°C) and open flames are not present where any Group A2, B2, A3 or B3 refrigerant is used (see Section 1104.3.4).
6. All electrical *equipment* and appliances conform to Class 1, Division 2, *hazardous location* classification requirements of NFPA 70 where the quantity of any Group A2, B2, A3 or B3 refrigerant, other than ammonia, in a single independent circuit would exceed 25 percent of the lower flammability limit (LFL) upon release to the space.
7. All refrigerant-containing parts in systems exceeding 100 horsepower (hp) (74.6 kW) drive power, except evaporators used for refrigeration or dehumidification; condensers used for heating; control and pressure relief valves for either; and connecting piping, shall be located either outdoors or in a *machinery room*.

Reason: The definition that is proposed for deletion only applies to Section 1104.2.2, and it makes more sense to incorporate the criteria of the definition into the section than to have them remotely located in Chapter 2. There is a related requirement in IBC Section 1006.2.3, and the IBC approach of incorporating the criteria into the code text vs. using a definition is the approach modeled by this proposal. From a technical perspective, this change eliminates the mentioning of brine solution as being the source of temperature control for application of IMC 1104.2.2. UBC 1006.2.3 mentions only evaporators as a source for temperature control, not brine, and this makes sense given that brine is simply a salt water solution and doesn't present a hazard that warrants any special controls from a code/safety perspective.

Cost Impact: Will not increase the cost of construction
The proposal is simply a clean up of code text and a correlation of the IMC to the IBC. It will not increase the cost of construction.

M 122-15 : 1104.2.2-SHAPIRO4941

M 123-15

1105.6.1.1 (New)

Proponent: Guy McMann, Jefferson County, Colorado., representing Colorado Associatoin of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Mechanical Code

Add new text as follows:

1105.6.1.1 Indoor exhaust opening location. Indoor mechanical exhaust intake openings shall be located where refrigerant leakage is likely to concentrate based on the refrigerant's relative density to air. Air current paths and machinery location shall be accounted for in locating such intake openings.

Reason: Although the code addresses openings when equipment is located outdoors, it is silent where dealing with exhaust duct opening locatoins inside the machinery room. This will be very helpful to inspectors providing guidance when they examine openings in the machinery room. Similar language can be found in ASHRAE-15.

Cost Impact: Will not increase the cost of construction
There will be no addional cost as this in only an editorial modification and clarification. This proposal contains no new requirements.

M 123-15 : 1105.6.1.1 (New)-MCMANN3583

M 124-15

1105.6.3

Proponent: Jeffrey Shapiro, International Institute of Ammonia Refrigeration, representing International Institute of Ammonia Refrigeration (jeff.shapiro@intlcodeconsultants.com)

2015 International Mechanical Code

Revise as follows:

1105.6.3 Ventilation rate. For other than ammonia systems, the mechanical ventilation systems shall be capable of exhausting the minimum quantity of air both at normal operating and emergency conditions, as required by Sections 1105.6.3.1 and 1105.6.3.2. The minimum required emergency ventilation rate for ammonia shall be 30 air changes per hour in accordance with IIAR2. Multiple fans or multispeed fans shall be allowed to produce the emergency ventilation rate and to obtain a reduced airflow for normal ventilation.

Reason: Clarifies that the 30 air change per hour ventilation rate for ammonia is the emergency ventilation rate.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification of the current requirements and will not affect the cost of construction.

M 124-15 : 1105.6.3-SHAPIRO4850

M 125-15

1105.8

Proponent: Jeffrey Shapiro, International Institute of Ammonia Refrigeration, representing International Institute of Ammonia Refrigeration (jeff.shapiro@intlcodeconsultants.com)

2015 International Mechanical Code

Revise as follows:

1105.8 Ammonia discharge. Pressure relief valves for ammonia systems shall discharge in accordance with ~~ASHRAE 15.~~ <u>IIAR 2.</u>

Reason: IIAR 2-2014 was entirely rewritten, and the standard is now a stand-alone document that no longer relies on ASHRAE 15. During the rewrite process, ASHRAE 15 was reviewed, and provisions deemed appropriate for regulating ammonia were incorporated into the IIAR 2. That includes provisions for ammonia discharge. Therefore, the reference to ASHRAE 15 for ammonia refrigeration is no longer necessary.

Cost Impact: Will not increase the cost of construction
This proposal may reduce the cost of construction by simplifying the design/review process to only involve a single standard for ammonia refrigeration system installations.

M 125-15 : 1105.8-SHAPIRO4851

M 126-15

1107.9 (New)

Proponent: Howard Ahern, representing myself (howard@plumberex.com)

2015 International Mechanical Code

Add new text as follows:

1107.9 Vibration Refrigerant piping and joints shall be designed and installed so as to prevent damaging vibration and stress.

Reason: This code change addresses an important element of the design and installation and needs to be part of the code. The code change is needed to address design and installation of refrigerant piping to avoid refrigerant piping vibration & stress problems. It is a requirement in the adopted standard of ASME B31.5
Section 501.5.4 "Piping shall be arranged and supported with consideration to vibration." The Standard is lengthy the practice of isolating the refrigerant line for vibration is often overlooked.

The majority of Equipment Manufactureres Installation Instructions have for the last 4 years already required isolation of the refrigerant piping in their installation instructions to prevent vibration damage and for noise reduction.

Structural and acoustical resonances as well as forced vibration like Gas pulsation-driven vibration can cause various vibration problems that can result fatigue and broken refrigerant lines. Leaking refrigerant is not only a safety and health issue but an environment issue as well. The expense of leaked refrigerant is costly and an economic reason as well..

In a study by the Institute of Refrigeration in 2009, it listed Vibration as one of the most common causes associated with Refrigeration leakage.

*"Causes of vibration in discharge lines can be separated primarily into the following categories: one,

Structural resonances; two, forced vibration; and three, acoustical resonances. Of the causes of vibration, structural resonances are the most common, followed by forced vibration and acoustical resonances. Multiple combinations of the three also can cause vibration."

"*Gas pulsation-driven vibration is the most common cause of forced vibration. Pulsation-driven vibration does not mean that the compressor is emitting such high pulsations that it forces the line to vibrate regardless of the piping geometry. All reciprocating compressors emit discharge gas pulsations (a reciprocating compressor generates a constant stream of pulsating flow). When discharge gas pulsations react with the piping system geometry in such a way as to set up an oscillating force, discharge pipe vibration may occur. Condensations and refractions are clusters of various lengths of sound waves that catch up with each other within the piping system. This causes the amplitude of the sound level to increase, causing loud disturbing pulsating harmonic sounds. An example of this is when the discharge line comes off the compressor service valve and enters one, two, three or more elbows. Picture the pulsating discharge gas flowing from the compressor through the first straight section of discharge pipe. The discharge gas then hits the first elbow and bounces into the next section of straight pipe.

An oscillation in the gas already has started and each elbow may increase the oscillation, creating a significant amount of line vibration. Designing the discharge piping as straight as possible will reduce the chances of pulsation- driven vibration occurring."

*April 2006 ~ RSES Journal Wes Taylor,

Cost Impact: Will not increase the cost of construction
This will not increase cost as it has been part of the adopted standard for design and instalation.

M 126-15 : 1107.1.1 (New)-AHERN4771

M 127-15

1107.2

Proponent: Jeffrey Shapiro, International Institute of Ammonia Refrigeration, representing international institute of ammonia refrigeration (jeff.shapiro@intlcodeconsultants.com)

2015 International Mechanical Code

Revise as follows:

1107.2 Piping location. Refrigerant piping that crosses an open space that affords passageway in any building shall be not less than 7 feet 3 inches (2210 mm) above the floor unless the piping is located against the ceiling of such space. Refrigerant piping shall not be placed in any elevator, dumbwaiter or other shaft containing a moving object or in any shaft that has openings to living quarters or to means of egress. Refrigerant piping shall not be installed in an ~~enclosed public stairway,~~exit stairway ~~landing~~ or ~~means of egress.~~ramp or an exit passageway.

Reason: The current text prohibiting refrigerant piping from the means of egress essentially prohibits refrigerant piping from anywhere in a building because the means of egress, by definition, includes the exit access. It seems that the intent of this section is to prohibit the installation of refrigerant piping in a required exit enclosure, and the proposed text, which applies the text to exit stairs and ramps and exit passageways accomplishes that intent with clarity.

Cost Impact: Will not increase the cost of construction
The proposal should not impact the cost of construction, but might reduce the cost in cases where the location of refrigerant piping is overly restricted based on the existing text.

M 127-15 : 1107.2-SHAPIRO4705

M 128-15

1107.2

Proponent: Maureen Traxler, Seattle Dept of Planning & Development, representing Washington Association of Building Officials Technical Code Development Committee (maureen.traxler@seattle.gov)

2015 International Mechanical Code

Revise as follows:

1107.2 Piping location. Refrigerant piping that crosses an open space that affords passageway in any building shall be not less than 7 feet 3 inches (2210 mm) above the floor unless the piping is located against the ceiling of such space. Refrigerant piping shall not be placed in any of the following:

1. a fire-resistance-rated exit access corridor.
2. an interior exit stairway.
3. an interior exit ramp.
4. an exit passageway.
5. an elevator, dumbwaiter or other shaft containing a moving object~~ or in any~~.
6. a shaft that has ~~openings to living quarters~~one or ~~to means of egress. Refrigerant piping shall not be installed in an enclosed public stairway,~~more openings into a dwelling unit or sleeping unit.
7. a shaft that has one or more openings into a fire-resistance-rated exit access corridor, interior exit stairway ~~landing~~or ramp, or ~~means of egress.~~exit passageway.

Reason: The current code prohibits refrigerant piping in "means of egress" and in shafts with openings into "means of egress." The IBC definition is "A continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building or structure to a public way…." In other words, the means of egress includes all occupied spaces in a building, so prohibiting refrigerant piping in the means of egress means it's prohibited almost everywhere. Section 1107.2 is copied from ASHRAE 15 but this proposal gives it a reasonable interpretation that identifies specific locations where refrigerant piping is prohibited, and allows it to be installed in occupied buildings. This proposal is meant as an interpretation of the term "means of egress" as used in the ASHRAE language, without changing the intended meaning of the term.

Cost Impact: Will not increase the cost of construction
This proposal does not increase the cost of construction because it merely interprets an ambiguous term that is in the current code.

M 128-15 : 1107.2-TRAXLER4752

M 129-15

1107.9.1 (New)

Proponent: Howard Ahern, representing Airex Mfg. (howard@plumberex.com)

2015 International Mechanical Code

Add new text as follows:

1107.9.1 **Exterior wall penetrations** Refrigerant piping penerating an exterior wall shall be isolated and supported to prevent damaging vibration.

Reason: This code change is needed to create consistency for installation with this code and equipment manufactureres installation instructions for isolation of refrigerant piping to prevent vibration damage. Refrigerant piping must be isolated and supported to eliminate vibration transfer to the exterior wall specifically from the penetration of refrigerant piping. The majority of Equipment manufactureres installation instructions already require isolation of the refrigerant piping in their installation instructions to prevent vibration damage. Isolation of the piping is also need to prevent damage to the piping from contact with hard surfaces and to eliminate stress from vibration which can cause piping and joint fatigue that could lead to leaking refrigerant.
This code change also address the problem with refrigerant piping wall penetrations that are often are overlooked as a vibration path. Significant acoustic energy can pass through a small opening in a wall. The Exterior wall is most critical for its close proximity to the equipment and is the first wall of the building that is penetrated.

The code has already recognizes the problems associated with piping vibration as required in The IMC Section 1107.2.1 for concrete floors. The Exterior wall is often the closest to the equipment and the first wall of the building that is penetrated.

*"The only sure way to cut off the path of objectionable vibration is with an isolation system. Vibration will take the path of least resistance." If the connected pipe is not isolated, then uwanted vibration may bleed through to the structure."

Complaints by building occupants are usually of either of a high level of vibration that is disturbing or unacceptable noise from the piping or transmitted to the building. Depending on the sensitivity to vibration or vibration noise some building such as hospital, office building, and concert halls etc. noise reduction is critical. Classroom acoustics are very important (especially in early primary education) as studies show a link between learning and good room acoustics. Hotels, Dormitories, and Apartments all need to minimize unacceptable and disturbing noises due to Vibration.

* "An isolation system is the best inexpensive insurance against unwanted vibration."

* "Vibration isolator is defined as a resilient material placed between the equipment and the structure to create a low natural frequency support system for the equipment. Some common

materials are elastomeric pads or mounts, helical steel springs, wire rope springs, and air springs". Retrofitting after complaints develop is often far more expensive than an original installation."

*Vibration Isolation By Robert Simmons, P.E., ASHRAE Journal 2009

Cost Impact: Will not increase the cost of construction
This will not increase cost as design and installation of piping to account for vibration has been part of the adopted standard for design and installation.

M 129-15 : 1107.2.2.1 (New)-AHERN5658

M 130-15

1107.5.2

Proponent: Pennie L Feehan, Copper Development Association, representing Copper Development Association (penniefeehan@me.com)

2015 International Mechanical Code

Revise as follows:

1107.5.2 Copper and ~~brass~~copper-alloy pipe. Standard iron-pipe size, copper and ~~red brass (~~copper-alloy (not less than 80-percent copper) pipe shall conform to ASTM B 42 and ASTM B 43.

Reason: The proposal removes brass because brass is a copper alloy.

Cost Impact: Will not increase the cost of construction
This proposal is updating the name of the materials used in the field and will not impact the cost of construction.

M 130-15 : 1107.5.2-FEEHAN3728

M 131-15

1107.5.3, CHAPTER 15

Proponent: Pennie L Feehan, Copper Development Association, representing Copper Development Association (penniefeehan@me.com)

2015 International Mechanical Code

Revise as follows:

1107.5.3 Copper tube. Copper tube used for refrigerant piping erected on the premises shall be seamless copper tube of Type ACR (hard or annealed) complying with ASTM B 280 and ASTM B819. Where *approved*, copper tube for refrigerant piping erected on the premises shall be seamless copper tube of Type K, L or M (drawn or annealed) in accordance with ASTM B 88. Annealed temper copper tube shall not be used in sizes larger than a 2-inch (51 mm) nominal size. Mechanical joints shall not be used on annealed temper copper tube in sizes larger than $^7/_8$-inch (22.2 mm) OD size.

Add new standard(s) as follows:
ASTM B819−00 (R2011) Standard Specification for Seamless Copper Tube for Medical Gas Systems

Reason: Registered design professionals would like to be able to specify ASTM B819 tube in type K wall thickness for use in systems utilizing 410A refrigerant. The pressure/temperature rating of ASTM B280 tube is not high enough in some cases and sizes to accommodate the increased pressures exhibited by the saturation pressure of 410A refrigerant at some of the temperatures.

With respect to material, the internal cleanliness requirements ASTM B280 and B819 are fundamentally equal. They both are required to meet strict internal cleanliness and allowable particulate requirements as part of their respective ASTM standards. The difference between the two is that ASTM B280 tube is manufactured in one size ACR (type L) measured by actual outside diameter and ASTM B819 tubes types K and L tube are measured by actual outside diameter plus 1/8-inch, making it larger than the standard size designation. Type K and L, are only available in hard temper. And ASTM B819 tube is identified as OXY/ACR, ACR/MED with either green or blue ink stripes to identify type K or type L wall thickness.

Cost Impact: Will not increase the cost of construction
The proposed change will not increase the cost of construction, as it is adding a standard that is used in refrigeration systems..

Analysis: A review of the standard proposed for inclusion in the code, ASTM B819, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 131-15 : 1107.5.3-FEEHAN3716

M 132-15

1107.5.3, CHAPTER 15

Proponent: Pennie L Feehan, Copper Development Association, representing Copper Development Association (penniefeehan@me.com)

2015 International Mechanical Code

Revise as follows:

1107.5.3 Copper tube. Copper tube used for refrigerant piping erected on the premises shall be seamless copper tube of Type ACR (hard or annealed) complying with ASTM B 280~~. Where *approved*, copper tube for refrigerant piping erected on the premises shall be seamless copper tube of Type K, L~~ or ~~M (drawn or annealed) in accordance with~~ ASTM ~~B 88~~B819. Annealed temper copper tube shall not be used in sizes larger than a 2-inch (51 mm) nominal size. Mechanical joints shall not be used on annealed temper copper tube in sizes larger than $^{7}/_{8}$-inch (22.2 mm) OD size.

Add new standard(s) as follows:
ASTM B819-00 (R2011) Standard Specification for Seamless Copper Tube for Medical Gas Systems

Reason: I am deleting the where approved sentence, because it is confusing and may cause issues for the refrigeration system. ASTM B88 tube is not cleaned or capped by the manufacture and it would not be specified by a registered design professional. It would only be used as a repair or quick fix and not inspected.

Cost Impact: Will not increase the cost of construction
This proposal is adding a standard that is used in the field and will have no impact on the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, ASTM B819, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 132-15 : 1107.5.3-FEEHAN3719

M 133-15

1107.5.3

Proponent: Jay Peters, representing Cerro Flow Products (peters.jay@me.com)

2015 International Mechanical Code

Revise as follows:

1107.5.3 Copper tube. Copper tube used for refrigerant piping erected on the premises shall be seamless copper tube of Type ACR (hard or annealed) complying with ASTM B 280. Where *approved*, copper tube for refrigerant piping erected on the premises shall be seamless copper tube of Type K, L or M (drawn or annealed) in accordance with ASTM B 88. Annealed temper copper tube shall not be used in sizes larger than a 2-inch (51 mm) nominal size. Mechanical joints<u>, other than press-connect joints,</u> shall not be used on annealed temper copper tube in sizes larger than $^{7}/_{8}$-inch (22.2 mm) OD size.

Reason: Press-connect joints and fitings specifically manufacturerd for refrigerant pipe and tube connections (including soft annealed copper) have been tested by Underwriters Laboratories (UL) on sizes larger than 7/8" to meet UL 207, already referenced in the IMC. This technology is ***listed*** by both ICC ES PMG and UL to meet the requirements of the International Mechanical Code and the Uniform Mechanical Code. The term was changed to match the terminology used in the industry and the ASTM standard from ***press joint*** to ***press-connect joint***. A proposal to edit the definition to match this term has also been proposed to the IMC.

Cost Impact: Will not increase the cost of construction
This new technology has great potential to save construction costs by drastically reducing labor costs as well as potential damage caused by typical brazing and soldering flames.

M 133-15 : 1107.5.3-PETERS4916

M 134-15

1201.4 (New), CHAPTER 15

Proponent: William Chapin, representing Professional Code Consulting, LLC (bill@profcc.us)

2015 International Mechanical Code

Add new text as follows:

1201.4 Installation. Hydronic heating systems shall comply with the requirements of CSA B214.

Add new standard(s) as follows:
CSA B214-12 Installation Code for Hydronic Heating Systems

Reason: CSA B214-12 contains additional requirements and information regarding the installation of the systems that are not covered within the IMC such as Oxygen Permeation for closed systems, additives added to the water, labels and tags for identifying those additives, and prevention of stagnation which can lead to Legionella bacteria exposure.

Cost Impact: Will not increase the cost of construction
Will not increase the cost of construction since this document is only for additional installation guidance not currently covered under Chapter 12 of the IMC.

Analysis: A review of the standard proposed for inclusion in the code, CSA B214 , with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 134-15 : 1201.4 (New)-CHAPIN5256

M 135-15

Table 1202.4, Table 1210.4

Proponent: Mike Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservnet.com)

2015 International Mechanical Code

Revise as follows:

TABLE 1202.4
HYDRONIC PIPE

MATERIAL	STANDARD (see Chapter 15)
Cross-linked polyethylene (PEX) tubing	ASTM F 876; ~~ASTM F 877~~

(Portions of table not shown remain unchanged)

TABLE 1210.4
GROUND-SOURCE LOOP PIPE

MATERIAL	STANDARD (see Chapter 15)
Cross-linked polyethylene (PEX)	ASTM F 876; ~~ASTM F 877;~~ CSA B137.5

(Portions of table not shown remain unchanged)

Reason: ASTM F877 has been revised a few years ago to remove the redundant pipe/tubing dimensional and performance specifications which are otherwise specified in ASTM F876. F877 remains a PEX fitting and PEX system materials and performance standard exclusive for use with ASTM F876 piping/tubing.

Cost Impact: Will not increase the cost of construction
This proposal simply deletes a standard that is no longer pipe or tubing related from the code. The piping material is now covered by a different standard, and as such, the option is not deleting or adding a material. Thus the code with this proposal added will not cause the cost of construction to increase. ASTM F877 is already in the code.

M 135-15 : T1202.4-CUDAHY4737

M 136-15

Table 1202.4, Table 1210.4, Chapter 15

Proponent: Larry Gill, representing IPEX USA LLC (larry.gill@ipexna.com)

2015 International Mechanical Code

Revise as follows:

TABLE 1202.4
HYDRONIC PIPE

MATERIAL	STANDARD (see Chapter 15)
Raised temperature polyethylene (PE-RT)	ASTM F 2623; ASTM F 2769; <u>CSA B137.18</u>

(Portions of table not shown remain unchanged)

TABLE 1210.4
GROUND-SOURCE LOOP PIPE

MATERIAL	STANDARD (see Chapter 15)
Raised temperature polyethylene (PE-RT)	ASTM F 2623; <u>ASTM F2769; CSA B137.18</u>

(Portions of table not shown remain unchanged)

Add new standard(s) as follows:

<u>CSA B137.18 - 13 Polyethylene of raised temperature resistance (PE-RT) tubing systems for pressure applications.</u>

Reason: CSA B137.18 - Polyethylene of raised temperature resistance (PE-RT) tubing systems for pressure applications is a new consensus standard for tubing and fittings. The scope of the standard includes ground source geothermal systems and hydronic heating systems. ASTM F2769 is a standard for PE-RT systems which is currently referenced in the IMC for other applications and can be used for ground source loop pipe and hydronic pipe.

Cost Impact: Will not increase the cost of construction
This change is to simply add reference to a new standard to the Code. There is no cost impact in adding the new standard. This change just permits an option to meet a different standard then the current reference standards.

Analysis: A review of the standard proposed for inclusion in the code, CSA B137.18, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 136-15 : T1202.4-GILL4436

M 137-15

Table1202.5, CHAPTER 15

Proponent: William Chapin, Professional Code Consulting, LLC, representing Professional Code Consulting, LLC (bill@profcc.us)

2015 International Mechanical Code

Revise as follows:

TABLE 1202.5
HYDRONIC PIPE FITTINGS

MATERIAL	STANDARD (see Chapter 15)
Copper and copper alloys	ASME B16.15; ASME B16.18; ASME B16.22; ASME B16.26; ASTM F 1974; ASTM B16.24; ASME B16.51; ASSE 1061
Ductile iron and gray iron	ANSI/AWWA C110/A21.10; AWWA C153/A21.53; ASTM A 395; ASTM A 536; ASTM F 1476; ASTM F 1548
Ductile iron	ANSI/AWWA C153/A21.53
Gray iron	ASTM A 126
Malleable iron	ASME B16.3
PE-RT fittings	ASTM F 1807; ASTM F 2098; ASTM F 2159; ASTM F 2735; ASTM F 2769; ASSE 1061
PEX fittings	ASTM F 877; ASTM F 1807; ASTM F 2159; ASSE 1061
Plastic	ASTM D 2466; ASTM D 2467; ASTM F 438; ASTM F 439; ASTM F 877; ASTM F 2389; ASTM F 2735
Steel	ASME B16.5; ASME B16.9; ASME B16.11; ASME B16.28; ASTM A 53; ASTM A 106; ASTM A 234; ASTM A 420; ASTM A 536; ASTM A 395; ASTM F 1476; ASTM F 1548

Add new standard(s) as follows:
ASSE 1061-2011 Performance Requirements for Push Fit Fittings.

Reason: ASSE 1061 Performance Requirements for Push Fit Fittings was originally published in 2006 and referenced in the 2009 IPC. These fittings have been used in the industry for over 15 years.

Cost Impact: Will not increase the cost of construction
Proposal addresses fittings and methods already used in the industry.

Analysis: A review of the standard proposed for inclusion in the code, ASSE-1061, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 137-15 : T1202.5-CHAPIN5250

M 138-15

Table 1202.5, Table 1210.5, Chapter 15

Proponent: Larry Gill, representing IPEX USA LLC (larry.gill@ipexna.com)

2015 International Mechanical Code

Revise as follows:

TABLE 1202.5
HYDRONIC PIPE FITTINGS

MATERIAL	STANDARD (see Chapter 15)
PE-RT fittings	ASTM F 1807; ASTM F 2098; ASTM F 2159; ASTM F 2735; ASTM F 2769; ASTM D3261; CSA B137.18; CSA B137.1

(Portions of table not shown remain unchanged)

TABLE 1210.5
GROUND-SOURCE LOOP PIPE FITTINGS

PIPE MATERIAL	STANDARD (see Chapter 15)
Raised temperature polyethylene (PE-RT)	ASTM D 3261; ASTM F 1807; ASTM F 2159; CSA B137.1; ASTM F2098; ASTM F2735; ASTM F2769; CSA B137.18

(Portions of table not shown remain unchanged)

Add new standard(s) as follows:

CSA B137.18 - 13 Polyethylene of raised temperature resistance (PE-RT) tubing systems for pressure applications.

Reason: CSA B137.18 - Polyethylene of raised temperature resistance (PE-RT) tubing systems for pressure applications is a new consensus standard for tubing and fittings is being added to Tables 1202.5 and 1210.5. The scope includes fittings for these applications. CSA B137.1 and ASTM D3261 are being added to Table 1202.5 and are already included in other tables in the IMC and can be used for this application as well. . ASTM F2098, ASTM F2735, and ASTM F2769 are being added to Table 1210.5 and are already referenced in the IMC for PERT fittings for other applications and can be used for this application as well.

Cost Impact: Will not increase the cost of construction
This proposal simply adds an alternative standard for fittings. The actual fittings are similar or the same as the current standards for fittings. No impact on cost.

Analysis: A review of the standard proposed for inclusion in the code, CSA B137.18, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 138-15 : T1202.5-GILL4439

M 139-15

Table 1202.5

Proponent: Gary Morgan, Viega LLC, representing Viega LLC (gary.morgan@viega.us)

2015 International Mechanical Code

Revise as follows:

TABLE 1202.5
HYDRONIC PIPE FITTINGS

MATERIAL	STANDARD (see Chapter 15)
PEX fittings	ASTM F 877; ASTM F 1807; ASTM F 2159; ASTM F1960; ASTM F2080

(Portions of table not shown remain unchanged)

Reason: Added two additional commonly used PEX fitting standards, F1960 and F2080, to the Table 1202.5. This has clearly been a long-standing oversight.

Cost Impact: Will not increase the cost of construction
Addition of two more fitting standards to this table has absolutely no impact on the cost of construction.

M 139-15 : T1202.5-MORGAN4998

M 140-15

1203.3.3

Proponent: Tim Earl, GBH International, representing The Oatey Company (tearl@gbhinternational.com)

2015 International Mechanical Code

Revise as follows:

1203.3.3 Soldered joints. Joint surfaces shall be cleaned. A flux conforming to ASTM B 813 shall be applied. The joint shall be soldered with a solder conforming to ASTM B 32. The base material for tinning fluxes, excluding the tinning powder, shall meet the criteria of ASTM B 813.

Reason: Tinning fluxes have been shown in several studies to create a stronger and more consistently water-tight connection when using low-lead fittings. This means less rework on the job site and less likelihood of joint failure. With the federal mandate of low-lead in 2014, this has become a significant issue and the codes need to reflect this need. We are pursuing changes to the referenced ASTM standard as well, however these will not be completed in time for this code cycle and we feel that it is important to make this change as it has the potential to save money related to rework and repair. Once the standard is altered, we would support removing the language being proposed.

Cost Impact: Will not increase the cost of construction
Will not increase cost, as it simply adds another option.

M 140-15 : 1203.3.3-EARL4638

M 141-15

1203.3.3, Chapter 15

Proponent: Marcelo Hirschler, representing The Oatey Corporation (gbhint@aol.com)

2015 International Mechanical Code

Revise as follows:

1203.3.3 Soldered joints. ~~Joint surfaces~~Solder joints shall be ~~cleaned~~made in accordance with ASTM B828. Cut tube ends shall be reamed to the full inside diameter of the tube end. A flux conforming to ASTM ~~B 813~~B813 shall be applied. The joint shall be soldered with a solder conforming to ASTM ~~B 32~~B32.

Add new standard(s) as follows:
ASTM B828 Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings.

Reason: This change creates consistency between the IMC and the IPC. The proposed language is identical to that in IPC 605.13.3. As often mechanical and plumbing contractors can be one and the same, this creates uniform practice in the industry.

Cost Impact: Will not increase the cost of construction
This propsal simply clarifies surface preparation, which will not increase cost.

Analysis: A review of the standard proposed for inclusion in the code, ASTM B828, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 141-15 : 1203.3.3-HIRSCHLER4804

M 142-15

1203.3.4

Proponent: Tim Earl, GBH International, representing The Oatey Company (tearl@gbhinternational.com)

2015 International Mechanical Code

Revise as follows:

1203.3.4 Solvent-cemented joints. Joint surfaces shall be clean and free of moisture. An *approved* primer shall be applied to CPVC and PVC pipe-joint surfaces. Joints shall be made while the cement is wet. Solvent cement conforming to the following standards shall be applied to all joint surfaces:

1. ASTM D 2235 for ABS joints.
2. ASTM F 493 for CPVC joints.
3. ASTM D 2564 for PVC joints.

CPVC joints shall be made in accordance with ASTM D 2846.

~~Exception~~Exceptions:

1. For CPVC pipe joint connections, a primer is not required where all of the following conditions apply:
   - 1.1. The solvent cement used is third-party certified as conforming to ASTM F 493.
   - 1.2. The solvent cement is yellow in color.
   - 1.3. The solvent cement is used only for joining $^1/_2$-inch (12.7 mm) through 2-inch (51 mm) diameter CPVC pipe and fittings.
   - 1.4. The CPVC pipe and fittings are manufactured in accordance with ASTM D 2846.
2. A primer is not required where the manufacturer's instructions for the solvent cement do not require the application of a primer for that application.

Reason: The market place has already begun using these fast setting orange CPVC cements as a one-step application where local inspectors allow. This simply meets a market condition and gives broader authority for these applications to occur. A work item is being created in ASTM to create a standard practice for this, but is at least this code cycle away from being completed. Once that is complete we would support removing this from the code should it be allowed. However, in the interim we again ask that the practice be allowed to help meet market demand. This would also be consistent with language in the IRC (P2906.9.1.2) and a similar proposal as this in the IPC.

Cost Impact: Will not increase the cost of construction
Will not impact cost as this proposal would simply allow another option for CPVC cement.

M 142-15 : 1203.3.4-EARL4595

M 143-15

1203.8.1 (New)

Proponent: Donald Jones, None, representing Self (donaldmjones@att.net)

2015 International Mechanical Code

Add new text as follows:

<u>**1203.8.1** **Pre-heat treatment.** The area of the tube that will receive the formed tee branch opening shall be annealed prior to forming the tee branch opening where any of the following apply:</u>

1. <u>The tube size is greater than 2 inches.</u>
2. <u>The tee branch opening size is the same size as the tube in which such opening is formed.</u>
3. <u>The manufacturer of the tee branch forming equipment specifies that the tube be annealed.</u>

Reason: Full size outlets and large bore tubing must be annealed before it undergoes extrusion. Annealing copper tubing prior to forming a tee outlet is standard procedure in the field, but like any good practice, it is not always followed. Annealing the tubing increases ductility and formability. The process of annealing allows the tube to undergo deformation without fracture. The result is a sound joint.

Bibliography: http://www.copper.org/applications/plumbing/cth/extruded-outlets/cth_14mech_install.html
http://www.t-drill.com/prodthe area of the tube to be utilized for forming a tee oulet shall be annealed prior to forming the tee outlet uct.asp?sua=2⟨=9&s=5&nav=5002006

See page 61

http://www.t-drill.com

Cost Impact: Will increase the cost of construction
The practice of annealing tubing prior to forming a tee outlet is supposed to be standard procedure in the field, but like many requirements, it is not always followed. Annealing the tubing increases ductility and workability, and the result is a better joint. Since annealing of full size branches and tubing larger than 2" are manufacturer's requirements, it will not impact cost. By adding the language to the code, it will, however, help to ensure that the joints are properly made. Short cuts will be avoided.

M 143-15 : 1203.3.8-JONES4837

M 144-15

1203.5, 1203.6

Proponent: Pennie L Feehan, Copper Development Association, representing Copper Development Association (penniefeehan@me.com)

2015 International Mechanical Code

Delete without substitution:

~~**1203.5 Brass pipe.** Joints between brass pipe or fittings shall be brazed, mechanical, threaded or welded joints conforming to Section 1203.3.~~

~~**1203.6 Brass tubing.** Joints between brass tubing or fittings shall be brazed, mechanical or soldered joints conforming to Section 1203.3.~~

Reason: Brass is a copper alloy and is covered by section 1203.7 & 1203.8

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction as this change is to remove language covered in section 1203.7 & 1203.8.

M 144-15 : 1203.5-FEEHAN3720

M 145-15

202, 1203.8, 1203.8.3

Proponent: Curtis Dady, Viega, LLC, representing Viega, LLC (curtis.dady@viega.us)

2015 International Mechanical Code

Revise as follows:

SECTION 202 DEFINITIONS

~~PRESS~~PRESS-CONNECT JOINT. *No change to text.*

1203.8 Copper or copper-alloy tubing. Joints between copper or copper-alloy tubing or fittings shall be brazed, mechanical or soldered joints conforming to Section 1203.3, flared joints conforming to Section 1203.8.1, push-fit joints conforming to Section 1203.8.2 or ~~press-type~~press-connect type joints conforming to Section 1203.8.3.

1203.8.3 ~~Press~~Press-connect joints. *~~Press~~Press-connect joints* shall be installed in accordance with the manufacturer's instructions.

Reason: Harmonize the designation and definition of PRESS-CONNECT fittings and joints throughout the code.
Both referenced standards (ANSI LC-4/CSA 6.32 and ASME B16.51) listed in the code use the designation "press-connect" in the title and body of the standard as well as code sections IPC 605.14.5, IRC P2906.18 and IRC G2414.10.2.

Cost Impact: Will not increase the cost of construction
Change is simply for clarity of what is already included.

M 145-15 : 1203.8-DADY3581

M 146-15

1206.12 (New)

Proponent: Timothy Manz, representing Association of Minnesota Building Officials (tmanz@ci.blaine.mn.us)

2015 International Mechanical Code

Add new text as follows:

<u>**1206.12** **Prohibited tee applications.** Fluid in the supply side of a hydronic system shall not enter a tee fitting through the branch opening. Fluid from two returns shall not enter on the run of the same tee.</u>

Reason: This language prohibits bullhead tees, which should not be used in hyrdonic systems as they create noise and turbulence and also waste circulator head.

Cost Impact: Will not increase the cost of construction
This new provision will not increase the cost of construction because it is a basic design consideration that can be easily incorporated into the layout of the piping system.

M 146-15 : 1206.1.1 (New)-MANZ5809

M 147-15

1206.12 (New)

Proponent: Timothy Manz, representing Association of Minnesota Building Officials (tmanz@ci.blaine.mn.us)

2015 International Mechanical Code

Add new text as follows:

1206.12 **Mixing of radiation.** Except where part of an engineered design, radiation elements having different rates of heat transfer shall not be intermixed in the same heating zone.

Reason: Using different types of radiation in the same heating zone results in poorly operating systems and wastes energy.

Cost Impact: Will not increase the cost of construction
This provision will not increase the cost of the installation if the appropriate types of radiation are used in each heating zone in accordance with commonly-accepted design practices.

M 147-15 : 1206.12 (New)-MANZ5811

M 148-15

1206.13 (New)

Proponent: Timothy Manz, representing Association of Minnesota Building Officials (tmanz@ci.blaine.mn.us)

2015 International Mechanical Code

Add new text as follows:

1206.13 Draining and venting. Hydronic piping shall be installed so that the pipes can be drained and so that air can be completely removed from the system during filling.

Reason: It is a basic fundamental of piping design to provide for draining and venting of hydronic systems, so it should be a minimum code requirement.

Cost Impact: Will increase the cost of construction
This provision will slightly increase the cost of installation, but it is well worth the minimal cost to have a system that can be drained and allow for the air to be completely removed during filling.

M 148-15 : 1206.13 (New)-MANZ5812

M 149-15

1207.3 (New)

Proponent: Timothy Manz, representing Association of Minnesota Building Officials (tmanz@ci.blaine.mn.us)

2015 International Mechanical Code

Add new text as follows:

1207.3 Freeze protection.
Where hydronic piping systems are subject to freezing temperatures, the transfer fluid in such systems shall be protected from freezing by means of antifreeze solutions.

Reason: This requirement is a necessity in a cold climate like Minnesota to prevent damage that can occur as a result of freezing piping and components of the hydronic system when not adequately protected.

Cost Impact: Will increase the cost of construction
Even though this provision will increase the cost of construction in northern climates, the cost to incorporate antifreeze into the design of the hydronic system is minimal compared to the damage that can occur if not protected in freezing conditions.

M 149-15 : 1207.3 (New)-MANZ5814

M 150-15

1208.1

Proponent: Mike Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservnet.com)

2015 International Mechanical Code

Revise as follows:

1208.1 General. Hydronic piping systems shall be tested hydrostatically at one and one-half times the maximum system design pressure, but not less than 100 psi (689 kPa). The duration of each test shall be not less than 15 minutes.

> **Exception:** For plastic piping systems, testing with a compressed gas shall be an alternative to hydrostatic testing where compressed air or other gas pressure testing is specifically authorized by all of the manufacturer's instructions for the plastic pipe and fitting products installed at the time the system is being tested, and compressed air or other gas testing is not otherwise prohibited by applicable codes, laws or regulations outside of this code.

Reason: PPFA has a new air testing policy, which allows for some limited air testing of plastic piping systems, if a number of conditions are met.

Bibliography: PLASTIC PIPE AND FITTINGS ASSOCIATION POLICY ON TESTING PLASTIC PIPE AND FITTINGS INSTALLATIONS WITH COMPRESSED GAS, PPFA, 2014, http://www.ppfahome.org/ub4.aspx

Compressed air or any other compressed gases should not be used for pressure testing plastic plumbing systems.

EXCEPTIONS:

1.) With trap seal pull testing, where a completed DWV system is vacuum tested with all of its traps filled with water, and the trap seals are tested with a vacuum typically between one and two inches of water column.

2.) For plastic piping systems specifically designed for use with compressed air or gasses;

• Manufacturers' instructions must be strictly followed for installation, visual inspection, testing and use of the systems,

(and)

• Compressed air or other gas testing is not prohibited by the authority having jurisdiction (AHJ).

3.) When compressed air or other gas pressure testing is specifically authorized by the applicable written instructions of the manufacturers of all plastic pipe and plastic pipe fittings products installed at the time the system is being tested and compressed air or other gas testing is not prohibited by the authority having jurisdiction (AHJ).

The manufacturer should be contacted if there is any doubt as to how a specific system should be tested.

Cost Impact: Will not increase the cost of construction

This proposal simply adds another option for air testing some specific piping materials into the code and as such, the option is not requiring that this method be chosen. Thus the code with this proposal added will not cause the cost of construction to increase.

M 150-15 : 1208.1-CUDAHY4680

M 151-15

1208.1

Proponent: Gary Morgan, Viega LLC, representing Viega LLC (gary.morgan@viega.us)

2015 International Mechanical Code

Revise as follows:

1208.1 General. Hydronic system piping ~~systems~~ shall be tested ~~hydrostatically~~with either water or, for piping systems other than plastic, by air at one and one-half times the maximum system design pressure, but not less than 100 psi (689 kPa). The duration of each test shall be not less than 15 minutes.

> **Exception:** For plastic piping systems, testing with a compressed gas shall be an alternative to hydrostatic testing where compressed air or other gas pressure testing is specifically authorized by all of the manufacturer's instructions for the plastic pipe and fittings products installed at the time the system is being tested, and compressed air or other gas testing is not otherwise prohibited by applicable codes, laws, or regulations outside of this code.

Reason: PPFA (Plastic Pipe and Fittings Association) has a new air testing policy which allows for some limited air testing of plastic piping systems if certain conditions are met. The vast majority of plastic pipe used in hydronic applications pose no more of a safety concern than does air testing of metallic piping systems. The proposed language is also consistant with new language being proposed by PPFA in the IPC and IRC-P.

Cost Impact: Will not increase the cost of construction
If anything, allowance of air testing vs. hydrostatic testing will save time and expense typically.

M 151-15 : 1208.1-MORGAN4993

M 152-15

1209.3, 1209.3.5 (New)

Proponent: Gary Morgan, Viega LLC, representing Viega LLC (gary.morgan@viega.us)

2015 International Mechanical Code

Revise as follows:

SECTION 1209
EMBEDDED PIPING

1209.1 Materials. *No change to text.*

1209.2 Pressurizing during installation. *No change to text.*

1209.3 Embedded joints. Joints of pipe or tubing that are embedded in a portion of the building, such as concrete or plaster, shall be in accordance with the requirements of Sections 1209.3.1 through ~~1209.3.4~~1209.3.5

1209.3.1 Steel pipe joints. *No change to text.*

1209.3.2 Copper tubing joints. *No change to text.*

1209.3.3 Polybutylene joints. *No change to text.*

1209.3.4 Polyethylene of raised temperature (PE-RT) joints. PE-RT tubing shall be installed in continuous lengths or shall be joined by hydronic fittings listed in Table 1202.5.

1209.3.5 Cross-linked polyethylene (PEX) joints. PEX tubing shall be installed in continuous lengths or shall be joined by hydronic fittings listed in Table 1202.5.

Reason: Addition of the PEX joints section is necessary to be consistant with the previous sections and to be consistent with the allowances given in the PE-RT joints section, 1209.3.4.

Cost Impact: Will not increase the cost of construction
This addition has no impact whatsoever on the cost of construction.

M 152-15 : 1209.3-MORGAN4995

M 153-15

1209.5, 1209.5.1, 1209.5.2

Proponent: Brent Ursenbach, Salt Lake County, representing Utah Chapter ICC (bursenbach@slco.org)

2015 International Mechanical Code

Revise as follows:

1209.5 Thermal barrier required. Radiant floor heating systems shall be provided with a thermal barrier in accordance with Sections 1209.5.1 ~~through 1209.5.4.~~and 1209.5.2. Insulation R-values for slab-on-grade and suspended floor installation shall be in accordance with the International Energy Conservation Code.

> **Exception:** Insulation shall not be required in engineered systems where it can be demonstrated that the insulation will decrease the efficiency or have a negative effect on the installation.

Delete without substitution:

~~**1209.5.1 Slab-on-grade installation.** Radiant piping utilized in slab-on-grade applications shall be provided with insulating materials installed beneath the piping having a minimum *R*-value of 5.~~

~~**1209.5.2 Suspended floor installation.** In suspended floor applications, insulation shall be installed in the joist bay cavity serving the heating space above and shall consist of materials having a minimum *R*-value of 11.~~

Reason: Insulation R-values should be located in the IECC, not the IMC. A search shows these are the only R-values specified in the IMC. Design professionals, code officials, contractors, developers, virtually all involved in the building process look to the IECC for specific thermal performance values. Locating these two sub-sections in the IMC has created considerable confusion. A similiar proposal will be submitted in Group B, to add these sub-sections into the IECC where they belong.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction as it is the first step in re-locating an *existing* insulation requirement from the IMC to the IECC. There is no increase in the R-value of the insulation or the installation labor.

M 153-15 : 1209.5.1-URSENBACH5799

M 154-15

Table 1210.4, Table 1210.5, CHAPTER 15

Proponent: Jeremy Brown, representing NSF International

2015 International Mechanical Code

Revise as follows:

TABLE 1210.4
GROUND-SOURCE LOOP PIPE

MATERIAL	STANDARD (see Chapter 15)
Chlorinated polyvinyl chloride (CPVC)	ASTM D 2846; ASTM F 441; ASTM F 442
Cross-linked polyethylene (PEX)	ASTM F 876; ASTM F 877; CSA B137.5
Polyethylene/aluminum/polyethylene (PE-AL-PE) pressure pipe	ASTM F 1282; CSA B137.9
High-density polyethylene (HDPE)	ASTM D 2737; ASTM D 3035; ASTM F 714; AWWA C901; CSA B137.1; CSA C448; NSF 358-1
Polypropylene (PP-R)	ASTM F 2389; CSA B137.11; NSF 358-2
Polyvinyl chloride (PVC)	ASTM D 1785; ASTM D 2241
Raised temperature polyethylene (PE-RT)	ASTM F 2623

TABLE 1210.5
GROUND-SOURCE LOOP PIPE FITTINGS

PIPE MATERIAL	STANDARD (see Chapter 15)
Chlorinated polyvinyl chloride (CPVC)	ASTM D 2846; ASTM F 437; ASTM F 438; ASTM F 439; CSA B137.6
Cross-linked polyethylene (PEX)	ASTM F 877; ASTM F 1807; ASTM F 1960; ASTM F 2080; ASTM F 2159; ASTM F 2434; CSA B137.5
Polyethylene/aluminum/polyethylene (PE-AL-PE)	ASTM F 1282; ASTM F 2434; CSA B137.9
High Density Polyethylene (HDPE)	ASTM D 2683; ASTM D 3261; ASTM F 1055; CSA B137.1; CSA C448; NSF 358-1
Polypropylene (PP-R)	ASTM F 2389; CSA B137.11; NSF 358-2
Polyvinyl chloride (PVC)	ASTM D 2464; ASTM D 2466; ASTM D 2467; CSA B137.2; CSA B137.3
Raised temperature polyethylene (PE-RT)	ASTM D 3261; ASTM F 1807; ASTM F 2159; CSA B137.1

Add new standard(s) as follows:

NSF 358-2-2012 Polypropylene Pipe & fittings for water-based ground-source "geothermal" heat pump systems

Reason: NSF 358-2 Polypropylene Pipe & fittings for water-based ground-source "geothermal" heat pump systems is the American National standard and should be included in these tables. This standard has requirements for material suitability, performance, chemical resistance long term strength and quality assurance requirements related to geothermal products. A copy of this standard will be provided to the commitee and may be obtained by anyone else by emailing brown@nsf.org.

Cost Impact: Will not increase the cost of construction
Providing an additional option will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, NSF 358-2 , with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 154-15 : T1210.4-BROWN5437

M 155-15

Table 1210.4, Table 1210.5, CHAPTER 15

Proponent: Jeremy Brown, representing NSF International

2015 International Mechanical Code

Revise as follows:

TABLE 1210.4
GROUND-SOURCE LOOP PIPE

MATERIAL	STANDARD (see Chapter 15)
Chlorinated polyvinyl chloride (CPVC)	ASTM D 2846; ASTM F 441; ASTM F 442
Cross-linked polyethylene (PEX)	ASTM F 876; ASTM F 877; CSA B137.5; NSF 358-3
Polyethylene/aluminum/polyethylene (PE-AL-PE) pressure pipe	ASTM F 1282; CSA B137.9
High-density polyethylene (HDPE)	ASTM D 2737; ASTM D 3035; ASTM F 714; AWWA C901; CSA B137.1; CSA C448; NSF 358-1
Polypropylene (PP-R)	ASTM F 2389; CSA B137.11
Polyvinyl chloride (PVC)	ASTM D 1785; ASTM D 2241
Raised temperature polyethylene (PE-RT)	ASTM F 2623

TABLE 1210.5
GROUND-SOURCE LOOP PIPE FITTINGS

PIPE MATERIAL	STANDARD (see Chapter 15)
Chlorinated polyvinyl chloride (CPVC)	ASTM D 2846; ASTM F 437; ASTM F 438; ASTM F 439; CSA B137.6
Cross-linked polyethylene (PEX)	ASTM F 877; ASTM F 1807; ASTM F 1960; ASTM F 2080; ASTM F 2159; ASTM F 2434; CSA B137.5; NSF 358-3
Polyethylene/aluminum/polyethylene (PE-AL-PE)	ASTM F 1282; ASTM F 2434; CSA B137.9
High Density Polyethylene (HDPE)	ASTM D 2683; ASTM D 3261; ASTM F 1055; CSA B137.1; CSA C448; NSF 358-1
Polypropylene (PP-R)	ASTM F 2389; CSA B137.11
Polyvinyl chloride (PVC)	ASTM D 2464; ASTM D 2466; ASTM D 2467; CSA B137.2; CSA B137.3
Raised temperature polyethylene (PE-RT)	ASTM D 3261; ASTM F 1807; ASTM F 2159; CSA B137.1

Add new standard(s) as follows:

NSF 358-3 Cross-linked Polyethylene (PEX) Pipe and Fittings for Water-Based Ground-Source (Geothermal) Heat Pump

Systems

Reason: NSF 358-3 Cross-linked Polyethylene (PEX) Pipe and Fittings for Water-Based Ground-Source (Geothermal) Heat Pump Systems is currently under development as of the submittal deadline. This will be the American National Standard for PEX system components used in geothermal systems and when completed should be referenced in this table. This standard will have geothermal specific requirements above and beyond the ASTM standards for PEX. This standard is expected to be completed in 2015. A draft may be obtained from Jeremy Brown at brown@nsf.org.

Cost Impact: Will not increase the cost of construction
Adding another option for standards will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, NSF 358-3, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 155-15 : T1210.4-BROWN5455

M 156-15

1302.7, CHAPTER 15

Proponent: Jeanne Murck, Core Engineered Solutions, Inc., representing Core Engineered Solutions, Inc. (jmurck@core-es.com)

2015 International Mechanical Code

Delete and substitute as follows:

~~**1302.7 Pumps.** Pumps that are not part of an *appliance* shall be of a positive-displacement type. The pump shall automatically shut off the supply when not in operation. Pumps shall be *listed* and *labeled* in accordance with UL 343.~~

1302.7 **Pumps** Pumps that are not part of an appliance shall automatically shut off the supply when not in operation. Pumps shall be listed and labeled for use with combustible liquids in accordance with UL 343 or UL 79.

Add new standard(s) as follows:
UL 79-2005 Standard for Safety for Power-Operated Pumps for Petroleum Dispensing Products

Reason: UL 79 is titled Power-Operated Pumps for Petroleum Dispensing Products and is more often used for fuel oil applications due to the increased use of aboveground fuel storage tanks and tanks installed in locations remote for the fuel oil generator. UL 79 pumps are approved for use with flammable and combustible liquids and is a safety listing that meets and exceeds the UL 343 currently in the text. UL 79 pumps are also not necessarily postiive displacement (they can be submerged /centrifual pumps) that is why positive displacement pump requirement needs to be removed from that section.
UL 343 pumps are generally small and may not have the pumping capacity required for applications requiring greater flow and tank locations. UL 79 and the ability of the AHJ to accept an alternate listing in the last section of the sentence allows for greater flexibility and fuel flow capabilities.

Cost Impact: Will not increase the cost of construction
There is no cost impact for this change. UL 79 pumps and UL 343 pumps are very similar in cost.

Analysis: A review of the standard proposed for inclusion in the code, UL 79, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 156-15 : 1302.7-MURCK5714

M 157-15

1303.1.1

Proponent: Pennie L Feehan, Copper Development Association, representing Copper Development Association (penniefeehan@me.com)

2015 International Mechanical Code

Revise as follows:

1303.1.1 Joints between different piping materials. Joints between different piping materials shall be made with *approved* adapter fittings. Joints between different metallic piping materials shall be made with *approved* dielectric fittings or ~~brass~~ copper-alloy converter fittings.

Reason: The proposal removes brass because brass is a copper-alloy and copper-alloy is the term used to identify materials manufactured where copper is the base metal and includes brass and bronze.

Cost Impact: Will not increase the cost of construction
This proposal will not impact the cost of construction, as the change is only to update the name of the material.

M 157-15 : 1303.1.1-FEEHAN3734

M 158-15

1303.4, 1303.5

Proponent: Pennie L Feehan, Copper Development Association, representing Copper Development Association (penniefeehan@me.com)

2015 International Mechanical Code

Delete without substitution:

~~**1303.4 Brass pipe.** Joints between brass pipe or fittings shall be brazed, mechanical, threaded or welded joints complying with Section 1303.3.~~

~~**1303.5 Brass tubing.** Joints between brass tubing or fittings shall be brazed or mechanical joints complying with Section 1303.3.~~

Reason: The proposal removes brass section because brass is a copper-alloy and copper-alloy is used to identify materials manufactured where copper is the base metal incliding brass and bronze. The brass sections are not necessary because the joing types are the same in the copper and copper-alloy pipe and tubing sections.

Cost Impact: Will not increase the cost of construction
This proposal will not impact the cost of construction as it is updating the name of the material.

M 158-15 : 1303.4-FEEHAN3732

M 159-15

1402.4, 1402.4.1

Proponent: Marcelo Hirschler, representing GBH International (gbhint@aol.com)

2015 International Mechanical Code

Revise as follows:

1402.4 Roof-mounted collectors. Roof-mounted solar collectors that also serve as a roof covering shall conform to the requirements for roof coverings in accordance with the *International Building Code*.

> **Exception:** The use of plastic solar collector covers shall be limited to those *approved* light transmitting plastics meeting the requirements for plastic roof panels in Section 2609 of the *International Building Code.*

1402.4.1 Collectors mounted above the roof.
Where mounted on or above the roof covering, the collector array and supporting construction shall be constructed of noncombustible materials or fire-retardant-treated wood conforming to the *International Building Code* to the extent required for the type of roof construction of the building to which the collectors are accessory.

> **Exception:** The use of plastic solar collector covers shall be limited to those *approved* light transmitting plastics meeting the requirements for plastic roof panels in Section 2609 of the *International Building Code*.

Reason: Plastic roof panels are regulated by section 2609 of the IBC and that section addresses "light transmitting plastic" roof panels. As light transmitting materials the plastics need to meet section 2606 of the IBC and the fire properties need to comply with Class CC1 or CC2 of section 2606.4. This proposal ties in with the change to the definition of "plastic, approved" to "light transmitting plastic, approved" in the IBC.

Cost Impact: Will not increase the cost of construction
Clarification

M 159-15 : 1402.4-HIRSCHLER3523

M 160-15

Part I:

602.2.1.6 (New), 602.2.1.6, 602.2.1.6.1 (New), 602.2.1.6.1, 602.2.1.6.2, 602.2.1.6.2 (New), 602.2.1.6.3, 602.2.1.6.3 (New)

Part II:

2603.7 (New), 2603.7, 2603.7.1 (New), 2603.7.1, 2603.7.2, 2603.7.2 (New), 2603.7.3 (New), 2604.1

THIS IS A 2 PART PROPOSAL. BOTH PARTS WILL BE HEARD BY THE IMC COMMITTEE. PLEASE SEE THE TENTATIVE HEARING ORDER FOR THE IBC FIRE SAFETY COMMITTEE.

Proponent: Rob Brooks, Rob Brooks & Associates, LLC representing The Dow Chemical Company, representing The Dow Chemical Company (rob.brooks.mail@gmail.com)

Part I

2015 International Mechanical Code

Add new text as follows:

602.2.1.6 Foam plastic in plenums as interior finish, interior trim, or duct insulation. Where foam plastic insulation or foam plastic *interior finish* is a component of a plenum enclosure, or is located in a plenum, the foam plastic shall comply with Section 602.2.1.6.1 or 602.2.1.6.2, as applicable. Where foam plastic interior *trim* is located in a plenum, the foam plastic shall comply with Sections 602.2.1.6.1, 602.2.1.6.2 and Section 2604.2 of the *International Building Code*. Where foam plastic is used as duct insulation and is located in a plenum, the foam plastic shall comply with Section 602.2.1.6.3.

Delete without substitution:

~~**602.2.1.6 Foam plastic insulation.** Foam plastic insulation used in plenums as interior wall or ceiling finish or as interior trim shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 and shall also comply with one or more of Sections 602.2.1.6.1, 602.2.1.6.2 and 602.2.1.6.3.~~

Add new text as follows:

602.2.1.6.1 Exposed to airflow. Where the foam plastic is exposed to the airflow in a plenum, the foam plastic shall comply with both of the following:

1. The foam plastic shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the maximum thickness and density intended for use.
2. The foam plastic shall be tested in accordance with NFPA 286 and shall comply with the acceptance criteria of Section 803.1.2.1 of the *International Building Code.*

Delete without substitution:

~~**602.2.1.6.1 Separation required.** The foam plastic insulation shall be separated from the plenum by a thermal barrier complying with Section 2603.4 of the *International Building Code* and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.~~

~~**602.2.1.6.2 Approval.** The foam plastic insulation shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use and shall meet the acceptance criteria of Section 803.1.2 of the *International Building Code* when tested in accordance with NFPA 286.~~

~~The foam plastic insulation shall be approved based on tests conducted in accordance with Section 2603.9 of the *International Building Code.*~~

Add new text as follows:

602.2.1.6.2 Not exposed to airflow. Where foam plastic located in the plenum is not exposed to the airflow, the foam plastic shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the maximum thickness and density intended for use and shall comply with one of the following:

1. The foam plastic shall be separated from the airflow in the plenum by a thermal barrier complying with Section 2603.4 of the *International Building Code.*
2. The foam plastic shall be separated from the airflow in the plenum by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm).

3. The foam plastic shall be separated from the airflow in the plenum by not less than a 1-inch (25 mm) thickness of masonry or concrete.

Delete without substitution:

~~**602.2.1.6.3 Covering.** The foam plastic insulation shall be covered by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm) and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.~~

Add new text as follows:

602.2.1.6.3 Foam plastic insulation on exterior of ducts in plenums. Duct insulation and any associated coverings, linings and adhesives, that are located in a plenum and are exposed to the plenum airflow shall have a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723, using the specimen preparation and mounting procedures of ASTM E 2231. Duct insulation, coverings and lining shall not flame, glow, smolder or smoke when tested in accordance with ASTM C 411 at the temperature to which they are exposed in service. The test temperature shall not fall below 250 F (121 C). Duct insulation, coverings and linings shall be *listed* and *labeled.*

Part II

2015 International Building Code

Add new text as follows:

2603.7 Foam plastic in plenums as interior finish, interior trim, or duct insulation. Where foam plastic insulation or foam plastic *interior finish* is a component of a plenum enclosure, or is located in a plenum, the foam plastic shall comply with Section 2603.7.1 or 2603.7.2, as applicable. Where foam plastic interior *trim* is located in a plenum, the foam plastic shall comply with Sections 2603.7.1, 2603.7.2 and 2604.2. Where foam plastic is used as duct insulation in a plenum, the foam plastic shall comply with Section 2603.7.3.

Delete without substitution:

~~**2603.7 Foam plastic insulation used as interior finish or interior trim in plenums.** Foam plastic insulation used as interior wall or ceiling finish or as interior trim in plenums shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 and shall comply with one or more of Sections 2603.7.1, 2603.7.2 and 2607.3.~~

Add new text as follows:

2603.7.1 Exposed to airflow. Where the foam plastic is exposed to the airflow in a plenum, the foam plastic shall comply with both of the following:

1. The foam plastic shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the maximum thickness and density intended for use.
2. The foam plastic shall be tested in accordance with NFPA 286 and shall comply with the acceptance criteria of Section 803.1.2.1.

Delete without substitution:

~~**2603.7.1 Separation required.** The foam plastic insulation shall be separated from the plenum by a thermal barrier complying with Section 2603.4 and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.~~

~~**2603.7.2 Approval.** The foam plastic insulation shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use and shall meet the acceptance criteria of Section 803.1.2 when tested in accordance with NFPA 286. The foam plastic insulation shall be approved based on tests conducted in accordance with Section 2603.9.~~

Add new text as follows:

2603.7.2 Not exposed to airflow. Where foam plastic located in a plenum is not exposed to the airflow, the foam plastic shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the maximum thickness and density intended for use and shall comply with one of the following:

1. The foam plastic shall be separated from the airflow in the plenum by a thermal barrier complying with Section 2603.4.
2. The foam plastic shall be separated from the airflow in the plenum by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm).
3. The foam plastic shall be separated from the airflow in the plenum by a minimum 1-inch (25 mm) thickness of masonry or concrete.

2603.7.3 Foam plastic insulation on exterior of ducts in plenums. Duct insulation and any associated coverings, linings and adhesives that are located in a plenum and are exposed to the plenum airflow shall have a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E84 or UL 723, using the specimen preparation and mounting procedures of ASTM E2231. Duct insulation, coverings and lining shall not flame, glow, smolder or smoke when tested in accordance with ASTM C411 at the temperature at which they are exposed in service. The test temperature shall not fall below 250 F (121 C). Duct insulation, coverings and linings shall be *listed* and *labeled*.

Revise as follows:

2604.1 General. Plastic materials installed as interior finish or *trim* shall comply with Chapter 8. Foam plastics shall only be installed as interior finish where approved in accordance with the special provisions of Section 2603.9. Foam plastics that are used as interior finish shall also meet the flame spread and smoke-developed index requirements for interior finish in accordance with Chapter 8. Foam plastics installed as interior *trim* shall comply with Section 2604.2. Foam plastic installed in plenums shall comply with Section 2603.7.

Add new standard(s) as follows:

ASTM C411-11 Test Method for Hot-surface Performance of High-temperature Thermal Insulation

ASTM E2231-09 Standard Practice for Specimen Preparation and Mounting of Pipe and Duct Insulation Materials to Assess Surface Burning Characteristices

Reason:

Part I:(IMC) This is a companion proposal with Section 2603.7 of the International Building Code. This code change proposal reorganizes Section 602.2.1.6 without modifying technical requirements. The need for reorganization came from confusion in the marketplace regarding foam plastic qualification testing requirements and approved barriers, when used in one or more of the following applications:

1) Foam plastic insulation or interior finish installed as part of a wall that forms the plenum enclosure, where the foam plastic *is exposed to the airflow* (602.2.1.6.1). Requires flame spread of 25, smoke developed index of 50 and a NFPA 286 test.

2) Foam plastic insulation or interior finish installed as part of a wall that is inside the plenum, when the foam plastic *is not exposed to the airflow* due to a protective barrier. (602.2.1.6.2). Requires flame spread of 75, smoke-developed index of 450 and a barrier - either a thermal barrier, corrosion-resistant steel or masonry or concrete (per IBC 2603.4.1.1 of the International Building Code).

3) Foam plastic used as interior trim within a plenum and exposed to the airflow. Requires compliance to Sections 602.2.1.6.1 and 602.2.1.6.2 (same as above) but also requires compliance to Section 2604.2 of the International Building Code.

4) Foam plastic used as duct insulation, where the duct insulation is exposed to the plenum airflow shall meet the requirements of 602.2.1.6.3 (which is based on Section 604.3 in the Mechanical Code).

Where applicable, the words "within plenum" have been changed to "in plenum" to be consistent with the wording in Section 602.2 of the Mechanical Code.

The use of the term "exposed to airflow" is consistent with existing language in Section 602 of the Mechanical Code.

The above changes bring needed clarification regarding the approved barriers and corresponding fire test requirements for foam plastic used at various locations within plenums. The section titles "Exposed to airflow" and "Not exposed to airflow" state the intent of the code and are designed to simplify enforcement of this section.

Part II:(IBC) This is a companion proposal with Section 602.2.1.6 of the Mechanical Code. This code change proposal reorganizes Section 2603.7 without modifying technical requirements. The need for reorganization came from confusion in the marketplace regarding foam plastic qualification testing requirements and approved barriers, when used in one or more of the following applications:

1) Foam plastic insulation or interior finish installed as part of a wall that forms the plenum enclosure, where the foam plastic is exposed to the airflow (2603.7.1). Requires flame spread of 25, smoke developed index of 50 and a NFPA 286 test.

2) Foam plastic insulation or interior finish installed as part of a wall that is inside the plenum, when the foam plastic is not exposed to the airflow due to a protective barrier. (2603.7.2). Requires flame spread of 75, smoke developed index of 450 and a barrier - either a thermal barrier, corrosion-resistant steel or masonry or concrete (per IBC 2603.4.1.1).

3) Foam plastic used as interior trim within a plenum and exposed to the airflow. Requires compliance to Sections 2603.7.1 and 2603.7.2 (same as above) but also requires compliance to Section 2604.2.

4) Foam plastic used as duct insulation, where the duct insulation is exposed to the plenum airflow shall meet the requirements of Section 2603.7.3 (which is a replication of Section 604.3 in the Mechanical Code).

Where applicable, the words "within plenum" have been changed to "in plenum" to be consistent with the wording in Section 602.2 of the Mechanical Code.

The use of the term "exposed to airflow" is consistent with existing language in Section 602 of the Mechanical Code.

A Section 2603.7 reference is added to Section 2604.1 to clarify plenum requirements as needed.

The above changes bring needed clarification regarding the approved barriers and corresponding test requirements for foam plastic used at various locations within plenums. The section titles "Exposed to airflow" and "Not exposed to airflow" state the intent of the code and are designed to simplify enforcement of this section.

Cost Impact:

Part I: Will not increase the cost of construction
There are no proposed changes in technical requirements, and this is simply a reorganization of existing requirements.

Part II: Will not increase the cost of construction
There are no proposed changes in technical requirements, and this is simply a reorganization of the existing requirements.

Analysis:

Part II: A review of the standards proposed for inclusion in the code, ASTM C411 & ASTM E2231, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

M 160-15 : 2603.7-BROOKS5523

M 161-15

1101.6

Proponent: Henry BonarII, Bonar Engineering, Inc., representing Bonar Engineering, Inc. (hank@bonarengineering.com)

2015 International Mechanical Code

Revise as follows:

1101.6 General. Refrigeration systems shall comply with the requirements of this code and, except as modified by this code, ASHRAE 15. Ammonia-refrigerating systems shall comply with this code and, except as modified by this code, ASHRAE 15 ~~and~~or IIAR 2.

Reason: While the IIAR 2 is well intended, several recent changes, including the way machinery room ventilation is calculated, by volume, are encouraging designers to lower the roofs and ceilings of machinery rooms. The use of square feet of machinery room, as ASHRAE 15 has used for 50+ years, encourages higher machinery room ceilings, which is the most effective way of venting lighter-than-air ammonia. The higher ceilings also encourage the use of vertical refrigeration vessels in lieu of horizontal vessels. Vertical vessels have proven to be far more reliable in enhancing the safety of ammonia refrigeration systems. As a practicing professional engineer specializing in ammonia system refrigeration design for 40+ years and registered in 33 states, we strongly recommend the continued use of ASHRAE 15 for safety reasons.

Cost Impact: Will not increase the cost of construction
This will decrease the cost of OSHA and EPA fines for the many machinery rooms which conform to ASHRAE 15 but not to IIAR 2.

M 161-15 : 1101.6-BONARII6072

2015 GROUP A – PROPOSED CHANGES TO THE INTERNATIONAL PLUMBING CODE

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Senior Staff Engineer - Plumbing
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TENTATIVE ORDER OF DISCUSSION
2015 PROPOSED CHANGES TO THE
INTERNATIONAL PLUMBING CODE

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

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

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202

Proponent: James Richardson, Jr (jarichardson@columbus.gov)

2015 International Plumbing Code

Revise as follows:

SECTION 202 DEFINITIONS

BUILDING DRAIN. That part of the lowest piping of a drainage system that receives the discharge from soil, waste and other drainage pipes ~~inside and that extends 30 inches (762 mm) in *developed length* of pipe beyond the exterior walls of the building~~ and conveys the drainage to the *building sewer*.

Combined. A *building drain* that conveys both sewage and storm water or other drainage.

Sanitary. A *building drain* that conveys sewage only.

Storm. A *building drain* that conveys storm water or other drainage, but not sewage.

Reason: Most building sewer laterals are terminated 5 to 10 feet away from the building foundation prior to the foundation construction. This has caused some issues for contractors with regard to making the connection to the building sewer since the building sewer is inspected by the local sewer purveyor and typically requires an additional permit or additional inspections paid for when the piping could be extended from the building by the plumbing contractor. Additionally, this also creates some issues with regard to grease and oil interceptors.

Cost Impact: Will not increase the cost of construction
This is simply a change about where the building drainage pipe ends and other conenctions begin. Overall, there is not a change in the cost of construction as a pipe has to be run from A to B anyhow.

P 1-15 : 202-BUILDING DRAIN-RICHARDSON6018

P 2-15

202 (New)

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Add new definition as follows:

SECTION 202 DEFINITIONS

CLEAR-WATER WASTE. A water discharge from equipment that is translucent and devoid of solids.

Reason: There are frequent arguments within the plumbing industry about what constitutes clear-water waste. Some believe that such waste water must be as clear as potable water while others believe that is much too severe of definition. The existing code sections that use the term clear-water waste are provided below. From the context of where the term is used in the code, it should be obvious that clear-water might not necessarily be transparent (like looking through window glass) but on the other hand, the water might be a little murky because of suspended solids. In other words, translucent. The intent of including "devoid of solids" is to identify applications where large particles floated along by the water will immediately drop out of the water. How big of solids are of concern? The allowance in Section 802.3 for not having to provide a strainer for clear-water wastes give a hint about the solids size that doesn't seem to be an issue.

Sections in the IPC that use the term "clear water waste:

709.4.1 Clear-water waste receptors. Where waste receptors such as floor drains, floor sinks and hub drains receive only clear-water waste from display cases, refrigerated display cases, ice bins, coolers and freezers, such receptors shall have a drainage fixture unit value of one-half.

801.1 Scope. This chapter shall govern matters concerning indirect waste piping and special wastes. This chapter shall further control matters concerning food-handling establishments, sterilizers, clear-water wastes, swimming pools, methods of providing air breaks or air gaps, and neutralizing devices for corrosive wastes.

802.1.3 Potable clear-water waste. Where devices and equipment, such as sterilizers and relief valves, discharge potable water to the building drainage system, the discharge shall be through an indirect waste pipe by means of an air gap.

802.1.5 Nonpotable clear-water waste. Where devices and equipment such as process tanks, filters, drips and boilers discharge nonpotable water to the building drainage system, the discharge shall be through an indirect waste pipe by means of an air break or an air gap.

802.2 Installation. Indirect waste piping shall discharge through an air gap or air break into a waste receptor. Waste receptors shall be trapped and vented and shall connect to the building drainage system. All indirect waste piping that exceeds 30 inches (762 mm) in developed length measured horizontally, or 54 inches (1372 mm) in total developed length, shall be trapped.

Exception: Where a waste receptor receives only clear-water waste and does not directly connect to a sanitary drainage system, the receptor shall not require a trap.

802.3 Waste receptors. For other than hub drains that receive only clear-water waste and standpipes, a removable strainer or basket shall cover the waste outlet of waste receptors. Waste receptors shall not be installed in concealed spaces. Waste receptors shall not be installed in plenums, crawl spaces, attics, interstitial spaces above ceilings and below floors. Ready access shall be provided to waste receptors.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 19.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 2-15 : 202-CLEAR-WATER WASTE (New)-SNYDER3909

P 3-15

Part I:
202 (New)
Part II:
202 (New)

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

Add new definition as follows:

SECTION 202 DEFINITIONS

<u>**FULL-OPEN VALVE** A water control or shut off component in the water supply system piping that, where adjusted for maximum flow, the flow path through the component's closure member is not a restriction in the component's through-flow area.</u>

Part II

2015 International Residential Code

Add new definition as follows:

SECTION 202 DEFINITIONS

<u>**FULL-OPEN VALVE.** A water control or shut off component in the water supply system piping that, where adjusted for maximum flow, the flow path through the component's closure member is not a restriction in the component's through-flow area.</u>

Reason: PART I: This phrase is used in various places in the code. In Section 606.1, there are a list of 7 locations where full-open valves are required. Many assumptions have been made as to what type of valve is intended. Many years ago before plastic water piping was installed, gate valves and ball valves were the only type that were available that were not globe valves. But many other types of valves for plastic piping are available that do not present a restriction when the valve is in the full-open position. This definition encompasses all type of valves that do not appreciably restrict the flow of water.
PART II: This phrase is used in several places in the code. In Sections P2903.9.1 and P2903.9.2, full-open valves are required. Many assumptions have been made as to what type of valve is intended. Many years ago before plastic water piping was installed, gate valves and ball valves were the only type that were available that were not globe valves. But many other types of valves for plastic piping are available that do not present a restriction when the valve is in the full-open position. This definition encompasses all type of valves that do not appreciably restrict the flow of water.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC 196.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

Part II: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 3-15 : 202-FULL-OPEN VALVE (New)-SNYDER3912

P 4-15

202

Proponent: James Richardson, Jr (jarichardson@columbus.gov)

2015 International Plumbing Code

Revise as follows:

SECTION 202 DEFINITIONS

HOT WATER. Water at a temperature greater than or equal to ~~110~~135°F (~~43~~57.2°C).

Reason: As pointed out in October 2013 vol.19 num.10 of PME magazine, Legionella bacteria has become and increased concern in the potable water distribution system, specifically hot water systems. The temperature typically maintained in a residential water heater is insufficient to kill the bacteria, even at long intervals (we typically see a temperature setting of 120 °F on residential and some small commercial occupancies). This temperature leaves the hot water tank at an optimum range for the bacteria to grow. As documented in This Week Community News August 8, 2013, Ohio experienced the largest outbreak in history, 39 confirmed cases including 6 deaths. Disinfection is achieved at 158 °F and above, however, I could not personally recommend setting temperatures at that level as it would present a very serious scald hazard and place the temperature at a level which would require a tempering device to be installed at any fixture which discharges water to the sanitary drainage system in order to comply with 803.1 of the 2011 OPC ("water above 140 degrees Fahrenheit shall not be discharged into any part of a drainage system"). Changing the definition of "hot water" to "Water at a temperature greater than or equal to 131°F (I recommend at least 135 °F.)" would at least place the temperature in a range that would be able to kill the bacteria in less than 6 hours of sustained temperature.
The current definition of "hot water" in the 2011 OPC is "Water at a temperature greater than or equal to 110°F (43°C)."

Additional benefits of changing the definition would require the installer to set the high limit stop on the ASSE 1016 devices to limit the hot water temperature to 120 degrees Fahrenheit as required by Ohio Plumbing Code section 423.3. Since the definition of "hot water" is 110 degrees and above, there is no requirement to set the high limit stop if they are setting the temperature between 110 – 120 degrees Fahrenheit at the water heater thermostat.

See also section 501.8 from the 2009 ICC International Plumbing Code & Commentary.

Also, in speaking with several water heater manufacturers' reps, storage type water heaters should be kept at 140 degrees Fahrenheit in order to provide an adequate supply of hot water to the building. They have indicated their sizing charts are based off of the 140 degree temperature, not 110 to 120

Bibliography: October 2013 vol.19 num.10 of PME magazine
This Week Community News August 8, 2013

Cost Impact: Will not increase the cost of construction
A change in a definition does not require more mateiral or labor to be expended.

P 4-15 : 202-HOT WATER-RICHARDSON6028

P 5-15

202

Proponent: James Richardson, Jr (jarichardson@columbus.gov)

2015 International Plumbing Code

Revise as follows:

SECTION 202 DEFINITIONS

LOCAL VENT STACK. A vertical pipe to which connections are made from the fixture side of traps and through which vapor or foul air is removed from the fixture or device ~~utilized on bedpan washers~~.

Reason: Specifically mentioning bedpan washers leads people to think this section only applies to bed pan washer. There are other situations which typically would require the installation of a local vent stack such as interceptors and separators.

Cost Impact: Will not increase the cost of construction
This proposal just clarifies what a local vent stack is. No additional materials or labor is needed for a clarification.

P 5-15 : 202-LOCAL VENT STACK-RICHARDSON6019

P 6-15

202 (New)

Proponent: Curtis Dady, representing Viega, LLC (curtis.dady@viega.us)

2015 International Plumbing Code

Add new definition as follows:

SECTION 202 DEFINITIONS

PRESS-CONNECT JOINT. A permanent mechanical joint incorporating an elastomeric seal or an elastomeric seal and corrosion-resistant grip ring. The joint is made with a pressing tool and jaw or ring approved by the fitting manufacturer.

Reason: The IMC includes this definition but the IPC does not.

Cost Impact: Will not increase the cost of construction
It is simply the addition of a definition and has nothing to do with cost.

P 6-15 : 202-PRESS-CONNECT JOINT (New)-DADY3628

P 7-15

202

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Delete without substitution:

~~SECTION 202 DEFINITIONS~~

~~**SWIMMING POOL**. Any structure, basin, chamber or tank containing an artificial body of water for swimming, diving or recreational bathing having a depth of 2 feet (610 mm) or more at any point.~~

Reason: There is no need for such a specific definition for a swimming pool within the context of how the term is used in the few places in the IPC. Water from a swimming pool is handled in the same manner no matter how a swimming pool is actually defined. And this definition conflicts with the definition of a swimming pool according to the International Swimming Pool and Spa Code.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 85.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 7-15 : 202-SWIMMING POOL-SNYDER3914

P 8-15

303.4

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

303.4 Third-party certification. All plumbing products and materials required by the code to be in compliance with a referenced standard shall be listed by a third-party certification agency as complying with the referenced standards. Products and materials shall be identified in accordance with Section 303.1.

Reason: For the 2015 IRC, a proposal was submitted and approved that changed the IRC to clarify that only those materials that are required to comply with a reference standard in the code, are to be third party certified. When the change for required listing of components came about for the 2012 code code cycle for both the IRC and the IPC, it was not discovered that there was a potential for misinterpretation of this section until after the proposals for Group A codes (the IPC) were underway. The issue could only be addressed in the IRC.

The need for the rewording is this: Some interpreted this section that all plumbing products and materials had to be listed. That is, a third party agency had to evaluate every item used in the installation of a plumbing system. The problem is that a number of common items such as steel shield plates, thread seal tape, hanger strap, brackets for supporting pipes and many other similar items are not made to a standard that is referenced in the code. Listing such plumbing products to unknown criteria that is not indicated in the code is unnecessary and would only serve to increase the cost of construction without an improvement in the quality of construction. Where the code does find a need for materials to be of controlled quality, standards are brought into the code for those items and are thus required to be third party listed to prove that the manufacturer has complied with the standard.

This proposal is needed for consistency with the IRC.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMCAC 144.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 8-15 : 303.4-SNYDER3915

P 9-15

303.5 (New)

Proponent: Bill LeVan, Cast iron Soil Pipe Institute, representing Cast Iron Soil Pipe Institute (blevan@mindspring.com)

2015 International Plumbing Code

Add new text as follows:

303.5 Cast iron soil pipe, fittings and components Cast iron soil pipes and fittings, and the couplings used to join these products together, shall be third party listed and labeled. Third party certifiers or inspectors shall comply wih the minimum inspection requirements of Annex A or Annex A1 of the ASTM and CISPI product standards indicated in the code for such products.

Reason: Third Party inspections of manufacturers of cast iron soil pipes and fittings and the couplings used to join theses products together are required however not all third party inspectors are familair with these essential items which must be inspected to asure complaince. The ASTM and CISPI standards were modified adding the minimum requirements which are reasonable and to minimize manufacturing defects. The ASTM and CISPI committees worked closely wih third party certifiers to develop these inspection schemes.

Cost Impact: Will not increase the cost of construction
Improved inspection prodcedures at the manufacturing locations will reduce the amount of defects on jobsites before the instalaltion is begun and reduce the amount of time needed for instalaltion.

P 9-15 : 303.5 (New)-LEVAN4523

P 10-15

304.4, 304.5 (New), 504.6, 504.7.2

Proponent: Richard Avery, Self, representing Self (ravery59@gmail.com); Stephen Avery (smavery77@yahoo.com)

2015 International Plumbing Code

Revise as follows:

304.4 Openings <u>in structures</u> for pipes. *No change to text.*

<u>**304.5** **Opening in terminal end of pipes.** The terminal end of piping exiting a structure to the outside where the terminal end remains open as a vent or drain shall be rodent proofed to prevent crawling or flying insects, termites, birds, or other creatures from gaining unrestricted access to the interior of the structure and thereby weaken the structural integrity of the building, or disable pipes, fittings, components or equipment from their designed purpose. Likewise, the end of piping that terminates on the interior of the structure, but remains vulnerable to insects, termites, and other creatures that gain access to the inside of the structure through other means shall be rodent proofed in the same manner as above.</u>

504.6 Requirements for discharge piping. The discharge piping serving a pressure relief valve, temperature relief valve or combination thereof shall:

1. Not be directly connected to the drainage system.
2. Discharge through an *air gap* located in the same room as the water heater.
3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the *air gap*.
4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.
5. Discharge to the floor, to the pan serving the water heater or storage tank, to a waste receptor or to the outdoors.
6. Discharge in a manner that does not cause personal injury or structural damage.
7. Discharge to a termination point that is readily observable by the building occupants.
8. Not be trapped.
9. Be installed so as to flow by gravity.
10. Terminate not more than 6 inches (152 mm) above and not less than two times the discharge pipe diameter above the floor or *flood level rim* of the waste receptor.
11. Not have a threaded connection at the end of such piping.
12. Not have valves or tee fittings.
13. Be constructed of those materials listed in Section 605.4 or materials tested, rated and *approved* for such use in accordance with ASME A112.4.1.
14. <u>Be fitted with a nylon mesh sock or other suitable material that will allow water to drain from the line while preventing insects, termites, mud daubers, or other creatures from entering and clogging the discharge pipe and/or from disabling the temperature and pressure relief valve. Each opening in the mesh shall be no larger than 0.0165 inches (0.4191 mm or 419.1 microns, commonly reported as 420 microns), which corresponds to U.S. sieve size number 40.</u>

504.7.2 Pan drain termination. The pan drain shall extend full size and terminate over a suitably located indirect waste receptor or floor drain or extend to the exterior of the building and terminate not less than 6 inches (152 mm) and not more than 24 inches (610 mm) above the adjacent ground surface. <u>The terminal end of the pipe shall be covered with a nylon mesh sock or other suitable material that will allow water to drain from the line while preventing insects, termites, mud daubers, or other creatures from entering and clogging the discharge pipe and/or from gaining access to the interior frameworks and thereby weaken the structural integrity of the building, or further damage other pipes, fittings, components or equipment from their designed purpose. Each opening in the mesh shall be no larger than 0.0165 inches (0.4191 mm or 419.1 microns, commonly reported as 420 microns), which corresponds to U.S. sieve size number 40.</u> Where a pan drain was not previously installed, a pan drain shall not be required for a replacement water heater installation.

Reason: Hot water heaters and their associated components and drain lines present three areas of concern that are addressed in this proposal. All three areas are summarized below and further explained following the summaries:
This proposal seeks to prevent crawling and flying insects, termites, mud daubers, roaches, ants, rodents, and other creatures from:

1. disabling the water heater's temperature and pressure relief valve thus rendering the valve a danger to the occupants of the home or building and to the structure itself.

2. clogging the discharge pipes exiting from both the temperature and pressure relief valve and water heater pan drain.

3. gaining access to the interior of homes and buildings and thereby compromise the structural integrity of the home or building's internal frameworks.

Justification for each item above follows:

1. Watts Water Technologies, Inc., formerly known as Watts Regulator Company demonstrated the dangers inherent in overheated water tanks in 1939 by raising the water temperature inside the tank to excessive levels. In each case, the water tanks exploded with violent force and likewise destroyed the structures in which the tanks were housed. In one instance, a 30 gallon water tank heated to 297 degrees with 50 pounds of pressure exploded with 2 million foot pounds of energy. Watt's engineers calculated that the destructive force was equal to two pounds of dynamite. Watts concluded that "it is very essential that safety measures be adopted to require proper temperature and pressure relief protection for public safety" (Watts, 13:35). Later tests such as those conducted in 2007 by Adam Savage and Jamie Hyneman confirm the deadly combination of temperature and pressure buildup inside of a 52 gallon tank, which, upon exploding, sent out lethal shock waves at over one-hundred G forces. Both examples support the hypothesis that water heated to excessive temperature and subjected to pressure within a storage tank is a ticking time bomb with potentially deadly consequences to humans and devastating destruction to property. The lesson from experiments like those discussed here were accounted for in the inaugural edition of the International Plumbing Code (IPC) in that since its inception, the IPC requires that all water heaters be supplied with an approved temperature and pressure relief valve that complies with ANSI Z21.22, but the code does not further protect the valve from potential damage by insects, termites, and other creatures that can gain access to the T&P relief valve through the open end of the discharge pipe that, in many cases, terminates outside the home or structure. Care must be taken to prevent damage to or disabling of the temperature and pressure relief valve to avoid fatalities to people in homes and buildings and catastrophic consequences to ceilings, walls, and floors of structures.

2. Insects seeking shelter from the elements can clog the discharge line from the water heater pan drain or from the temperature and pressure relief valve by nest building activity. Of particular interest are those insects whose nest will not be washed away by exiting water through the discharge pipe when the line is in use. Dirt daubers are notorious creatures for building nests in unlikely places like in the air flow indictor of airplanes known as a pitot tube, which registers air speed as air passes through the tube. In one instance on a flight from the Dominican Republic to Frankfurt, Germany in February 1996, Birgenair Flight 301 crashed just minutes after takeoff when a blocked pitot tube indicated contradictory and incorrect airspeeds on the pilot and co-pilot's airspeed indicators, respectively. Attempts to reduce an erroneously high airspeed resulted in a stall that rolled the Boeing 757 upside down and into the Atlantic Ocean, killing 189 people on board: 176 passengers and 13 crew members. According to the Flight Safety Foundation report, a contributory cause of the crash was dirt from an insect that clogged the pitot tube while the aircraft was on the ground. An inspection of the pitot tube was not performed in the preflight procedures; therefore, the problem was not corrected prior to takeoff.

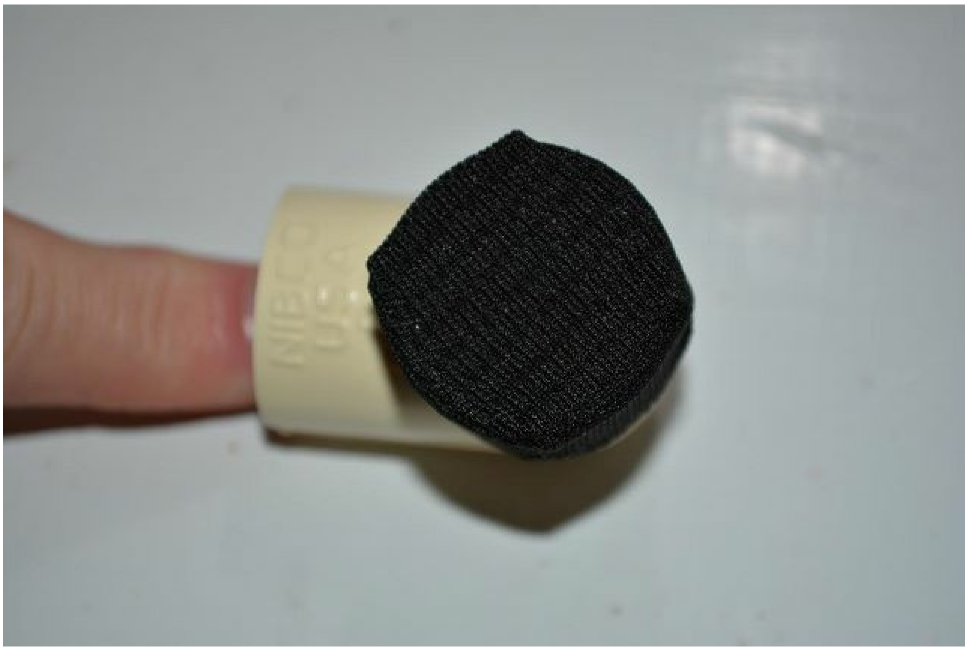
Researchers from the Coweeta Long Term Ecological Research Network in Otto, North Carolina, studied mud daubers and their preferences for substrate material. It seems that organ pipe mud daubers gravitate toward woody, rocky, or concrete substrates as the preferred material upon which to build a nest; however, 2.67% of nests were built on other types of substrates, including a light bulb, a chain, and electrical wire. The common link between pitot tubes, light bulbs, chains, and electrical wire is that all of these material environments include smooth substrates that, at first, might not appear to have the optimal texture to hold mud together, yet these persistent insects will build whenever and wherever opportunity and resources are available, including inside plastic or copper drain pipes. To date, the International Plumbing Code makes no provision for preventing insects and other creatures from inhabiting the discharge pipes from the water heater pan drain or from the temperature and pressure relief valve.

3. Dr. Ron Harrison, Entomologist and Technical Director for Orkin, Inc., states that "Termites are considered the top threat to wood-based structures, ahead of fire, flood and wind." According to Dan Suiter from the Entomology Department of the University of Georgia, "Termites are found in every state in the U.S., except Alaska." Further, the National Pest Management Association estimates that termites alone account for over $5 billion dollars in damages to homes and buildings. Termites are not just an American problem. Dr. Suiter goes on to say, "Out of the more than 2,000 termite species worldwide, only about 50 species can be found in the United States." The problem extends far beyond the boundaries of America into every major continent on the planet. Experts for the United Nations Environment Programme meeting at the Stockholm Convention indicate that termites are indigenous to Europe, mostly in the southern regions with warmer climates; most of Africa due to its diversity of warm, dry, and wet climates; ideal for different species of termites; Asia, and generally in China. The report adds that, "Termite distribution in China is restricted to the tropical, subtropical, and milder habitats south of the Yangtze River." Termites are also found on the Australian continent where "All termite ecological groups (subterranean, drywood, harvester, and mound builders) are represented . . ."

Whether entering through the discharge pipe leading to the temperature and pressure relief valve, or through the discharge pipe from the water heater pan drain, flying or crawling insects and other creatures must be stopped from gaining access to and damaging components, fittings, or equipment installed in the home or business, and, more importantly, from causing harm to people by disabling said components, fittings, and/or equipment. Likewise, the structural integrity of a home or business must be protected from damage by restricting access to the terminal end of pipes whether inside or outside the home or building. A nylon mesh sock of the type proposed here will allow water to drain from the discharge pipe while keeping out insects and other creatures that bring undesirable consequences to people, equipment, and structures. In the event of a small trickle of water, the pop-off sock will let water pass while protecting the terminal opening in the pipe. On the other hand, if the temperature and pressure relief valve opened, the sudden rush of water would cause the nylon mesh sock to pop-off the end of the pipe thus allowing an unrestricted flow of water to exit the full diameter of the discharge pipe. The attached images provide an illustration of the pop-off sock on and off a standard 3/4" CPVC elbow

. The sock in the attached images was hand sewn and offers a conceptual example of the form and function of the proposed idea

A professionally sewn sock by a textile manufacturer would be seamless and likely include a small amount of spandex material woven into the final product.



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[Coweeta Long Term Ecological Research Network] [Observations of the Organ Pipe Mud Dauber Wasp in Captivity and in the Field] [Timothy Bergman, Katherine Fair, Ryan Adkins] [n. d.] [p. 51] [http://coweeta.uga.edu/publications/m1063-1.pdf]

[Five Signs Your Home May Be Infested With Termites] [Ron Harrison] [2014] [Para 1] [http://www.realtor.com/home-garden/home-maintenance/summer-maintenance/five-signs-your-home-may-be-infested-with-termites.aspx]

[Termites 101] [Termites in the United States: What and Where?] [Daniel R. Suiter] [2010] [Para 1] [http://www.termites101.org/termite-basics/termites-by-region]

[National Pest Management Association] [Pest Management Industry Fact Sheet] [2014] [p. 1] [http://npmapestworld.org/news/factsheet.cfm]

[United Nations Environment Programme] [Chemicals: Finding Alternatives to Persistent Organic Pollutants (POPs) for Termite Management] [Various] [2000] [p. 4-6] [http://www.chem.unep.ch/pops/termites/termite_fulldocument.pdf]

Cost Impact: Will increase the cost of construction

Estimates for the cost of using the pop-off sock have been calculated based upon a typical installation of a water heater with a 3/4" CPVC discharge pipe from the temperature and pressure relief valve, and a 1" PVC discharge pipe from the water heater pan drain. In both cases, it is assumed that the discharge piping terminates with a 90 degree elbow where the terminal end faces downward.

For the 3/4" CPVC discharge pipe, the terminal end of the elbow will require approximately 3 square inches of nylon mesh to cover the outside diameter of the opening up to the bend in the elbow nearest to the structure. {{3}} {{4}}

For the 1" PVC discharge pipe, the terminal end of the elbow will require approximately 7 square inches of nylon mesh to cover the outside diameter of the opening up to the bend in the elbow nearest to the structure.

Estimates for material costs vary by supplier; however, Industrial Netting in Minneapolis, MN quoted $5.00 for 864 square inches of woven nylon mesh (12" x 72").

Two-hundred eighty-eight (288) socks can be manufactured from 864 square inches of nylon mesh for the 3/4" CPVC elbow. {{1}}

One-hundred twenty-three (123) socks can be manufactured from 864 square inches of nylon mesh for the 1" PVC elbow.

The material to make one sock to cover the terminal end of a 3/4" CPVC elbow will cost approximately two cents. {{3}}

The material to make one sock to cover the terminal end of a 1" PVC elbow will cost approximately four cents.

Labor and other expenses to manufacture each sock will increase the end price; however, it seems reasonable that mass production on today's computerized machines will keep the retail cost of each sock at or below one dollar each; therefore, requiring the use of a pop-off sock on the terminal end of discharge pipes from the temperature and pressure relief valve and from the pan drain discharge line will increase the cost of construction by no more than two dollars.

P 10-15 : 304.4-AVERY3763

P 11-15

305.1

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

305.1 ~~Corrosion~~Protection against corrosion. ~~Pipes passing through~~Metallic piping, except for cast iron, ductile iron and galvanized steel, shall not be placed in direct contact with steel framing members, concrete or ~~cinder walls and floors or other~~masonry. Metallic piping shall not be placed in direct contact with corrosive ~~material~~soil. Where sheathing is used to prevent direct contact, the sheathing shall ~~be protected against external corrosion by~~have a ~~protective sheathing or wrapping or other means that will withstand any reaction from the lime and acid of concrete, cinder or other corrosive~~ material. ~~Sheathing or wrapping shall allow for movement including expansion and contraction of piping. The wall~~ thickness of ~~the material shall be~~ not less than ~~0.025~~0.008 inch (~~0.64~~8 mil) (0.203 mm) and the sheathing shall be made of plastic. Where sheathing protects piping that penetrates concrete or masonry walls or floors, the sheathing shall be installed in a manner that allows movement of the piping within the sheathing.

Reason: The 2015 IRC has this new language for this section. The IPC should be coordinated that confusion does not occur. There are no new requirements being proposed.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 152.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 11-15 : 305.1-SNYDER3916

P 12-15

305.6

Proponent: Gary Kozan, CPD, Ridgeway Plumbing, representing Florida Association of Plumbing Heating Cooling Contractors (garyk@ridgewayplumbing.com)

2015 International Plumbing Code

Revise as follows:

305.6 Protection against physical damage. In concealed locations where piping, other than cast-iron or galvanized steel, is installed through holes or notches in studs, joists, rafters or similar members less than 1^{1} /~~2~~4 inches (~~38~~31.8 mm) from the nearest edge of the member, the pipe shall be protected by steel shield plates. Such shield plates shall have a thickness of not less than 0.0575 inch (1.463 mm) (No. 16 gage). Such plates shall cover the area of the pipe where the member is notched or bored, and shall extend not less than 2 inches (51 mm) above sole plates and below top plates.

Reason: The safest place to install water piping is in the middle of the wall. But in a typical 3-1/2 inch stud wall, even a 1/2-inch pipe (5/8-inch o.d.) ends up slightly nearer than the requisite 1-1/2 inch setback from either edge. Depending on enforcement, installers are often required to put stud guards on *both* sides of the stud. This makes no sense. By simply reducing the setback from 1-1/2 inches to 1-1/4 inches, both 1/2-inch and 3/4-inch water lines can be safely installed in the center of the wall without triggering the need for strike plates on both sides. This encourages quality workmanship instead of penalizing it. The pipes are still safely out of range of drywall screws up to 1-1/2 inches long.
This proposal is consistent with the National Electrical Code, which specifies a 1-1/4 inch setback from the edge of a stud. It is also consistent with the IRC, which also specifies a 1-1/4 inch setback. The Uniform Plumbing Code requires only a 1-inch setback. This proposal will bring consistency to the I-Codes.

Cost Impact: Will not increase the cost of construction
A typical 3" x 6" metal stud guard costs about 20 cents. This proposal would reduce the quantity of stud guards on any given project by about 15-20%, depending on local enforcement.

P 12-15 : 305.6-KOZAN3474

P 13-15

306.2.4 (New)

Proponent: Brian Conner, Charlotte Pipe and Foundry, representing Charlotte Pipe and Foundry (bconner@charlottepipe.com)

2015 International Plumbing Code

Add new text as follows:

306.2.4 **Plastic sewer and DWV piping installation.** Plastic sewer piping and DWV piping installed underground shall be installed in accordance with the manufacturer's instructions. Trench width shall be controlled to not exceed either the pipe outside diameter plus 16 inches (406 mm) or the pipe outside diameter multiplied by 1.25 plus 12 inches (305 mm), whichever is greater. The piping shall be bedded in 4 inches of granular fill and then backfilled compacting the side fill in 6 inch layers on each side of the piping. The compaction shall be to a minimum of 85 percent standard Proctor density and extend to a minimum of 6 inches above the top of the pipe.

Reason: Plastic sewer and DWV piping manufacturers require that the plastic pipe be installed in accordance with ASTM D2321 but installers and inspectors in the field seldom have the standard readily available and might not be aware of the requirement. The minimum requirements are contained in this code change and provide guidance to the installer and the inspector. Improperly installing plastic piping can result in over deflection of the piping and result in leaks allowing the waste water to contaminate the soil and allowing groundwater to enter the piping causing the waste water treatment plants to treat rainwater.

Cost Impact: Will not increase the cost of construction
No additional cost of this code change is expected. Savings in treatment costs by waste water plants is likely.

P 13-15 : 306.2.4 (New)-CONNER5392

P 14-15

307.1, 307.2, 307.2.1 (New), 307.2.2 (New), 307.2.3 (New), 307.2.4 (New), 307.5 (New), 307.5.1 (New), 307.5.2 (New), 307.5.3 (New)

Proponent: James Richardson, Jr (jarichardson@columbus.gov)

2015 International Plumbing Code

Revise as follows:

307.1 General. ~~In~~The building or structure shall not be weakened by the installation of mechanical systems. Where floors, walls, ceilings or any other portion of the building or structure are required to be altered or replaced in the process of installing or repairing any ~~part of a plumbing and drainage installation~~system, ~~the finished floors, walls, ceilings, tile work or any other part of~~ the building or ~~premises that must be changed or replaced~~structure shall be left in a safe structural condition in accordance with the ~~requirements of the *International Building Code.*~~building code.

307.2 Cutting, notching or bored holes. ~~A~~The cutting, notching and boring of wood framing ~~member~~members shall ~~not be cut, notched or bored in excess of limitations specified in the *International Building Code.*~~comply with Sections 307.2.1 through 307.2.4.

Add new text as follows:

307.2.1 Joist notching. Notches on the ends of joists shall not exceed one-fourth the joist depth. Holes bored in joists shall not be within 2 inches (51 mm) of the top or bottom of the joist, and the diameter of any such hole shall not exceed one third the depth of the joist. Notches in the top or bottom of joists shall not exceed one-sixth the depth and shall not be located in the middle third of the span.

307.2.2 Stud cutting and notching. In exterior walls and bearing partitions, a wood stud shall not be cut or notched in exesss of 25 percent of its depth. In nonbearing partitions that do not support loads other than the weight of the partition, a stud shall not be cut or notched in excess of 40 percent of its depth.

307.2.3 Bored holes. The diameter of bored holes in wood studs shall not exceed 40 percent of the stud depth. The diameter of bored holes in wood studs shall not exceed 60 percent of the stud depth in nonbearing partitions. The diameter of bored holes in wood studs shall not exceed 60 percent of the stud depth in any wall where each stud is doubled, provided that not more than two such successive doubled studs are so bored. The edge of the bored hole shall be not closer than 5 /8 inch (15.9 mm) to the edge of the stud. Bored holes shall be not located at the same section of stud as a cut or notch.

307.2.4 Engineered wood products. Cuts, notches and holes bored in trusses, structural composite veneer lumber, structural glue-laminated members and I-joists are prohibited except where permitted by the manufacturer's recommendations or where the effects of such alterations are specifically considered in the design of the member.

307.5 Cutting, notching and boring in steel framing. The cutting, notching and boring of steel framing members shall comply with Sections 307.5.1 through 307.5.3.

307.5.1 Cutting, notching and boring holes in structural steel framing. The cutting, notching and boring of holes in structural steel framing members shall be as prescribed by the registered design professional.

307.5.2 Cutting, notching and boring holes in cold-formed steel framing. Flanges and lips of load-bearing cold-formed steel framing members shall not be cut or notched. Holes in webs of load-bearing cold-formed steel framing members shall be permitted along the centerline of the web of the framing member and shall not exceed the dimensional limitations, penetration spacing or minimum hole edge distance as prescribed by the registered design professional. Cutting, notching and boring holes of steel floor/roof decking shall be as prescribed by the registered design professional.

307.5.3 Cutting, notching and boring holes in nonstructural cold-formed steel Flanges and lips of nonstructural cold-formed steel wall studs shall not be cut or notched. Holes in webs of nonstructural cold-formed steel wall studs shall be permitted along the centerline of the web of the framing member, shall not exceed 11/2 inches (38 mm) in width or 4 inches (102 mm) in length, and shall not be spaced less than 24 inches (610 mm) center to center from another hole or less than 10 inches (254 mm) from the bearing end.

Reason: Many States only adopt the ICC plumbing code and have their own building code or within States there are areas which are inspected by Health Departments not Building Departments. In these cases, the contractors and/or inspectors may or may not have the appropriate building code for reference concerning structural safety. The mechanical code includes the references and keeping it in the plumbing code would keep them more in line with each other.

Cost Impact: Will not increase the cost of construction
The International Building Code already has these limitations and requirements. Putting the information in the IPC is a necessity for those jurisdictions that do not adopt the IBC but never the less, should have been already following these requirements.

P 14-15 : 307.1-RICHARDSON6021

P 15-15

Part I:
308.10 (New)
Part II:
P2605.2 (New)

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

Add new text as follows:

308.10 Thermal expansion tanks. A thermal expansion tank shall not be supported by the piping that connects to the thermal expansion tank.

Part II

2015 International Residential Code

Add new text as follows:

P2605.2 Thermal expansion tanks. A thermal expansion tank shall not be supported by the piping that connects to the thermal expansion tank.

Reason: Too often, inspectors see thermal expansion tanks hanging on the piping that the tank connects to. Even the smallest size of tank could weigh up to 16 pounds when full of water. where these tanks are installed at the end of a horizontal rigid pipe from the side outlet of a tee, there is significant moment being applied to the piping. Larger tanks or longer pipes result in bigger moments. And perhaps a significant "moment" when the pipe cracks or breaks off. Although the this proposed section started off trying to identify where it was OK to support the tank from the piping, the realization was made that it would be easiest to just not have the piping support the tank. Strap the tank to the building structure or the water heater tank, or place the tank on top of the water heater where it will not be disturbed (and hopefully not exposed to heat from a nearby flue of a gas water heater.)
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 36.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

Part II: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 15-15 : 308.10 (New)-SNYDER3925

P 16-15

Table 308.5

Proponent: Mike Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservnet.com)

2015 International Plumbing Code

Revise as follows:

TABLE 308.5
HANGER SPACING

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (feet)	MAXIMUM VERTICAL SPACING (feet)
Cross-linked polyethylene (PEX) pipe 1 inch and smaller	2.67 (32 inches)	10[b]
Cross-linked polyethylene (PEX) pipe 1 1/4 inch and larger	4	10b
Polyethylene of raised temperature (PE-RT) pipe 1 inch and smaller	2.67 (32 inches)	10[b]
Polyethylene of raised temperature (PE-RT) pipe 1 1/4 inch and larger	4	10b

(Portions of table not shown remain unchanged)

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. The maximum horizontal spacing of cast-iron pipe hangers shall be increased to 10 feet where 10-foot lengths of pipe are installed.

b. For sizes 2 inches and smaller, a guide shall be installed midway between required vertical supports. Such guides shall prevent pipe movement in a direction perpendicular to the axis of the pipe

Reason: The 2015 code cycle for the IRC included updates to the support spacing for both PEX and PE-RT tubing for sizes larger than 1". The IRC-P Table P2605.1 is current and correct and should be used as the base template for all other tables within the ICC codes as identified in this amendment proposal. The horizontal support spacing for both PEX and PE-RT tubing (piping) up to and including 1" size is 32" (2-2/3Ft) and 48" (4Ft) for sizes 1- 1/4" and larger. These dimensions are consistent with all published PEX literature and manufacture's installation instructions.

Cost Impact: Will not increase the cost of construction
This proposal modifies the spacing for piping material support into the code and thus the code with this proposal added will not cause the cost of construction to increase, and could decrease the cost as less support is required for larger pipe.

P 16-15 : T308.5-CUDAHY4741

P 17-15

Table 308.5

Proponent: Pennie L Feehan, representing Copper Development Association (penniefeehan@me.com)

2015 International Plumbing Code

Revise as follows:

TABLE 308.5
HANGER SPACING

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (feet)	MAXIMUM VERTICAL SPACING (feet)
~~Brass pipe~~	~~10~~	~~10~~
Copper or copper-alloy pipe and tubing	~~12~~ 8	10
~~Copper or copper-alloy tubing, 1 1/4-inch diameter and smaller~~	~~6~~	~~10~~
~~Copper or copper-alloy tubing, 1 1/2-inch diameter and larger~~	~~10~~	~~10~~

(Portions of table not shown remain unchanged)

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. The maximum horizontal spacing of cast-iron pipe hangers shall be increased to 10 feet where 10-foot lengths of pipe are installed.

b. For sizes 2 inches and smaller, a guide shall be installed midway between required vertical supports. Such guides shall prevent pipe movement in a direction perpendicular to the axis of the pipe

Reason: Brass is a copper alloy and the supporting requirements are covered under the Copper and Copper Alloy Pipe and Tubing line. The 6 foot requirement is to restrictive. The Copper Tubing Handbook written by Copper Development Association recommends horizontal support every 8 feet.

Cost Impact: Will not increase the cost of construction
This proposal wil not increase the cost of construction as this is only a clarification in the name of a product

P 17-15 : T308.5-FEEHAN3788

P 18-15

Table 308.5

Proponent: Larry Gill, representing IPEX USA LLC (larry.gill@ipexna.com)

2015 International Plumbing Code

Revise as follows:

TABLE 308.5
HANGER SPACING

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (feet)	MAXIMUM VERTICAL SPACING (feet)
Polyethylene of raised temperature (PE-RT) pipe 1" and less	2.67 (32 inches)	10[b]
Polyethylene of raised temperature (PE-RT) pipe 1 1/4" and greater	4 (48 inches)	10[b]

(Portions of table not shown remain unchanged)

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. The maximum horizontal spacing of cast-iron pipe hangers shall be increased to 10 feet where 10-foot lengths of pipe are installed.

b. For sizes 2 inches and smaller, a guide shall be installed midway between required vertical supports. Such guides shall prevent pipe movement in a direction perpendicular to the axis of the pipe

Reason: PE-RT 1-1/4 inches and greater can be supported at 48 inches. The 48 inch support spacing is already in the 2015 IMC.

Cost Impact: Will not increase the cost of construction
This is a simple change to add support spacing requirements of 4 feet for larger PE-RT sizes and the change will result in less supports and a cost savings without compromising the integrity of the installation.

P 18-15 : T308.5-GILL3759

P 19-15

Part I:

308.6

Part II:

P2605.1

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

Revise as follows:

308.6 Sway bracing. ~~Rigid support sway bracing shall be provided at~~Where horizontal pipes 4 inches (102 mm) and larger convey drainage or waste, and where a pipe fitting changes ~~in~~the flow direction greater than 45 degrees (0.79 rad) ~~for~~, rigid bracing or other rigid support arrangements shall be installed to resist movement of the upstream pipe ~~sizes 4 inches (102 mm) and larger.~~in a direction opposite the pipe flow. A change of flow direction into a vertical pipe shall not require the upstream pipe to be braced.

Part II

2015 International Residential Code

Revise as follows:

P2605.1 General. Piping shall be supported in accordance with the following:

1. Piping shall be supported to ensure alignment and prevent sagging, and allow movement associated with the expansion and contraction of the piping system.
2. Piping in the ground shall be laid on a firm bed for its entire length, except where support is otherwise provided.
3. Hangers and anchors shall be of sufficient strength to maintain their proportional share of the weight of pipe and contents and of sufficient width to prevent distortion to the pipe. Hangers and strapping shall be of *approved* material that will not promote galvanic action. ~~Rigid support sway bracing shall be provided at~~
4. Where horizontal pipes 4 inches (102 mm) and larger convey drainage or waste, and where a pipe fitting changes ~~in~~the flow direction greater than 45 degrees (0.79 rad) ~~for~~, rigid bracing or other rigid support arrangements shall be installed to resist movement of the upstream pipe ~~sizes 4 inches (102 mm) and larger~~in a direction opposite the pipe flow. A change of flow direction into a vertical pipe shall not require the upstream pipe to be braced.
5. Piping shall be supported at distances not to exceed those indicated in Table P2605.1.

Reason: PART I: The requirements of this section are vague enough such that several contractors working large projects have been "caught" mid-project not knowing exactly what the code was requiring. This section is about preventing undue stress on the joints in a drainage piping system. It is known that drainage piping systems can be moved about by "slugs" of waste hitting 90 degree bends in the piping where the pipe downstream is "horizontal". Where the pipe downstream of the elbow is no longer "horizontal", that is, 45 degrees or greater from the horizontal plane, the waste is falling and is less likely to impact the inside of the elbow and therefore, not impart significant forces that would cause the piping system to move.

PART II: The requirements of this section are vague enough such that several contractors working large projects (under the IPC) have been "caught" mid-project not knowing exactly what the code was requiring. Certainly, the same situation could occur for contractors working on large IRC buildings. The same clarification proposal has been proposed for the IPC so for coordination, it is proposed to this code.

This section is about preventing undue stress on the joints in a drainage piping system. It is known that drainage piping systems can be moved about by "slugs" of waste hitting 90 degree bends in the piping where the pipe downstream is "horizontal". Where the pipe downstream of the elbow is no longer "horizontal", that is, 45 degrees or greater from the horizontal plane, the waste is falling and is less likely to impact the inside of the elbow and therefore, not impart significant forces that would cause the piping system to move.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 120.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

Part II: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 19-15 : 308.6-SNYDER3918

P 20-15

Part I:
312.1
Part II:
P2503.7

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC PLUMBING COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Mike Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservnet.com)

Part I

2015 International Plumbing Code

Revise as follows:

312.1 Required tests. The permit holder shall make the applicable tests prescribed in Sections 312.2 through 312.10 to determine compliance with the provisions of this code. The permit holder shall give reasonable advance notice to the code official when the plumbing work is ready for tests. The equipment, material, power and labor necessary for the inspection and test shall be furnished by the permit holder and he or she shall be responsible for determining that the work will withstand the test pressure prescribed in the following tests. All plumbing system piping shall be tested with either water or, for piping systems other than plastic, by air. After the plumbing fixtures have been set and their traps filled with water, the entire drainage system shall be submitted to final tests. The code official shall require the removal of any cleanouts if necessary to ascertain whether the pressure has reached all parts of the system.

> **Exception:** For plastic piping systems, testing with a compressed gas shall be an alternative to hydrostatic testing where compressed air or other gas pressure testing is specifically authorized by all of the manufacturer's instructions for the plastic pipe and fittings products installed at the time the system is being tested, and compressed air or other gas testing is not otherwise prohibited by applicable codes, laws, or regulations outside of this code.

Part II

2015 International Residential Code

Revise as follows:

P2503.7 Water-supply system testing. Upon completion of the water-supply system or a section of it, the system or portion completed shall be tested and proved tight under a water pressure of not less than the working pressure of the system or, for piping systems other than plastic, by an air test of not less than 50 psi (345 kPa). This pressure shall be held for not less than 15 minutes. The water used for tests shall be obtained from a potable water source.

> **Exception:** For plastic piping systems, testing with a compressed gas shall be an alternative to hydrostatic testing where compressed air or other gas pressure testing is specifically authorized by all of the manufacturer's instructions for the plastic pipe and fittings products installed at the time the system is being tested, and compressed air or other gas testing is not otherwise prohibited by applicable codes, laws, or regulations outside of this code.

Reason: PPFA has a new air testing policy, which allows for some limited air testing of plastic piping systems, if a number of conditions are met.

Bibliography:

Part II: PLASTIC PIPE AND FITTINGS ASSOCIATION POLICY ON TESTING PLASTIC PIPE AND FITTINGS INSTALLATIONS WITH COMPRESSED GAS, PPFA, 2014, http://www.ppfahome.org/ub4.aspx

Compressed air or any other compressed gases should not be used for pressure testing plastic plumbing systems.

EXCEPTIONS:

1.) With trap seal pull testing, where a completed DWV system is vacuum tested with all of its traps filled with water, and the trap seals are tested with a vacuum typically between one and two inches of water column.

2.) For plastic piping systems specifically designed for use with compressed air or gasses;

• Manufacturers' instructions must be strictly followed for installation, visual inspection, testing and use of the systems,

(and)

• Compressed air or other gas testing is not prohibited by the authority having jurisdiction (AHJ).

3.) When compressed air or other gas pressure testing is specifically authorized by the applicable written instructions of the manufacturers of all plastic pipe and plastic pipe fittings products installed at the time the system is being tested and compressed air or other gas testing is not prohibited by the authority having jurisdiction (AHJ).

The manufacturer should be contacted if there is any doubt as to how a specific system should be tested.

Cost Impact:

Part II: Will not increase the cost of construction
This proposal simply adds another option for air testing some specific piping materials into the code and as such, the option is not requiring that this method be chosen. Thus the code with this proposal added will not cause the cost of construction to increase.

P 20-15 : 312.1-CUDAHY4674

P 21-15

312.1.1, 312.1.2 (New), 312.5.1 (New), 107.4.1.1 (New)

Proponent: Ronald George, Self; www.ScaldPrevention.org, representing Self; www.ScaldPrevention.org (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Revise as follows:

312.1.1 ~~Test~~Pressure test gauges. Gauges used for pressure testing shall be as follows:

1. Tests requiring a pressure of 10 pounds per square inch (psi) (69 kPa) or less shall utilize a testing gauge having increments of 0.10 psi (0.69 kPa) or less.
2. Tests requiring a pressure of greater than 10 psi (69 kPa) but less than or equal to 100 psi (689 kPa) shall utilize a testing gauge having increments of 1 psi (6.9 kPa) or less.
3. Tests requiring a pressure of greater than 100 psi (689 kPa) shall utilize a testing gauge having increments of 2 psi (14 kPa) or less.

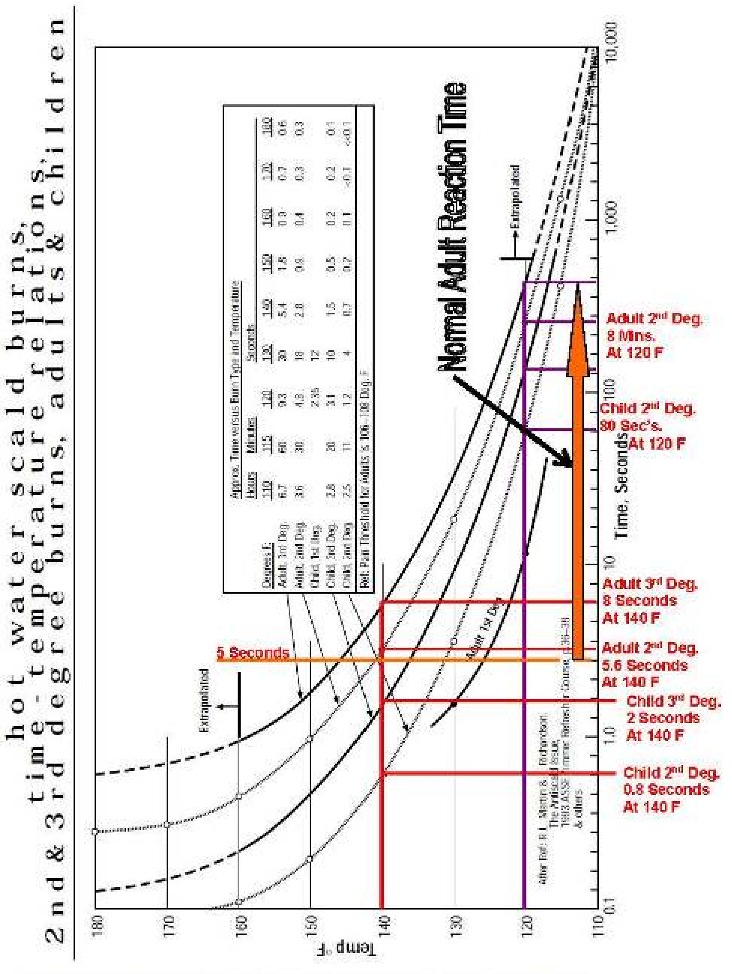
Add new text as follows:

312.1.2 Temperature test gauges. Temperature gauges shall have a range of 32°F to 220°F (0°C to 104.4°C). The accuracy of gauges shall be ±2°F (1.1°C).

312.5.1 Maximum hot water temperature tests. Upon completion of the hot water system and installation of the water heater, the water heater shall be turned on and set to the design operating temperature. The water heater shall be allowed to heat up until the water heater burner or heating elements shut off. The hot or tempered water temperature discharged at each plumbing fixture required by Chapter 4 to have a limit on the maximum water temperature, shall be verified that the temperature does not exceed the limits.

107.4.1.1 Hot or tempered water temperature testing. Altered, extended or repaired systems that affect the hot or tempered water temperatures at plumbing fixtures shall have the water temperature tested as prescribed herein to disclose excessive water temperatures.

Reason: This code change is intended to address testing of the maximum temperature limiting ddevices on fixtures like showers and tub/shower combination valves, whirlpool bathtubs and other fixtures with temperature limits to prevent scalding when water heaters are originally installed or replaced. Checking the temperature and readjustment of the limit stops should also be done after a master thermostatic mixing valve has been adjusted to a new temperature.



A Seminar and Technical Paper for the 25-28 Oct. 98 Annual ASPE Meeting at the Indianapolis Convention Center in Indianapolis, Indiana. Reprinted by Watts Regulator Company with permission of Dr. D. Bynum Jr.

Figure 1 – Hot Water Scald Burns – Time vs Temperature Relationship for Second and Third Degree Burns for Adults and Children.
(Notes By: Ron George, CPD, See: www.ScaldPrevention.org)

Bibliography: www.ScaldPrevention.org

Cost Impact: Will not increase the cost of construction

This is an inspection of existing devices to check for adjustment there is no addditional cost.

P 21-15 : 312.1.1-GEORGE5576

P 22-15

312.2

Proponent: Gary Kozan, CPD, Ridgeway Plumbing, representing Florida Association of Plumbing Heating Cooling Contractors (garyk@ridgewayplumbing.com)

2015 International Plumbing Code

Revise as follows:

312.2 Drainage and vent water test. A water test shall be applied to the drainage system either in its entirety or in sections. If applied to the entire system, all openings in the piping shall be tightly closed, except the highest opening, and the system shall be filled with water to the point of overflow. If the system is tested in sections, each opening shall be tightly plugged except the highest openings of the section under test, and each section shall be filled with water, but no section shall be tested with less than a ~~10-foot~~5-foot (3048 mm) head of water. In testing successive sections, at least the upper ~~10~~5 feet (~~3048~~1524 mm) of the next preceding section shall be tested so that no joint or pipe in the building, except the uppermost ~~10~~5 feet (~~3048~~1524 mm) of the system, shall have been submitted to a test of less than a ~~10-foot~~5-foot (~~3048~~1524 mm) head of water. This pressure shall be held for not less than 15 minutes. The system shall then be tight at all points.

Reason: When testing a DWV system, the actual head pressure applied is not nearly as important as the ability to see the water in the stack. 10-foot head tests are typically verified by the inspector just "shaking the stack." If water splashes out, the system is considered to be watertight , even though it may not be. Mirrors and ladders are seldom used in the real world. By lowering the fill stack to 5 feet, both the installer and the inspector can visually verify the water level, and see if the system is holding tight.
There is nothing magical about a 10-foot head. The plain truth is that a 10-foot head (4.34 psi) is unilkely to reveal any leaks or defects that would not be detected with a 5-foot head (2.17 psi). Many jurisdictions throughout the country regard the 5-foot head test as equal or better because you can actually see if the water level drops. Florida, for example, offically adopted the 5-foot head test statewide in 2000. It was likewise approved in the 2015 IRC. It is time for the IPC also to recognize this proven common sense practice, and bring consistency to the I-Codes.

Cost Impact: Will not increase the cost of construction
Reducing the fill stack from 10 feet to 5 feet will have no cost impact whatsover.

P 22-15 : 312.2-KOZAN3479

P 23-15

312.2

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

312.2 Drainage and vent water test. A water test shall be applied to the drainage system either in its entirety or in sections. If applied to the entire system, all openings in the piping shall be tightly closed, except the highest opening, and the system shall be filled with water to the point of overflow. If the system is tested in sections, each opening shall be tightly plugged except the highest openings of the section under test, and each section shall be filled with water, but no section shall be tested with less than a ~~10-foot~~5-foot (~~3048~~1524 mm) head of water. In testing successive sections, at least the upper ~~10 feet~~5-foot (~~3048~~1524 mm) of the next preceding section shall be tested so that no joint or pipe in the building, except the uppermost ~~10 feet~~5-foot (~~3048~~1524 mm) of the system, shall have been submitted to a test of less than a ~~10-foot~~5-foot (~~3048~~1524 mm) head of water. This pressure shall be held for not less than 15 minutes. The system shall then be tight at all points.

Reason: In the last cycle, the IRC was changed to reduce the DWV water test pressure from 10 feet of head to 5 feet of head. This change to the IPC is to coordinate the IPC with the IRC. There was not a companion proposal in the last cycle for changing the IPC. This is the first time that this is being proposed for the IPC.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 16.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 23-15 : 312.2-SNYDER3928

P 24-15

312.6

Proponent: Gary Kozan, CPD, Ridgeway Plumbing, representing Florida Association of Plumbing Heating Cooling Contractors (garyk@ridgewayplumbing.com)

2015 International Plumbing Code

Revise as follows:

312.6 Gravity sewer test. Gravity *sewer* tests shall consist of plugging the end of the *building sewer* at the point of connection with the public sewer, completely filling the *building sewer* with water from the lowest to the highest point thereof, ~~testing with not less than a 10-foot (3048 mm) head of water~~ and maintaining such pressure for 15 minutes. The building sewer shall be watertight at all points.

Reason: Subjecting a gravity sewer to a 10-foot head test is outdated and impractical. By the time the building sewer is connected, fixtures have usually been installed, so both ends have to be plugged off before testing in order to protect the building from flooding. Leaks on gravity sewers are rare, considering that most today are constructed with plastic pipe and contain few fittings and joints. Simply filling the sewer with water is sufficient to identify any leaks. It should be noted that public sewer mains and branch laterals downstream of the building sewer are not water tested at all.

This testing method is identical to that found in the other model code (UPC), used in many states. Florida adopted similar requirements in 2000. It is time that the IPC recognizes this proven practice and bring the codes closer together.

Bibliography: 2012 Uniform Plumbing Code:
723.0 Building Sewer Test

723.1 General. Building sewers shall be tested by plugging the end of the building sewer at its points of connection with the public sewer or private sewage disposal system and ***completely filling the building sewer with water from the lowest to the highest point thereof*** (emphasis added), or by approved equivalent low-pressure air test. Plastic DWV piping systems shall not be tested by the air test method. The building sewer shall be watertight.

2010 Florida Building Code - Plumbing:

312.6 Gravity sewer test. Gravity sewer tests shall consist of plugging the end of the building sewer with water at the point of connection with the public sewer, ***completely filling the building sewer with water from the lowest to the highest point thereof*** (emphasis added), and maintaining such pressure for 15 minutes. The building sewer shall be watertight at all points.

Cost Impact: Will not increase the cost of construction
Reducing the head test for gravity sewers will shorten the length of the fill stack, and eliminate the need for additional test fittings, test balls, and labor to plug off the upper end of the sewer. This should translate to a modest reduction in cost of approx. $20 - $40 per sewer test.

P 24-15 : 312.6-KOZAN3452

P 25-15

312.10.1

Proponent: Michael Anthony, University of Michigan, representing University of Michigan (maanthon@umich.edu)

2015 International Plumbing Code

Revise as follows:

312.10.1 Inspections. ~~Annual~~Periodic inspections shall be made of all backflow prevention assemblies and *air gaps* to determine whether ~~they~~the assemblies are operable and the air gaps exist. The inspection intervals shall be determined by an approved reliability-centered inspection, testing and maintenance program or, in absence of such a program, inspections shall occur annually.

Reason:

We are over-testing on annual fixed interval testing in some installations and under-testing in others. Reliability centered maintenance is a method used by the airline industry and the military to use resources wisely. Large research universities such as ours prioritize our testing according to hazard and sometimes exceed minimum levels set by the host municipality. In other installations our testing records show that testing intervals should be relaxed in order to reduce maintenance-induced failures.

Utilizing Reliability Centered Maintenance - RCM- principles makes it possible for the process to be data-driven, rather than utilizing an arbitrary prescriptive testing interval, which may result in over-testing. RCM analyzes the failure modes and the mean time between failures. This improvement to the code allows us to present the results of this analysis, along with proposed optimized testing intervals to the ASJ.

Bibliography: Reliability Centered Maintenance:
https://en.wikipedia.org/wiki/Reliability_centered_maintenance

It is generally used to achieve improvements in fields such as the establishment of safe minimum levels of maintenance, changes to operating procedures and strategies and the establishment of capital maintenance regimes and plans. Successful implementation of RCM will lead to increase in cost effectiveness, machine uptime, and a greater understanding of the level of risk that the organization is managing.

The late John Moubray, in his industry leading book RCM2, characterized Reliability-centered Maintenance as a process to establish the safe minimum levels of maintenance. This description echoed statements in the Nowlan and Heap report from United Airlines.

It is defined by the technical standard SAE JA1011, Evaluation Criteria for RCM Processes, which sets out the minimum criteria that any process should meet before it can be called RCM. This starts with the 7 questions below, worked through in the order that they are listed:

1. What is the item supposed to do and its associated performance standards?
2. In what ways can it fail to provide the required functions?
3. What are the events that cause each failure?
4. What happens when each failure occurs?
5. In what way does each failure matter?
6. What systematic task can be performed proactively to prevent, or to diminish to a satisfactory degree, the consequences of the failure?
7. What must be done if a suitable preventive task cannot be found?

Reliability centered maintenance is an engineering framework that enables the definition of a complete maintenance regime. It regards maintenance as the means to maintain the functions a user may require of machinery in a defined operating context. As a discipline it enables machinery stakeholders to monitor, assess, predict and generally understand the working of their physical assets. This is embodied in the initial part of the RCM process which is to identify the operating context of the machinery, and write a Failure Mode Effects and Criticality Analysis (FMECA). The second part of the analysis is to apply the "RCM logic", which helps determine the appropriate maintenance tasks for the identified failure modes in the FMECA. Once the logic is complete for all elements in the FMECA, the resulting list of maintenance is "packaged", so that the periodicities of the tasks are rationalised to be called up in work packages; it is important not to destroy the applicability of maintenance in this phase. Lastly, RCM is kept live throughout the "in-service" life of machinery, where the effectiveness of the maintenance is kept under constant review and adjusted in light of the experience gained.

RCM can be used to create a cost-effective maintenance strategy to address dominant causes of equipment failure. It is a systematic approach to defining a routine maintenance program composed of cost-effective tasks that preserve important functions.

The important functions (of a piece of equipment) to preserve with routine maintenance are identified, their dominant failure modes and causes determined and the consequences of failure ascertained. Levels of criticality are assigned to the consequences of failure. Some functions are not critical and are left to "run to failure" while other functions must be preserved at all cost. Maintenance tasks are selected that address the dominant failure causes. This process directly addresses maintenance preventable failures. Failures caused by unlikely events, non-predictable acts of nature, etc. will usually receive no action provided their risk (combination of severity and frequency) is trivial (or at least tolerable). When the risk of such failures is very high, RCM encourages (and sometimes mandates) the user to consider changing something which will reduce the risk to a tolerable level.

The result is a maintenance program that focuses scarce economic resources on those items that would cause the most disruption if they were to fail.

RCM emphasizes the use of Predictive Maintenance (PdM) techniques in addition to traditional preventive measures.

Cost Impact: Will not increase the cost of construction
Likely less, because IT&M costs will be rationalized so that our testing costs are applied proportionate to the risk. Large research universities such as ours prioritize our testing according to hazard and sometimes exceed minimum levels set by the host municipality. In other installations our testing records show that testing intervals should be relaxed in order to reduce maintenance-induced failures.

P 25-15 : 312.10.1-ANTHONY5302

P 26-15

401, 402, 403, 404, 405, 407, 408, 409, 410, 411, 424, 412, 427, 425, 413, 414, 422, 415, 416, 426, 417, 418, 423, 419, 420, 421

Proponent: Julius Ballanco, representing JB Engineering and Code Consulting, P.C. (JBENGINEER@aol.com)

2015 International Plumbing Code

Revise as follows:

CHAPTER 4
FIXTURES, FAUCETS AND FIXTURE FITTINGS

SECTION 401
GENERAL

SECTION 402
FIXTURE MATERIALS

SECTION 403
MINIMUM PLUMBING FACILITIES

SECTION 404
ACCESSIBLE PLUMBING FACILITIES

SECTION 405
INSTALLATION OF FIXTURES

SECTION 407
BATHTUBS

SECTION 408
BIDETS

SECTION 409
DISHWASHING MACHINES

SECTION 410
DRINKING FOUNTAINS

SECTION 411
EMERGENCY SHOWERS AND EYEWASH STATIONS

SECTION ~~424~~ 412
FAUCETS AND ~~OTHER~~ FIXTURE FITTINGS

SECTION ~~412~~ 413
FLOOR AND TRENCH DRAINS

SECTION ~~427~~ 414
FLOOR SINKS

SECTION ~~425~~ 415
FLUSHING DEVICES FOR WATER CLOSETS AND URINALS

SECTION ~~413~~ 416
FOOD WASTE DISPOSER UNITS

SECTION ~~414~~ 417
GARBAGE CAN WASHERS

SECTION ~~422~~ 418
HEALTH CARE FIXTURES AND EQUIPMENT

SECTION ~~415~~ 419
LAUNDRY TRAYS

SECTION ~~416~~ 420
LAVATORIES

SECTION ~~426~~ 421
MANUAL FOOD AND BEVERAGE DISPENSING EQUIPMENT

SECTION ~~417~~ 422
SHOWERS

SECTION ~~418~~ 423
SINKS

SECTION ~~423~~ 424
SPECIALTY PLUMBING FIXTURES

SECTION ~~419~~ 425
URINALS

SECTION ~~420~~ 426
WATER CLOSETS

SECTION ~~421~~ 427
WHIRLPOOL BATHTUBS

Reason: When Chapter 4 was originally laid out, the concept was to have the fixture categories in alphabetical order after the section on Installation of Fixtures. This was simply to make the code easier to use. Someone not as familiar with the code could find the section on a particular fixture. Over the years, newer section were added and placed at the end of the chapter. This change merely reorganizes the chapter into a listing of fixtures in alphabetical order.

The only substantial change to the listing is the striking of the word "other" before fixture fittings. The section addresses faucets and fixture fittings. There is no "other" fixture fittings.

Cost Impact: Will not increase the cost of construction
There is no cost impact by renumbering code sections for clarity.

P 26-15 : CHAPTER 4-BALLANCO3375

P 27-15

403.3 (IBC 2902.3)

Proponent: David Kulina, representing Engel Architects (david@engelarch.com)

2015 International Plumbing Code

Revise as follows:

403.3 Required public toilet facilities. Customers, patrons and visitors shall be provided with *public* toilet facilities in structures and tenant spaces intended for public utilization. The number of plumbing fixtures located within the required toilet facilities shall be provided in accordance with Section 403 for all users. Employees shall be provided with toilet facilities in all *occupancies*. Employee toilet facilities shall be either separate or combined employee and *public* toilet facilities.

Exception: *Public* toilet facilities shall not be required in:

1. Open or enclosed parking garages where there are no parking attendants.
2. Structures and tenant spaces intended for quick transactions, including takeout, pickup and dropoff, having a public access area less than or equal to 300 square feet (28 m^2).
3. <u>Farmstands having a public access area less than or equal to 300 square feet.</u>

Reason: Farm stands offer customers a quick transaction to purchase produce. They are not looked upon by the public as being a standard retail store with restroom facilities.

Cost Impact: Will not increase the cost of construction
Costs will be lessened by eliminating the need for restrooms to serve the public.

P 27-15 : 403.1-KULINA4564

P 28-15

Table 403.1 (IBC Table 2902.1)

Proponent: David Kulina, representing Engel Architects (david@engelarch.com)

2015 International Plumbing Code

Revise as follows:

TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 403.1.1 and 403.2)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2) MALE	WATER CLOSETS (URINALS: SEE SECTION 419.2) FEMALE	LAVATORIES MALE	LAVATORIES FEMALE	BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
1	Assembly	A-1[d]								
		A-2[d]								
		A-3[d]								
			Places of worship and other religious services[f]	1 per 150	1 per 75	1 per 200		—	1 per 1,000	1 service sink

(Portions of table not shown remain unchanged)

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the *International Building Code*.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted provided that each patient sleeping unit has direct access to the toilet room and provision for privacy for the toilet room user is provided.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.

f. The overall occupant load for places of religious worship shall be based on the occupant load of the assembly spaces only, excluding classrooms and offices.

Reason: Places of worship do not use all spaces at once. People typically occupy, at most, two of the three types of spaces at once: the sanctuary/worship space, the fellowship/social space, or the classrooms.

Cost Impact: Will not increase the cost of construction
Costs will actually be lessened by not requiring worship facilities to provide more restrooms than necessary.

P 28-15 : 403.1-KULINA4571

P 29-15

Table 403.1 (IBC Table 2902.1)

Proponent: Paul Stockert, representing Self

2015 International Plumbing Code

Revise as follows:

TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 403.1.1 and 403.2)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2) MALE	WATER CLOSETS (URINALS: SEE SECTION 419.2) FEMALE	LAVATORIES MALE	LAVATORIES FEMALE	BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
7	Residential	R-1	Hotels, motels, boarding houses (transient)	1 per sleeping unit		1 per sleeping unit		1 per sleeping unit	—	1 service sink
		R-2	Dormitories, fraternities, sororities and boarding houses (not transient)	1 per ~~10~~ 20		1 per ~~10~~ 20		1 per ~~8~~ 16	1 per ~~100~~200	1 service sink
		R-2	Apartment house	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit	—	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per 20 dwelling units
		R-3	Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		R-3	One- and two-family dwellings and lodging houses with five or fewer guestrooms	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit	—	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per dwelling unit
		R-4	Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink

(Portions of table and notes not shown remain unchanged)

Reason: When IBC was created, the occupant load for dormitories was taken from the UBC at 1/50 and the plumbing fixture ratios were taken from BOCA.
Under BOCA, dormitory occupant load fell under general residential occupant load of 1/200 - which is too low and unrealistic, especially for exiting purposes.

By adopting pieces from the different codes, the IBC requires 4 times the number of fixtures required under BOCA and approximately twice as many as UBC.

A majority of dormitories constructed at this time utilize suites with semi-private bathrooms and do not contain gang type bath room facilities. A typical suite with 2 double bedrooms and a bath usually does not satisfy the fixture count under IBC, since the occupant load is based on the gross area of the residential occupancy.

The IBC allows the building official to to reduce the occupant load as indicated in Exception to IBC Section 1004.1.2; however, some jurisdictions strike this provision and require a higher level of scrunity or variance be granted by a higher level agency to reduce occupant load - even for plumbing fixture counts.

The revision would still increase the fixture counts from those found in the legacy codes.

TABLE 4-1
Minimum Plumbing Facilities[1]

Each building shall be provided with sanitary facilities, including provisions for the physically handicapped as prescribed by the Department having jurisdiction. For requirements for the handicapped, ANSI A117.1-1992, Accessible and Usable Buildings and Facilities, may be used.

The total occupant load shall be determined by minimum exiting requirements. The minimum number of fixtures shall be calculated at fifty (50) percent male and fifty (50) percent female based on the total occupant load.

Type of Building or Occupancy[2]	Water Closets[14] (Fixtures per Person)		Urinals[5, 10] (Fixtures per Person)	Lavatories (Fixtures per Person)		Bathtubs or Showers (Fixtures per Person)	Drinking Fountains[3, 13] (Fixtures per Person)
Assembly Places – Theatres, Auditoriums, Convention Halls, etc. – for permanent employee use	Male 1: 1-15 2: 16-35 3: 36-55 Over 55, add 1 fixture for each additional 40 persons.	Female 1: 1-15 3: 16-35 4: 36-55	Male 0: 1-9 1: 10-50 Add one fixture for each additional 50 males.	Male 1 per 40	Female 1 per 40		
Assembly Places – Theatres, Auditoriums, Convention Halls, etc. – for public use	Male 1: 1-100 2: 101-200 3: 201-400 Over 400, add one fixture for each additional 500 males and 1 for each additional 125 females.	Female 3: 1-50 4: 51-100 8: 101-200 11: 201-400	Male 1: 1-100 2: 101-200 3: 201-400 4: 401-600 Over 600 add 1 fixture for each additional 300 males.	Male 1: 1-200 2: 201-400 3: 401-750 Over 750, add one fixture for each additional 500 persons.	Female 1: 1-200 2: 201-400 3: 401-750		1: 1-150 2: 151-400 3: 401-750 Over 750, add one fixture for each additional 500 persons.
Dormitories[9] School or Labor	Male 1 per 10 Add 1 fixture for each additional 25 males (over 10) and 1 for each additional 20 females (over 8).	Female 1 per 8	Male 1 per 25 Over 150, add 1 fixture for each additional 50 males.	Male 1 per 12 Over 12 add one fixture for each additional 20 males and 1 for each 15 additional females.	Female 1 per 12	1 per 8 For females, add 1 bathtub per 30. Over 150, add 1 per 20.	1 per 150[12]

TABLE 404.1—continued
MINIMUM NUMBER OF PLUMBING FACILITIES[a]
(see Sections 404.2 and 404.3)

	OCCUPANCY	WATER CLOSETS (Urinals see Section 420.2)		LAVATORIES	BATHTUBS/ SHOWERS	DRINKING FOUNTAINS (see Section 411.1)	OTHERS
		Male	Female				
INSTITUTIONAL	Residential care	1 per 10		1 per 10	1 per 8	1 per 100	1 service sink
INSTITUTIONAL	Hospitals, ambulatory nursing home patients[c]	1 per room[e]		1 per room[e]	1 per 15	1 per 100	1 service sink per floor
INSTITUTIONAL	Day nurseries, sanitariums, nonambulatory nursing home patients, etc.[c]	1 per 15		1 per 15	1 per 15[f]	1 per 100	1 service sink
INSTITUTIONAL	Employees, other than residential care[c]	1 per 25		1 per 35	—	1 per 100	—
INSTITUTIONAL	Visitors, other than residential care	1 per 75		1 per 100	—	1 per 500	—
INSTITUTIONAL	Prisons[c]	1 per cell		1 per cell	1 per 15	1 per 100	1 service sink
INSTITUTIONAL	Asylums, reformatories, etc.[c]	1 per 15		1 per 15	1 per 15	1 per 100	1 service sink
	Mercantile (see Sections 404.2, 404.4 and 404.5)	1 per 500		1 per 750	—	1 per 1,000	1 service sink
RESIDENTIAL	Hotels, motels	1 per guestroom		1 per guestroom	1 per guestroom	—	1 service sink
RESIDENTIAL	Lodges	1 per 10		1 per 10	1 per 8	1 per 100	1 service sink
RESIDENTIAL	Multiple family	1 per dwelling unit		1 per dwelling unit	1 per dwelling unit	—	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per 20 dwelling ~~units~~
RESIDENTIAL	Dormitories	1 per 10		1 per 10	1 per 8	1 per 100	1 service sink
RESIDENTIAL	One- and two-family dwellings	1 per dwelling unit		1 per dwelling unit	1 per dwelling unit	—	~~1 kitchen sink per~~ dwelling unit; 1 automatic clothes washer connection per dwelling unit[d]
	Storage (see Sections 404.2 and 404.4)	1 per 100		1 per 100	(see Section 412)	1 per 1,000	1 service sink

a The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the building code.
b Fixtures located in adjacent buildings under the ownership or control of the church shall be made available during periods the church is occupied.
c Toilet facilities for employees shall be separate from facilities for inmates or patients.
d For attached one- and two-family dwellings, one automatic clothes washer connection shall be required per 20 dwelling units.
e A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient rooms shall be permitted where such room is provided with direct access from each patient room and with provisions for privacy.
f For day nurseries, a maximum of one bathtub shall be required.

Cost Impact: Will not increase the cost of construction
The proposal will not increase costs.

P 29-15 : 403.1-STOCKERT4607

P 30-15

Table 403.1 (IBC Table 2902.1)

Proponent: Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Plumbing Code

Revise as follows:

TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 403.1.1 and 403.2)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1	Assembly	A-1[d]	Theaters and other buildings for the performing arts and motion pictures	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		A-2[d]	Nightclubs, bars, taverns, dance halls and buildings for similar purposes	1 per 40	1 per 40	1 per 75		—	1 per 500	1 service sink
			Restaurants, banquet halls and food courts	1 per 75	1 per 75	1 per 200		—	1 per 500	1 service sink
			Casinos	1 per 50 for the first 400 and 1 per 150 for the remainder exceeding 400	1 per 100 for the first 400 and 1 per 250 for the remainder exceeding 400	1 per 250 for the first 750 and 1 per 500 for the remainder exceeding 750		—	1 per 1,000	1 service sink
		A-3[d]	Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
			Passenger terminals and transportation facilities	1 per 500	1 per 500	1 per 750		—	1 per 1,000	1 service sink
			Places of worship and other religious services	1 per 150	1 per 75	1 per 200		—	1 per 1,000	1 service sink

(Portions of table not shown remain unchanged)

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the *International Building Code*.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted provided that each patient sleeping unit has direct access to the toilet room and provision for privacy for the toilet room user is provided.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.

Reason: The Plumbing Fixture Count Table 403.1 (IBC [P] 2902.1) does not address casinos as a specific use. The building codes are beginning to recognize the unique nature of the use and occupancy for these structures; as an example the code recognizes an occupant load factor of 1:11 for gaming areas. Casinos have been constructed outside of Las Vegas for years and it appears that this trend is continuing nationally. A fixture count for this use is a necessary addition to the code.

As an A-2 occupancy, the code user is currently required to select either the Restaurants/Banquet Halls or Nightclubs/Bars uses under the A-2 occupancy in Table 403.1 (IBC [P] 2902.1) to set fixture counts, 1:75 and 1:40, respectively. The fixture counts provided in this amendment closely resemble the fixture count table used in the Southern Nevada, including the Las Vegas strip. There has been no history in Las Vegas of long lines at Casino restrooms. Casinos represent a unique place where restaurants, gaming, retail and shows are combined into one expansive building. However, even with large crowds on gaming floors, restroom facilities are not so overcrowded as to produce long lines.

Specifically, for a 30,000-ft^2 Casino,Table 403.1 (IBC [P] 2902.1)would require 152% of the number of fixtures that are currently required *if* Casinos are tabulated as large assembly space (nightclub/bar). As a restaurant or banquet hall, Table 403.1 (IBC [P] 2902.1) would require 238% of the number of fixtures required by Table 403.1 (IBC [P] 2902.1).

This amendment also accounts for increase usage and need for female restroom similar to A-4 and A-5 occupancies.

Cost Impact: Will not increase the cost of construction
This proposal provides a more lenient fixture count for casinos, so the cost of construction would presumably decrease.

P 30-15 : T403.1 (IBC [P] 2901.1)-DIGIOVANNI3854

P 31-15

Table 403.1 (IBC Table 2902.1)

Proponent: Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Plumbing Code

Revise as follows:

TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a](See Sections 403.1.1 and 403.2)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1	Assembly	A-1[d]	Theaters and other buildings for the performing arts and motion pictures							1 service sink[e]
		A-2[d]	Nightclubs, bars, taverns, dance halls and buildings for similar purposes							1 service sink[e]
			Restaurants, banquet halls and food courts							1 service sink[e]
		A-3[d]	Auditoriums without perma-nent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums							1 service sink[e]
			Passenger terminals and transportation facilities							1 service sink[e]
			Places of worship and other religious services							1 service sink[e]
1 (cont.)	Assembly	A-4	Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities							1 service sink[e]

		A-5	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities							1 service sink[e]
2	Business	B	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses							1 service sink[e]
3	Educational	E	Educational facilities							1 service sink[e]
4	Factory and industrial	F-1 and F-2	Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials							1 service sink[e]
5	Institutional	I-1	Residential care							1 service sink[e]
		I-2	Hospitals, ambulatory nursing home care recipient							1 service sink per floor[e]
			Employees, other than residential care[b]							—
			Visitors, other than residential care							—
		I-3	Prisons[b]							1 service sink[e]
			Reformitories, detention centers, and correctional centers[b]							1 service sink[e]
			Employees[b]							—
		I-4	Adult day care and child day care							1 service sink[e]

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2) MALE	FEMALE	LAVATORIES MALE	FEMALE	BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
6	Mercantile	M	Retail stores, service stations, shops, salesrooms, markets and shopping centers							1 service sink[e]
7	Residential	R-1	Hotels, motels, boarding houses (transient)							1 service sink[e]
		R-2	Dormitories, fraternities, sororities and boarding houses (not transient)							1 service sink[e]
		R-2	Apartment house							1 kitchen sink per dwelling unit; 1 auto-matic clothes washer con-nection per 20 dwelling units
		R-3	Congregate living facilities with 16 or fewer persons							1 service sink[e]
		R-3	One- and two-family dwellings and lodging houses with five or fewer guestrooms							1 kitchen sink per dwelling unit; 1 auto-matic clothes washer con-nection per dwelling unit
		R-4	Congregate living facilities with 16 or fewer persons							1 service sink[e]

8	Storage	S-1 S-2	Structures for the storage of goods, warehouses, store- house and freight depots. Low and Moderate Hazard.					1 service sink[e]

(Portions of table not shown remain unchanged)

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the *International Building Code*.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted provided that each patient sleeping unit has direct access to the toilet room and provision for privacy for the toilet room user is provided.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. ~~For business and mercantile occupancies with an occupant load of 15 or fewer, s~~Service sinks shall not be required~~.~~ where the occupant load is 30 or fewer.

Reason: This proposal revises note e and applies note "e" to each of the service sink entries in the table, so that it addresses all occupancies required to have service sinks, not just B and M occupancies. Note "e" is revised to trigger the service sink at an occupant load of over 30, rather than the current trigger of 15 found in the note.

Cost Impact: Will not increase the cost of construction
This proposal provides a more lenient approach for fixture requirements, so the cost of construction is not increased.

P 31-15 : T403.1-DIGIOVANNI3856

P 33-15

Table 403.1 (IBC Table 2902.1)

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 403.1.1 and 403.2)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
4	Factory and industrial	F-1 and F-2	Structures in which occupants are engaged in work fabricating, assembly or processingof products or materials					~~(see Section 411)~~		

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
8	Storage	S-1 S-2	Structures for the storage of goods, warehouses, store- house and freight depots. Low and Moderate Hazard.					~~See Section 411~~ —		

(Portions of table and notes not shown remain unchanged)

Reason: This proposal resolves long standing confusion about what Table 403.1 requires for Showers in Factory and Storage facilities. The Table never intended to require showers but was only directing readers to the safety shower section (Section 411) in case the building designer was going to use safety showers in the design of the building. The note has no purpose in this table. Such notes could be put in the table for every other type of fixture that doesn't indicate a ratio or quantity. The note needs removed.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 87.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 33-15 : T403.1-SNYDER3929

P 34-15

Table 403.1 (IBC Table 2902.1)

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 403.1.1 and 403.2)

NO.	CLASSIFICATION	~~OCCUPANCY~~	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1	Assembly	~~A-1[d]~~	Theaters and other buildings for the performing arts and motion pictures							
		~~A-2[d]~~	Nightclubs, bars, taverns, dance halls and buildings for similar purposes							
			Restaurants, banquet halls and food courts							
		~~A-3[d]~~	Auditoriums without perma-nent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums							
			Passenger terminals and transportation facilities							
			Places of worship and other religious services							

NO.	CLASSIFICATION	~~OCCUPANCY~~	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1 (cont.)	Assembly	~~A-4~~	Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities							

		~~A-5~~	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities							
2	Business	~~B~~	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses							
3	Educational	~~E~~	Educational facilities							
4	Factory and industrial	~~F-1 and F-2~~	Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials							
5	Institutional	~~I-1~~	Residential care							
		~~I-2~~	Hospitals, ambulatory nursing home care recipient							
			Employees, other than residential care[b]							
			Visitors, other than residential care							
		~~I-3~~	Prisons[b]							
			Reformitories, detention centers, and correctional centers[b]							
			Employees[b]							
		~~I-4~~	Adult day care and child day care							

NO.	CLASSIFICATION	~~OCCUPANCY~~	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			

6	Mercantile	~~M~~	Retail stores, service stations, shops, salesrooms, markets and shopping centers					
7	Residential	~~R-1~~	Hotels, motels, boarding houses (transient)					
		~~R-2~~	Dormitories, fraternities, sororities and boarding houses (not transient)					
		~~R-2~~	Apartment house					
		~~R-3~~	Congregate living facilities with 16 or fewer persons					
		~~R-3~~	One- and two-family dwellings and lodging houses with five or fewer guestrooms					
		~~R-4~~	~~Congregate living facilities with 16 or fewer persons~~	~~1 per 10~~	~~1 per 10~~	~~1 per 8~~	~~1 per 100~~	~~1 service sink~~
8	Storage	~~S-1 S-2~~	Structures for the storage of goods, warehouses, store- house and freight depots. Low and Moderate Hazard.					

(Portions of table not shown remain unchanged)

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the *International Building Code*.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted provided that each patient sleeping unit has direct access to the toilet room and provision for privacy for the toilet room user is provided.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. For business and mercantile ~~occupancies~~classifications with an occupant load of 15 or fewer, service sinks shall not be required.

Reason: Section 403.1 was revised for the 2015 IPC to direct the reader to the use of a building rather than its IBC occupancy classification (Group) for determining the number of plumbing fixtures. The occupancy column is Table 403.1 is now really confusing as Section 403.1 says to use the Description column but this Occupancy column implies that the IBC classification is to be used. This proposal removes the occupancy column for clarity and coordination with what Section 403.1 states.

Table 403.1 will still retain the classification column, although that column doesn't seem to add any clarification to the table as the IPC doesn't speak of "classifications" for various uses. However, as Table 403.1 is reprinted in the IBC (as Table [P] 2902.1), the classification column might incorrectly lead IBC readers to assume that the IBC occupancy classification (Group) has something to do with selection of an appropriate row for plumbing fixture requirements. IBC Section [P] 2902.1 is identical to Section 403.1 in the IPC but if the reader neglects reading the IBC section and jumps directly to the table, the existence of classification column could cause a misunderstanding.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 191.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 34-15 : T403.1-SNYDER3931

P 35-15

Table 403.1 (IBC Table 2902.1)

Proponent: Gerald Curran, Government of the District of Columbia, representing Dept of Community and Regulatory Affairs, Government of the District of Columbia (gerald.curran@dc.gov)

2015 International Plumbing Code

Revise as follows:

TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 403.1.1 and 403.2)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1	Assembly	A-1[d]	Theaters and other buildings for the performing arts and motion pictures	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		A-2[d]	Nightclubs, bars, taverns, dance halls and buildings for similar purposes	1 per 40	1 per ~~40~~ 20	1 per 75		—	1 per 500	1 service sink
			Restaurants, banquet halls and food courts	1 per 75	1 per ~~75~~38	1 per 200		—	1 per 500	1 service sink
		A-3[d]	Auditoriums without perma-nent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
			Passenger terminals and transportation facilities	1 per 500	1 per ~~500~~250	1 per 750		—	1 per 1,000	1 service sink
			Places of worship and other religious services	1 per 150	1 per 75	1 per 200		—	1 per 1,000	1 service sink

(Portions of table not shown remain unchanged)

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the *International Building Code*.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted provided that each patient sleeping unit has direct access to the toilet room and provision for privacy for the toilet room user is provided.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.

403.1.1 Fixture calculations. To determine the occupant load of each sex, the total occupant load shall be divided in half. To determine the required number of fixtures, the fixture ratio or ratios for each fixture type shall be applied to the occupant load of each sex in accordance with Table 403.1. Fractional numbers resulting from applying the fixture ratios of Table 403.1 shall be rounded up to the next whole number. For calculations involving multiple *occupancies*, such fractional numbers for each *occupancy* shall first be summed and then rounded up to the next whole number.

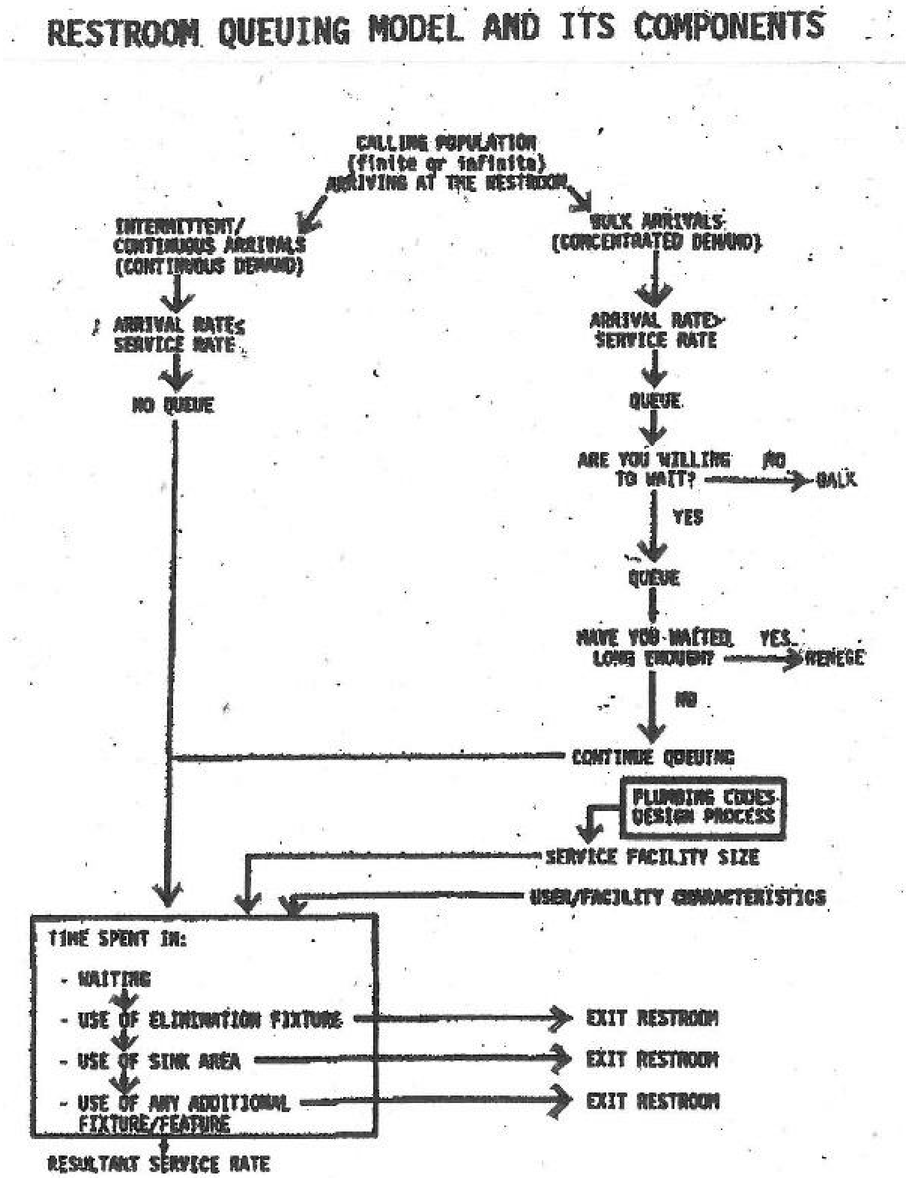
Exception: The total occupant load shall not be required to be divided in half where *approved* statistical data indicates a distribution of the sexes of other than 50 percent of each sex.

Reason: A disparity exists among the ratios of restroom elimination plumbing fixtures (i.e. water closets/urinals) in the various Assembly occupancies in Table 403.1 of the 2012 IPC (Table 2902.1 in the 2012 IBC). For example: for theatre goers the fixture ratio is 1:2 for male to female whereas, for 'transportation facilities' etc., the ratio is 1:1. Some of these ratios represent a one to one distribution of fixtures while others represent a distribution more closely related to what Queuing Theory (Reference # 1.) would have us recognize. This distribution is based on the differences in building use type and on the intermittent or 'bulk arrival' flows of people. It is apparent that Queuing Theory is not uniformly applied to the Assembly occupancies in Table 403.1. To correct the disparities, this proposal recommends treating A-2 and A-3 with the same assumptions of 'bulk arrival' flows as apply to the other Assembly occupancies.
Further to the above: in Table 403.1 of the 2012 IPC the ratio of restroom elimination fixtures in the A-1 and the 1st and 3rd occupancies of A-3 is 1:2 for male to female. The ratio of elimination fixtures in the A-2 and the 2nd A-3 occupancies (e.g. 'Passenger terminals and transportation facilities') is 1:1. Research into elimination duration differences between males and females has been completed by P.J. Davidson and R.G. Courtney of the Building Research Establishment [Reference # 1. under 'Activities']. Their results show that: 'males spend an average of 39 seconds at the urinal' and that the 'average time spent in the water closet for females...80 seconds'. In light of this result it would appear that 1:2 is the preferable ratio for all Assembly occupancy restrooms.

Women using A-2 and the 2nd A-3 occupancy restrooms face the same time constraints and ambulatory circulation issues as women using A-1 and the 1st and 3rd A-3 restrooms. Long lines can result in inconvenience and exposure to stress and health issues [Reference # 1. under 'The Problem']. The present ratios seem to discriminate against the former group of users. Using the same logic of flows, and times, to get through a line in theatres, auditoriums, sporting arenas and places of worship, leads to an obvious conclusion. The correction of ratio disparities among the A-1, A-2 and A-3 occupancy restrooms is needed.

We propose that the A-2 and the 2nd A-3 restroom elimination plumbing fixture ratios be brought into line with those of the A-1, A-4 and A-5 fixture ratios - that is 1:2 for male to female. We appreciate the support of all ICC members.

Note: Reference # 1. refers to the document available on-line titled: 'Queuing Theory in the Analysis of Public Restroom Use and Behavior: Implications for Research, Design, Management and Public Policy' pages 286 thru 292 by Sandra K. Rawls et al.



Bibliography: Queuing Theory in the Analysis of Public Restroom Use and Behavior: Implications for Research, Design, Management and Public Policy. Sandra K. Rawles & Savannah S. Day. Pages 286 thru292. [edra.org/sites/.../publications/EDRA20-Rawls-286-292.pdf. Rawls, Sandra K., Savannah S. Day. Web]
Fundamentals of Queuing Theory, Gross, D. & Harris, C.M., John Wiley & Sons. 1985

Revised Scales for Sanitary Accommodation in Offices, Building and Environment, Davidson, P.J. & Courtney, R.G., 1976, 11:51-56.

Queuing Theory. Panico, J.A. 1969.

Gothamist.com/2003/12/03/restroom_rights_for_women.php. Chung, Jen. Web

Ticketingtoday.com/the_fan_experience_starts_with_womens_restrooms/. Kirby, Troy. Web

The Bathroom, Kira, A. 1976

Cost Impact: Will increase the cost of construction
Restroom facilities typically constitute about 10 percent of new construction costs. The proposal calls for a change in the ratio of restroom elimination plumbing fixtures (wc's/urinals) only, from a 1:1 ratio to a 1:2 ratio in the A-2 and the 2nd A-3 Assembly occupancies. The change would be for the benefit of female users of these occupancies. The change would involve doubling the number of cubicles/WC's and an increased cost of approximately 60 percent for a women's restroom. Total restroom construction costs would increase by approximately 30%. Total construction costs for these Assembly occupancies would therefore increase by approximately 3%.

P 35-15 : T403.1.1-CURRAN4989

P 36-15

Part I:

202 (New), Table 403.1 (IBC 2902.1), 403.1.1 (New) (IBC 2902.1.1 (New))

Part II:

IBC 2902.1.1 (New), IBC Table 2902.1

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IPC COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THIS COMMITTEE.

Proponent: Cornelia M Orzescu, Town of Parker, representing Colorado Chapter of the ICC, Code Change Committee, representing Town of Parker (corzescu@parkeronline.org)

Part I

2015 International Plumbing Code

Add new text as follows:

403.1.1 Outdoor public swimming pool fixtures Outdoor public swimming pools used for aquatic recreation and having a water area of less than 7500 ft^2 (697 m^2) shall have not less than one water closet, one urinal, one lavatory and one shower for males and not less than two water closets, one lavatory and one shower for females.

Outdoor public swimming pools used for aquatic recreation having a water area of 7500 ft^2 (697 m2) or more shall have, for every 7500 ft^2 (697 m^2) or portion thereof, not less than 0.7 water closets, one urinal, 0.85 lavatory and one shower for males and not less than two water closets, one lavatory and one shower for females. Where the result of a fixture calculation is a portion of a whole number, the result shall be rounded up to the nearest whole number.

Section 403.1.1 (Fixture calculations) shall not apply where complying with this section.

Add new definition as follows:

SECTION 202
DEFINITIONS

PUBLIC SWIMMING POOL A pool, other than a residential pool, that is intended to be used for swimming or bathing and is operated by an owner, lessee, operator, licensee or concessionaire, regardless of whether a fee is charged for use.

Revise as follows:

TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 403.1.1 and 403.2)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS: SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1 (cont.)	Assembly	A-4	Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
		A-5	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities[f]	1 per 75 for the first1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink

(Portions of table not shown remain unchanged)

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the *International Building Code*.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted provided that each patient sleeping unit has direct access to the toilet room and provision for privacy for the toilet room user is provided.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.

f. For outdoor public swimming pools used for aquatic recreation, see Section 403.1.1

Part II

2015 International Building Code

Add new text as follows:

2902.1.1 Outdoor public swimming pool fixtures Outdoor public swimming pools used for aquatic recreation and having a water area of less than 7500 ft^2 (697 m^2) shall be provided with not less than one water closet, one urinal, one lavatory and one shower for males and not less than two water closets, one lavatory and one shower for females.

Outdoor public swimming pools used for aquatic recreation having a water area of 7500 ft^2 (697 m^2) or more shall be provided with, for every 7500 ft^2 (697 m^2) or portion thereof, not less than 0.7 water closets, one urinal, 0.85 lavatory and one shower for males and not less than two water closets, one lavatory and one shower for females. Where the result of a fixture calculation is a portion of a whole number, the result shall be rounded up to the nearest whole number.

Section 2902.1.1 (Fixture calculations) shall not apply where complying with this section.

Reason: Trying to figure out a plumbing fixture count associated with outdoor public swimming pools when there is not a "building occupant load" is a doubting task. The proposed fixture count is based on the 2015 International Swimming Pool and Spa Code provisions Section 609 for Toilet rooms and bathrooms.
Note f is added to Table 403.1 to point the code user to this new section and to not attempt to use "building occupant load" numbers, Table 403.1 fixture ratios for A-5 and the calculation method of existing 403.1.1. That will result in far too many fixtures for an outdoor public swimming pool application.

This new section would not apply to buildings that might be associated with a public pool such as a club house.

Instead of just referencing the 2015 ISPSC for the number of required plumbing fixtures, the verbage is included in the IPC for jurisdictions that otherwise will not adopt or have not adopted the 2015 ISPSC.

This proposed langauge for the IBC will hopefully be carried into Chapter 29 the 2018 IBC as it is integral to the information that is normally in IBC Chapter 29.

Bibliography:

Part I: Title of book- 2015 International Swimming Pool and Spa Code
Year published-2014

Page #35

Cost Impact:

Part I: Will not increase the cost of construction
Because this proposal is not based on an occupant load, this will result in a cost decrease as compared to the cost of the number of required fixtures based on IPC Table 403.1.

Part II: Will not increase the cost of construction
Because this proposal is not based on an occupant load, this will result in a cost decrease as compared to the cost of the number of required fixtures based on IPC Table 403.1.

Analysis:

Part II: Changes to IPC Table 403.1 made by PART I will automatically change IBC Table 2902.1.

P 36-15 : 403.1.1.1 (New)-ORZESCU3686

P 37-15

403.1.2 (New) (IBC 2902.1.2 (New))

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com)

2015 International Plumbing Code

Add new text as follows:

403.1.2 Excess number of elimination fixtures for males. Where the combined number of water closets and urinals for males exceeds the number of male water closets required by Section 403.1, the total number of water closets for females shall be increased by the number of combined fixtures for males that exceeds the required number of water closets for males, adjusted as necessary by the statistical requirements of Section 403.1.1.

Reason: Potty parity was a part of the Plumbing Code from its inception. The goal of the code requirements on number of fixtures between the sexes is to provide the same waiting time for men and women using the facilities.
Because of space differentials, the combined number of water closets and urinals in the men's room often exceeds the number required by code. However, the women's room may have the required number of water closets. This results in an unequal waiting time for use of the plumbing fixtures. As a result, potty parity is not achieved.

This code requirement will mandate that the number of water closets in the women's room must be increased by the same percentage as the number of water closets and urinals in the men's room. The result will be potty parity with the same waiting time between the men and women.

Cost Impact: Will increase the cost of construction
This will add cost when additional water closets are required to be installed in the women's room.

P 37-15 : 403.1.2 (New)-BALLANCO3813

P 38-15

403.1.2 (IBC 2902.1.2), 403.2.1 (IBC 2902.2.1), 403.4 (IBC 2902.4)

Proponent: Bob Kief, University of Puget Sound, representing University of Puget Sound (bkief@pugetsound.edu)

2015 International Plumbing Code

Revise as follows:

403.1.2 Family or assisted-use or gender-neutral toilet facilities and ~~bath~~bathroom fixtures. Fixtures located within family or assisted-use toilet and bathing rooms required by Section 1109.2.1 of the *International Building Code*are permitted to be included in the number of required fixtures for either the male or female, or gender-neutral occupants in assembly and mercantile *occupancies*.

403.2.1 Family or assisted-use or gender-neutral toilet facilities serving as separate facilities. Where a building or tenant space requires a separate toilet facility for each sex or gender-neutral and each toilet facility is required to have only one water closet, two family or assisted-use or gender-neutral toilet facilities shall be permitted to serve as the required separate facilities. Family or assisteduse or gender-neutral toilet facilities shall not be required to be identified for exclusive use by either sex as required by Section 403.4.

403.4 Signage. Required *public* facilities shall be provided with signs that designate the sex~~,~~ or gender-neutral as required by Section 403.2. Signs shall be readily visible and located near the entrance to each toilet facility. Signs for accessible toilet facilities shall comply with Section 1111 of the *International Building Code*.

Reason: As you may be aware, providing gender neutral bathrooms is becoming an important issue at many colleges and universities. A rapidly growing number of colleges and universities are creating gender neutral bathrooms, either through renovations or by simply changing the signs on single-stall male/female restrooms. Gender neutral bathrooms are a place where students, faculty and staff of any gender can go in and use the bathroom and feel safe regardless of gender expression or gender identity. (see attached supporting letter)
The 2015 International Plumbing Code (IPC) and 2015 International Building Code (IBC) do not recognize gender neutral individuals. Fixture calculations are based on only male and female. The code recognizes "Family or assisted-use toilet and bath fixtures" and requires signage "required public facilities shall be provided with signs that designate the sex". The code is not preventing any university or college from having gender neutral single-stall bathrooms, however, it does prevent converting multi-stall "Men's" and "Women's" bathrooms to gender neutral bathrooms in public buildings.

IBC 1109.2.1 Family or assisted-use toilet or bathing rooms.

403.2.1 (IBC [P] 2902.1.2) Family or assisted-use toilet and bath fixture count.

403.2.1 (IBC [P] 2902.2.1) Family or assisted-use toilet facilites serviing aa separate facilities.

The family or assisted-use requirements will not be effected in terms of accessibility and fixture counts but will allow a 3rd individual type to gain access to such facilities. Signage indicating the bathroom is *gender neutral* would be required.

We respectfully request that the IBC and IPC codes recognize and require a gender neutral single-stall bathroom, with the same equality as family and/or assisted-use bathrooms, to be available in every building when constructing new and/or renovating existing buildings.

I am submitting the appropriate code section change request along with a supporting letter from The Associated Students of Puget Sound (ASUPS) student government with the endorsement of our University President as well as various groups and members of our campus community.

Cost Impact: Will not increase the cost of construction
The gender neutral bathrooms should not increase the cost of construction, because single stall accessible bathrooms are already required by code, and existing single stall accessible bathrooms can easily be converted to gender neutral bathrooms by changing their signage. Shifting from gender-specific single-stall bathrooms to gender-neutral single-stall bathrooms ones is a simple no cost or low-cost way to help ensure that facilities are welcoming and open to all people, regardless of the way one presents or identifies their gender identity.

P 38-15 : 403.1.2-KIEF3626

P 39-15

403.1.2 (New) (IBC 2902.1.2 (New))

Proponent: Billy Smith, American Society of Plumbing Engineers Legislative Committee, representing American Society of Plumbing Engineers Legislative Committee (bsmith@aspe.org)

2015 International Plumbing Code

Add new text as follows:

403.1.2 Excess number of male fixtures. Where the sum of the numbers of installed water closets and urinals for males will be in excess of the required number of male water closets, and the sum is greater than the required number of female water closets, the number of installed female water closets shall be the total of the number of required female water closets and the excess number of male fixtures.

Reason: ASPE has long been a proponent of potty parity. The original values found in the International Plumbing Code were based on a paper published by ASPE. The goal of the code is to provide the same waiting time for men and women using the facilities.
Because of space differentials, the combined number of water closets and urinals in the men's room exceeds the number required by code. However, the women's room has the required number of water closets. This results in an unequal waiting time for use of the plumbing fixtures. As a result, potty parity is not achieved.

This code requirement will mandate that the number of water closets in the women's room must be increased by the same percentage as the number of water closets and urinals in the men's room. The result will be potty parity with the same waiting time between the men and women.

Cost Impact: Will not increase the cost of construction
This does not increase the cost since the change merely provides options for the installer or designer.

P 39-15 : 403.1.2 (New)-SMITH5374

P 40-15

403.1.2 (IBC 2902.1.2)

Proponent: David Collins, representing The American Institute of Architects (dcollins@preview-group.com)

2015 International Plumbing Code

Revise as follows:

403.1.2 ~~Family or assisted-use~~Single-user toilet facility and ~~bath~~bathing room fixtures. ~~Fixtures~~
The plumbing fixtures located ~~within~~in single-user toilet facilities and bathing rooms, including family or assisted-use toilet and bathing rooms that are required by Section 1109.2.1 of the *International Building Code*~~are permitted to be included in~~, shall contribute towards the total number of required plumbing fixtures for ~~either the male~~a building or ~~female occupants in assembly~~tenant space. Single-user toilet facilities and ~~mercantile *occupancies*.~~bathing rooms, and family or assisted-use toilet and bathing rooms shall not be required to be identified for exclusive use by either sex.

Reason: The use of single-user toilets has become increasingly beneficial system of providing not only better facilities, but more user friendly facilities. A higher level of privacy is achieved, the facilities are typically better maintained by the users, and the efficiencies of having unisex facilities where the users are of a dominate sex are significantly increased.
Similarly, this code change removes the limitation of use for family or assisted-use facilities to mercantile and assembly occupancies. Families or persons requiring assisted-use can be found in various occupancies and should be allowed as providing required toilets. Currently, when there are multiple single-user toilets 50% of them are required to be accessible. If this is compared with the standard ganged toilet rooms where there are multiple toilet fixtures, the number of accessible toilets and thus a greater number of useful toilets by everyone will be increased by this change.

Cost Impact: Will not increase the cost of construction
The single-user toilet room will reduce the cost of construction. Based on the minimum number of toilets, the larger general area required for circulation for multi-fixtured toilet rooms can be eliminated in large part because areas such as sight-blocking and the multiplier for urinals for credit will be eliminated in multiple single-user toilet designs.

P 40-15 : 403.1.2-COLLINS4506

P 41-15

403.2 (IBC 2902.2)

Proponent: Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Plumbing Code

Revise as follows:

403.2 Separate facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

Exceptions:

1. Separate facilities shall not be required for dwelling units and sleeping units.
2. Separate facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of ~~15~~30 or fewer.
3. Separate facilities shall not be required in mercantile *occupancies* in which the maximum occupant load is 100 or ~~fewer~~less.
4. Separate facilities shall not be required in Group B occupancies in which the maximum occupany load is 50 or less provided a single toilet facility is designed for use by no more than one person at a time.

Reason: Section 403.2 (IBC Section 2902.2) requires that separate facilities be provided for males and females when plumbing fixtures are required by Table 403.1 (IBC Table 2902.1). Exception No. 2 to Section 403.2 (IBC Section 2902.2) allows shared facilities for spaces with a maximum occupant load of 15, while Exception No. 3 allows shared facilities for mercantile (Group M) occupancies with a maximum occupant load of 100. The proposed amendment is to modify Exception No. 2 to raise the minimum occupant load that requires separate facilities for males and females from 15 to 30.

With respect to the proposal for Exception #2, the following table identifies the occupant load factors for various occupancies based on IBC Table 1004.1.2 and shows the maximum area that would be allowed for each occupancy in order to avoid providing separate facilities. The table also shows the maximum area that the proposed amendment would allow for each occupancy in order to avoid providing separate facilities.

Occupancy	Occupant Load Factor (OLF) (ft^2/person)	2015 IBC Max. Area Permitted without Separate Facilities (OLF x 15) (ft^2)	*Proposed Amended* Max. Area Permitted without Separate Facilities (OLF x 30) (ft^2)
Assembly (unconcentrated use)	15	225	450
Educational	20	300	600
Factory/Industrial	100	1500	3000
Institutional areas:			
Inpatient treatment areas	240	3600	7200
Outpatient areas	100	1500	3000
Sleeping areas	120	1800	3600
Residential	200	3000	6000
Storage	300	4500	9000

An additional modification in this proposal is to use terminology and the occupancy description used throughout the code in exception #3 to be consistent with typical code language.

Further, this proposal adds an exception to address Group B occupancies. This proposal is to allowGroup B (business) occupancies, with a total occupant load of 50 or less, including customers and employees, to have a single toilet facility provided that it is designed for use by no more than one person at a time. This appears to be a reasonable standard for small business spaces of 5,000 square feet or less. Current code requires separate facilities for business occupancies that exceed 1,500 square feet.

A single accessible toilet facility occupies approximately 50 ft^2. Therefore, requiring separate facilities for males and females in small businesses requires the loss of approximately an additional 50 ft^2 of floor area along with the cost of the additional plumbing fixtures and enclosure. Fifty square feet represents a significant percentage of the floor area for the minimum size of spaces that require separate facilities per the base IPC Section 403.2 (IBC Section 2902.2). This change is intended to benefit storefront/strip mall business tenants that individually provide facilities within their space. This proposal will have little impact to standard office buildings that typically share restroom facilities.

Cost Impact: Will not increase the cost of construction
This proposal will provide a more lenient approach for facilities in Group B occupancies, so construction costs are not increased with this proposal.

P 41-15 : 403.2-DIGIOVANNI3855

P 42-15

403.2 (IBC 2902.2)

Proponent: Bryan Hampson, representing Washington Association of Building Officials Technical Code Development Committee (bhampson@kenmorewa.gov)

2015 International Plumbing Code

Revise as follows:

403.2 Separate facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

Exceptions:

1. Separate facilities shall not be required for dwelling units and sleeping units.
2. Separate facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or fewer.
3. Separate facilities shall not be required in mercantile *occupancies* in which the maximum occupant load is 100 or fewer.
4. <u>Separate facilities shall not be required in spaces primarily used for drinking and dining in which the maximum occupant load is 30 or less.</u>

Reason: Currently smaller drinking or dining establishments, e.g. sandwich shops, coffee shops, wineries and breweries with tasting rooms, etc., would be required to provide separate men's and women's restroom facilities when the occupant load exceeds 15, including both employees and customers. Typically there is one existing restroom and a kitchen or service area that may have one or two employees. This means that, if the dining area is greater than 195 square feet, separate restroom facilities are required (based on an assembly, unconcentrated occupant load factor of 15 people per square foot for 13 people). If a new restroom is constructed, it is required to be accessible. A small accessible restroom needs approximately 60 square feet of space. This may require leasing or purchasing additional space to accommodate a second restroom or reducing the size of the dining area. The additional restroom is unnecessary to serve the sanitary needs of the occupants of a small establishment. By requiring a separate restroom at 30 persons, there could be 420 sq. ft. (with two employees) non-fixed seating.

Cost Impact: Will not increase the cost of construction
The proposed code amendment will reduce the cost for small businesses. Because in some instances the business may need to lease or purchase added space to accomodate a second restroom and in addition to leasing or purchasing the added space is the cost of physical construction of the facility.
In addition, the restaurant industry assumes a maximum rent or lease of 8% based on gross sales. The separate restroom adds 25% (approximately) in floor space but adds nothing to the gross revenues. Small businesses would have a much better chance of survival by lowering the cost of lease and/or construction when they can spread that cost over a larger customer base.

P 42-15 : 403.2-HAMPSON4334

P 43-15

403.2 (IBC 2902.2) , 403.2.1 (IBC 2902.1), 403.2.2 (New) (IBC 2902.2.2 New)) , 403.4 (IBC 2902.4)

Proponent: Shawn Meerkamper, Transgender Law Center, representing Transgender Law Center

2015 International Plumbing Code

Revise as follows:

403.2 Separate facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

Exceptions:

1. Separate facilities shall not be required for dwelling units and sleeping units.
2. Separate facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or fewer.
3. Separate facilities shall not be required in mercantile *occupancies* in which the maximum occupant load is 100 or fewer.
4. Toilet facilities that have only one water closet shall not be identified for exclusive use by either sex, as provided in Sections 403.2.1 and 403.2.2 and shall be deemed to meet the requirements of this section.

403.2.1 Family or assisted-use toilet facilities serving as separate facilities. Where a building or tenant space requires a separate toilet facility for each sex and each toilet facility is required to have only one water closet, two family or assisted-use toilet facilities shall be permitted to serve as the required separate facilities. Family or ~~assisteduse~~assisted-use toilet facilities shall not~~ be required to~~ be identified for exclusive use by either sex as required by Section 403.4.

Add new text as follows:

403.2.2 Single-stall facilities Where toilet facilities have only one water closet, those facilities shall not be identified for exclusive use by either sex.

Revise as follows:

403.4 Signage. Required *public* facilities shall be provided with signs that ~~designate~~indicate the sex or designated use, as required by ~~Section~~Sections 403.2, 403.2.1, and 403.2.2. Signs shall be readily visible and located near the entrance to each toilet facility. Signs for accessible toilet facilities shall comply with Section 1111 of the *International Building Code*.

Reason: This proposal is jointly submitted by Transgender Law Center, National Center for Lesbian Rights, and National Center for Transgender Equality.
Many people have been in the frustrating position of waiting in line for a single-stall restroom while the restroom designated for the other gender sits empty. This proposal simply provides that single-stall restrooms must be available to people of all genders, and clarifies that such single-user facilities do not violate existing laws requiring equal facilities to be available for men and for women. Amending the Plumbing Code as set forth above would increase the number of restrooms available to all people while especially benefitting parents with children of a different gender; senior citizens or people with disabilities who may require an attendant; people with bladder conditions; and people who don't fit narrow gender stereotypes, including some lesbian, gay, bisexual, and transgender people, for whom public restrooms can be sources of anxiety and sites of harassment or even violence. The consequences for public health can be serious: individuals who are unable to safely access public restrooms can develop medical problems from delaying or avoiding restroom usage.

This proposal mirrors policies already in effect in a number of major U.S. cities, including New York City, Philadelphia, San Francisco, Washington, D.C., West Hollywood, and Austin, Texas. Designating single-stall restrooms for use by all genders is also a growing trend at universities (including the University of California, which recently adopted this policy system-wide) and private businesses. Unfortunately, some institutions and government bodies find their options limited by codes such as the IPC that require single-stall restrooms to be limited to one gender. Adopting these amendments to the Plumbing Code would give guidance to local and state policymakers seeking to ensure that public restrooms are accessible and inclusive.

Bibliography: Building Practice: Gender-Inclusive, ADA-Accessible, and Family-Friendly Restrooms, University of California Santa Barbara, 2014, http://www.policy.ucsb.edu/policies/policy-docs/gender-inclusive-restroom.pdf.
D.C. Municipal Regulations Title 4 Section 802.2, 2006, http://www.dcregs.dc.gov/Gateway/RuleHome.aspx?RuleNumber=4-802.

Potty Parity in Perspective: Gender and Family Issues in Planning and Designing Public Restrooms, Journal of Planning Literature, Vol. 21 No. 3, Kathryn H. Anthony and Meghan Dufresne, 2007, Pg. 267, https://www.ideals.illinois.edu/bitstream/handle/2142/11713/Anthony%20JPL.pdf?sequence=4.

Gender-neutral Bathrooms in Libraries, Jane Sandberg, 2014, http://www.ala.org/glbtrt/sites/ala.org.glbtrt/files/content/popularresources/bathrooms%20brochure%20for%20viewing.pdf.

Gendered Restrooms and Minority Stress: The Public Regulation of Gender and its Impact on Transgender People's Lives, Journal of Public Management & Social Policy, Vol. 19 No. 2, Jody L. Herman, 2013, Pg. 65, http://williamsinstitute.law.ucla.edu/wp-content/uploads/Herman-Gendered-Restrooms-and-Minority-Stress-June-2013.pdf.

West Hollywood Municipal Code Section 9.28.090, 2014, http://weho.granicus.com/MetaViewer.php?view_id=22&clip_id=2505&meta_id=86373.

Cost Impact: Will not increase the cost of construction
Costs associated with our proposed amendments are limited to signage and would have no effect on construction costs. Restroom signs that do not specify gender are available for comparable costs to those that do specify gender. To the extent that there are price reductions for buying in bulk, some establishments will actually save money if they only need to purchase many of one sign.

P 43-15 : 403.2-MEERKAMPER5718

P 44-15

403.2 (IBC 2902.2)

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

403.2 Separate facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

Exceptions:

1. Separate facilities shall not be required for dwelling units and sleeping units.
2. Separate facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or fewer.
3. Separate facilities shall not be required in mercantile <u>and business</u> *occupancies* in which the maximum occupant load is ~~100~~<u>50</u> or fewer.

Reason: It has been long standing practice in the codes to group business and mercantile occupancies in regards to plumbing fixtures. It was not clear why the number was changed from 50 to 100 in the 2012 IPC for mercantile with the IBC occupant load remaining the same. These revisions are made to allow for small business occupancies to provide a single toilet facility for up to 50 occupants and reduce the number to the previous value of 50 for mercantile occupancies.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 98.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, for mercantile occupancies having an occupant load of greater than 50 and less than 101, separate toilet facilities (for male and female) will be required whereas in the current code that range does not require separate facilities. Extra space and duplicate fixtures, piping and associated materials and labor will increase the cost of construction for those mercantile establishments in that range.

P 44-15 : 403.2-SNYDER3937

P 45-15

403.3 (IBC 2902.3)

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

403.3 Required public toilet facilities. ~~Customers~~For structures and tenant spaces intended for *public* utilization, customers, patrons and visitors shall be provided with *public* toilet facilities ~~in~~.
Employees associated with structures and tenant spaces ~~intended for public utilization~~shall be provided with toilet facilities. The number of plumbing fixtures located within the required toilet facilities shall be provided in accordance with Section 403 for all users. ~~Employees shall be provided with toilet facilities in all *occupancies*.~~ Employee toilet facilities shall be either separate or combined employee and *public* toilet facilities.

> **Exception:** *Public* toilet facilities shall not be required ~~in~~for:
>
> 1. Open or enclosed parking garages where there are no parking attendants.
> 2. Structures and tenant spaces intended for quick transactions, including takeout, pickup and dropoff, having a public access area less than or equal to 300 square feet (28 m^2).

Reason: This section is being reorganized for clarity of the intent of the section which simply is to require public and employee toilet facilities, as applicable, for buildings and tenant spaces. The location of the required toilet facilities is covered by Sections 403.3.1 through 403.3.4. This reorganization eliminates the word "in" in the first sentence of the existing language and in the Exceptions lead-in sentence because this simple term has frequently been interpreted to mean that toilet facilities had to be within the building or tenant space that created the plumbing fixture demand. However, this interpretation is contrary to many past and current practices of toilet facilities being located in buildings other than the building generating the requirement for plumbing fixtures. Examples are:

- An amusement park with numerous buildings served by several centralized toilet facility buildings.
- An open mall building having multiple tenant spaces, served by one central toilet facility.
- A covered mall building having numerous tenant spaces, served by several centralized toilet facilities.
- A factory outlet "mall" area with several strip buildings where the toilet facilities to serve all of the buildings are located in only one of the strip buildings.

Note that Section 403.3.1 states "Access to the required facilities shall be from within the building or from the exterior of the building."

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 90.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 45-15 : 403.3-SNYDER3934

P 46-15

Part I:
403.6 (New)
Part II:
2902.3.7 (New)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IBC-GENERAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Ronald Geren, RLGA Technical Services, LLC, representing Self (ron@specsandcodes.com)

Part I

2015 International Plumbing Code

Add new text as follows:

403.6 Fixture distribution. Where two or more toilet rooms are provided for each sex, the required number of lavatories shall be distributed proportionately to the required number of water closets.

Part II

THE IBC-G COMMITTEE IS ONLY TO DECIDE WHETHER THIS SECTION SHOULD BE PLACED CHAPTER 29. THE TECHNICAL PART OF THE NEW SECTION WILL BE DECIDED BY THE IPC COMMITTEE.

2015 International Building Code

Add new text as follows:

2902.3.7 Fixture distribution. Where two or more toilet rooms are provided for each sex, the required number of lavatories shall be distributed proportionately to the required number of water closets.

Reason: The proposed addition is intended to prevent the uneven distribution of plumbing fixtures for each sex within two or more toilet facilities. For example, if 6 water closets and 3 lavatories are required for males, they cannot be distributed as follows:

- Male Toilet Facility 1: 4 water closets and 1 lavatory
- Male Toilet Facility 2: 2 water closets and 2 lavatories

The correct distribution shall be as follows:

- Male Toilet Facility 1: 4 water closets and 2 lavatories
- Male Toilet Facility 2: 2 water closets and 1 lavatory

Cost Impact:

Part I: Will not increase the cost of construction
The same number of fixtures is required, so there is not an increase in cost.

Part II: Will not increase the cost of construction
The same number of fixtures is required, so there is not an increase in cost.

P 46-15 : 403.6 (New)-GEREN5708

P 47-15

404.1.1 (New)

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Add new text as follows:

404.1.1 Clustered family-or-assisted-use toilet facilities. Where multiple family-or-assisted-use toilet facilities are clustered at a single location, not less than 50 percent of the cluster of toilet facilities shall be required to be accessible.

Reason: IBC Section 1109.2 Exception 2 allow for single occupant toilet rooms that are clustered and of the same type to only have 50% constructed accessible. Since the family or assisted-use toilet room requirements basically describe an accessible single occupant bathroom, the intent of the exception is to allow for the same exception to be applicable when someone uses the allowance in IPC Section 404.2.2. This would be consistent with the 2010 ADA Standard for Accessible Design.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is CTC/PMG Proposal Item 1.

In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled Acccessiblity. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 47-15 : 404.1.1 (New)-SNYDER3938

P 48-15

405.3.1

Proponent: David Beahm, Building Official, Warren County, representing Virginia Plumbing and Mechanical Inspectors Association, Virginia Building Code Officials Association and Warren County Virginia (dbeahm@warrencountyva.net)

2015 International Plumbing Code

Revise as follows:

405.3.1 Water closets, urinals, lavatories and bidets. A water closet, urinal, lavatory or bidet shall not be set closer than 15 inches (381 mm) from its center to any side wall, partition, vanity or other obstruction, or closer than 30 inches (762 mm) center to center between adjacent fixtures. There shall be not less than a 21-inch (533 mm) clearance in front of the water closet, urinal, lavatory or bidet to any wall, fixture or door. Water closet compartments shall be not less than 30 inches (762 mm) in width and not less than 60 inches (1524 mm) in depth for floormounted water closets and not less than 30 inches (762 mm) in width and 56 inches (1422 mm) in depth for wallhung water closets.

<u>**Exception:** An accessible children's water closet shall be set not closer than 12 inches from its center to the required partition or to the wall on one side.</u>

Reason: Both the 2003 and the 2009 ICC ANSI A117.1 indicate this reduced measurement and this exception allows the user to realize this allowance without having to go out of the IPC.

Cost Impact: Will not increase the cost of construction
This is a reference statement only and is already allowed within the associated referenced standard.

P 48-15 : 405.3.1-BEAHM3629

P 49-15

405.3.1, 405.3.5

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

405.3.1 Water closets, urinals, lavatories and bidets. A water closet, urinal, lavatory or bidet shall not be set closer than 15 inches (381 mm) from its center to any side wall, partition, vanity or other obstruction. Where partitions or other obstuctions do not separate adjacent fixtures, ~~or~~fixtures shall not be set closer than 30 inches (762 mm) center to center between adjacent fixtures. There shall be not less than a 21-inch (533 mm) clearance in front of ~~the~~a water closet, urinal, lavatory or bidet to any wall, fixture or door. Water closet compartments shall be not less than 30 inches (762 mm) in width and not less than 60 inches (1524 mm) in depth for floormounted water closets and not less than 30 inches (762 mm) in width and 56 inches (1422 mm) in depth for wallhung water closets.

405.3.5 Urinal partitions. Each urinal utilized by the *public* or employees shall occupy a separate area with walls or partitions to provide privacy. The width between walls or partitions at each urinal shall be not less than 30 inches (762 mm).The walls or partitions shall begin at a height not greater than 12 inches (305 mm) from and extend not less than 60 inches (1524 mm) above the finished floor surface. The walls or partitions shall extend from the wall surface at each side of the urinal not less than 18 inches (457 mm) or to a point not less than 6 inches (152 mm) beyond the outermost front lip of the urinal measured from the finished backwall surface, whichever is greater.

Exceptions:

1. Urinal partitions shall not be required in a single-occupant or family/assisted-use toilet room with a lockable door.
2. Toilet rooms located in child day care facilities and containing two or more urinals shall be permitted to have one urinal without partitions.

Reason: Where partitions are required between adjacent fixtures, the spacing cannot be 30 inches center-to-center between fixtures. We have heard about contractors who have been caught off guard by this, not knowing about the thickness of a partition (because those items are typical not there "in the rough"), only to find out at final inspection that they have a violation because someone later came in and installed the required partitions. This happens frequently with multiple urinal layouts. The added text clarifies that the width between partitions must be 30 inches and the spacing between adjacent fixtures is only applicable where partitions will not be installed.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 140.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 49-15 : 405.3.1-SNYDER3939

P 50-15

405.4.1

Proponent: Pennie L Feehan, Copper Development Association, representing Copper Development Association (penniefeehan@me.com)

2015 International Plumbing Code

Revise as follows:

405.4.1 Floor flanges. Floor flanges for water closets or similar fixtures shall be not less than 0.125 inch (3.2 mm) thick for ~~brass~~copper alloy, 0.25 inch (6.4 mm) thick for plastic and 0.25 inch (6.4 mm) thick and not less than a 2-inch (51 mm) caulking depth for cast iron or galvanized malleable iron.

Floor flanges of hard lead shall weigh not less than 1 pound, 9 ounces (0.7 kg) and shall be composed of lead alloy with not less than 7.75-percent antimony by weight. Closet screws and bolts shall be of ~~brass~~copper alloy. Flanges shall be secured to the building structure with corrosion-resistant screws or bolts.

Reason: There are many different copper and copper-alloy compositions. Copper alloy is the term used to identify materials manufactured where copper is the base metal and it includes brass and bronze.

Cost Impact: Will not increase the cost of construction
This proposal will not impact the cost of construction as this change is only a clarification of the name of a product.

P 50-15 : 405.4.1-FEEHAN3790

P 51-15

Part I:
405.4.3
Part II:
Table P2701.1, P2702.4

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC PLUMBING COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Angel Guzman Rodriguez, representing American Society of Mechanical Engineers

Part I

2015 International Plumbing Code

Revise as follows:

405.4.3 Securing wall-hung water closet bowls. Wallhung water closet bowls shall be supported by a concealed metal carrier that is attached to the building structural members so that strain is not transmitted to the closet connector or any other part of the plumbing system. The carrier shall conform to ~~ASME A112.6.1M or~~ ASME A112.6.2.

Part II

2015 International Residential Code

Revise as follows:

TABLE P2701.1
PLUMBING FIXTURES, FAUCETS AND FIXTURE FITTINGS

MATERIAL	STANDARD
~~Floor-affixed supports for off-the-floor plumbing fixtures for public use~~	~~ASME A 112.6.1M~~
Framing-affixed supports for off-the-floor water closets with concealed tanks	ASME A 112.6.2

P2702.4 Carriers for wall-hung water closets. Carriers for wall-hung water closets shall conform to ~~ASME A112.6.1 or~~ ASME A112.6.2.

Reason: Update Section 405.4.3 by removing the reference to ASME A112.6.1M since the requirements from standard are now covered in A112.6.2. The A112.6.1M standard is longer published by ASME.
Standard ASME A112.6.1M–1997(R2008) Floor affixed Supports for Off-the-floor Plumbing Fixtures for Public Use will be automatically removed from Chapter 15 during processing of the 2018 IPC.

Cost Impact:

Part I: Will not increase the cost of construction
This will not increase the cost of construction since the proposal is editorial/updating in nature.

Part II: Will not increase the cost of construction
This will not increase the cost of construction since the proposal is editorial/updating in nature.

P 51-15 : 405.4.3-GUZMAN RODRIGUEZ4970

P 52-15

405.5 (New)

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com)

2015 International Plumbing Code

Add new text as follows:

405.5 Plumbing fixtures with a pumped waste Plumbing fixtures with a pumped waste shall comply with ASME A112.3.4/CSA B45.9. The plumbing fixture with a pumped waste shall be installed in accordance with the manufacturer's instructions.

Reason: ASME A112.3.4/CSA B45.9 was added to the code during the last revision. This standard covers macerating toilet systems and fixtures with a pumped waste. The requirements for pumped waste systems were added during the latest revision of the standard.
The fixtures with a pumped waste are typically installed during renovation or where pipe pitch cannot be achieved. Often times, plumbing fixtures with pumped waste are accessible fixture add for the physically challenged of for the aging in place. These fixtures must be installed in accordance with the manufacturer's instructions. There are limitation on the length of the pumped waste drain. There can also limitation on the location of the fixture.

This section will compliment Section 712.4.1.

Cost Impact: Will not increase the cost of construction
Since a fixture with a pumped waste is optional, there is no cost impact.

P 52-15 : 405.5 (New)-BALLANCO3379

P 53-15

Part I:
405.8, 1002.2
Part II:
P2704, P2704.1, P3201.1

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

Revise as follows:

405.8 Slip joint connections. Slip joints connections shall be installed only for tubular waste piping and only between the outlet of a fixture and the connection to the drainage piping. Slip joint connections shall be made with an *approved*~~elastomeric~~ sealing gasket ~~and shall only be installed on the trap outlet, trap inlet and within the trap seal~~. ~~Fixtures with concealed slip-joint~~Slip joint connections shall be provided with access. Such access shall provide an ~~*access* panel or utility space~~opening that is not less than 12 inches (~~305 mm~~305mm) in its smallest dimension ~~or other *approved* arrangement so as to provide *access* to the slip joint connections for inspection and repair~~.

1002.2 Design of traps. Fixture traps shall be self-scouring. Fixture traps shall not have interior partitions, except where such traps are integral with the fixture or where such traps are constructed of an *approved* material that is resistant to corrosion and degradation. ~~Slip joints~~Traps having slip joint connections shall ~~be made~~comply with ~~an *approved* elastomeric gasket and shall be installed only on the trap inlet, trap outlet and within the trap seal.~~Section 405.8.

Part II

2015 International Residential Code

Revise as follows:

SECTION P2704
~~ACCESS TO~~SLIP JOINT CONNECTIONS

P2704.1 ~~General~~Slip joints. Slip joints connections shall be installed only for tubular waste piping and only between the trap outlet of a fixture and the connection to the drainage piping. Slip joint connections shall be made with an *approved* ~~elastomeric~~ sealing gasket ~~and shall be installed only on the trap outlet, trap inlet and within the trap seal~~. ~~Fixtures with concealed slip-joint~~Slip joint connections shall be ~~provided with~~accessible. Such access shall provide an ~~access panel or utility space~~opening that is not less than 12 inches (~~305 mm~~305mm) in its smallest dimension ~~or other *approved* arrangement so as to provide access to the slip connections for inspection and repair~~.

P3201.1 Design of traps. Traps shall be of standard design, shall have smooth uniform internal waterways, shall be self-cleaning and shall not have interior partitions except where integral with the fixture. Traps shall be constructed of lead, cast iron, copper or copper alloy or *approved* plastic. Copper or copper alloy traps shall be not less than No. 20 gage (0.8 mm) thickness. Solid connections, slip joints and couplings shall be permitted to be used on the trap inlet, trap outlet, or within the trap seal. ~~Slip joints~~Trap having slip joint connections shall ~~be accessible.~~comply with Section P2704.1.

Reason: From the existing wording of this section, some inspectors have the misconception that the code doesn't allow slip joints to be installed upstream of a trap inlet nor at the connection of the trap "arm" to the drainage piping. For example, consider a typical lavatory where the drainage piping in the wall was roughed in at a fairly low elevation and the tailpiece from the fixture outlet is not very long. Normally, a slip joint end, tubular waste extension piece is installed to make the connection to the end of the fixture tailpiece to the inlet of the trap. However, if the existing wording is read literally, the code doesn't allow a slip joint above the trap inlet: *only at the trap inlet, outlet and within the trap seal.* Although it would be ideal to have the rough-in elevation of the drain in the wall "coordinate" with the elevation of the fixture outlet tailpiece piece, it is not realistic to make this happen every time. Sometimes the rough-in installer doesn't know the height of the cabinetry for the lavatory or the model of the drain assembly because neither have been chosen yet by the builder designer.
The revised wording allows for what is a common practice for fixture installation in the plumbing industry.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 1.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

Part II: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 53-15 : 405.8-SNYDER3940

P 54-15

Part I:
412.4 (New)
Part II:
IBC 1211 (New), IBC 1211.1 (New)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IBC-GENERAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Tim Earl, GBH International, representing The Oatey Company (tearl@gbhinternational.com)

Part I

2015 International Plumbing Code

Add new text as follows:

412.4 Upper floors laundry room floor drain required. Where a room has plumbing provisions for the installation of a stationary automatic clothes washer, and that room is located above a finished space, the floor in the room shall have a floor drain. The floor finish shall be in accordance with Section 1211.1 of the *International Building Code.*

Part II

2015 International Building Code

Add new text as follows:

SECTION1211
ROOMS HAVING FLOORS DRAINS

1211.1 Laundry rooms with floor drains. A laundry room having a floor drain shall have an installed floor finish system that is nonabsorbent. Concrete floors shall not be required to have a nonabsorbent floor finish system.

Reason: The average claim for damages related to a ruptured washing machine connection in second floor laundries and first floor laundries over finished basement areas is over $8,000. Materials that are wetted and not replaced can promote mold growth, resulting in potential health hazards and additional repair costs. The costs associated with this water damage are much higher than the estimated cost of installing a floor drain.

Cost Impact:

Part I: Will increase the cost of construction
Estimated cost would be less than $200 per laundry room, including materials and labor, when part of new construction.

Part II: Will increase the cost of construction
Estimated cost would be less than $200 per laundry room, including materials and labor, when part of new construction.

P 54-15 : 406.3 (New)-EARL4526

P 55-15

Part I:
407.2
Part II:
P2713.1

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

Proponent: Julius Ballanco, representing Self (JBENGINEER@aol.com)

Part I

2015 International Plumbing Code

Revise as follows:

407.2 Bathtub waste outlets and overflows. Bathtubs shall be equipped with a waste outlet ~~and an overflow outlet. The outlets shall be connected to waste tubing or piping~~ not less than $1^1/_2$ inches (38 mm) in diameter. The waste outlet shall be equipped with a water-tight stopper. Where an overflow is installed on a bathtub, the overflow shall be not less than 1-1/2 inches (38 mm) in diameter.

Part II

2015 International Residential Code

Revise as follows:

P2713.1 Bathtub waste outlets and overflows. Bathtubs shall be equipped with a waste outlet ~~and an overflow outlet. The outlets shall be connected to waste tubing or piping~~that is not less than $1^1/_2$ inches (38 mm) in diameter. The waste outlet shall be equipped with a water-tight stopper. Where an overflow is installed, the overflow shall be not less than $1^1/_2$ inches (38 mm) in diameter.

Reason: The Code is currently not coordinated with the referenced standards. The standards listed in Table 2701.1 do not require an overflow. An overflow is an optional connection for a bathtub. The reason the standard removed the mandate for overflows is because they cannot be properly cleaned. Furthermore, they are rarely if ever used, which is the only way to clean the overflow. Without proper cleaning, there is a build-up of contaminants in the overflow.
As the code currently reads, it prohibits certain tubs because they do not have an overflow. However, Table 2701.1 allows these tubs.

The national consensus product standard should be the document that regulates the construction requirements of a bathtub.

Cost Impact:

Part I: Will not increase the cost of construction
This will decrease the cost of construction by not requiring an overflow for every bathtub.

Part II: Will not increase the cost of construction
This will decrease the cost of construction by not requiring an overflow for every bathtub.

P 55-15 : P2713.1-BALLANCO3381

P 56-15

409.1, Chapter 14

Proponent: Julius Ballanco, representing Self (JBENGINEER@aol.com)

2015 International Plumbing Code

Revise as follows:

409.1 Approval. Commercial dishwashing machines shall conform to ASSE 1004 and NSF 3. Residential dishwashers shall conform to NSF 184.

Add new standard(s) as follows:

NSF 184-2014 Residential Dishwashers

Reason: NSF 184 is the standard that regulates the performance of a residential dishwasher. Some of the requirements in this standard include achieving a minimum 99.999 percent or 5-log reduction of bacteria and reaching a final rinse temperature of 150º F. The sanitization performance is verified when the unit is operated on the sanitizing cycle

There are hundreds of residential dishwashers that have been certified to this standard.

Cost Impact: Will not increase the cost of construction

This simply adds the correct reference standard for residential dishwashers.

Analysis: A review of the standard proposed for inclusion in the code, NSF 184-10 , with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 56-15 : 409.1-BALLANCO3382

P 57-15

409.3, 409.4 (New), 802.1.6

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com)

2015 International Plumbing Code

Revise as follows:

409.3 Waste connection. The waste connection of a commercial dishwashing machine shall comply with Section ~~802.1.6 or~~ 802.1.7~~, as applicable~~.

Add new text as follows:

409.4 Residential dishwasher waste connection. The waste connection of a residential dishwasher shall connect directly to a wye branch fitting on the tailpiece of the kitchen sink, directly to the dishwasher connection of a food waste disposer, or through an air break to a standpipe. The waste line of a residential dishwasher shall rise and be securely fastened to the underside of the sink rim or counter top.

Delete without substitution:

~~**802.1.6 Domestic dishwashing machines.** Domestic dishwashing machines shall discharge indirectly through an *air gap* or *air break* into a waste receptor in accordance with Section 802.2, or discharge into a wye branch fitting on the tailpiece of the kitchen sink or the dishwasher connection of a food waste disposer. The waste line of a domestic dishwashing machine discharging into a kitchen sink tailpiece or food waste disposer shall connect to a deck-mounted air gap or the waste line shall rise and be securely fastened to the underside of the sink rim or counter.~~

Reason: The dishwaser waste connection requirements must be separated between a residential unit and a commercial unit. Commercial dishwashing machines are required to discharge through an indirect connection. The change to 409.3 will identify the indirect waste connections as only applying to commercial units. There is no change to the discharge requirements of a commercial dishwashing machine.
Residential units are technically identified as "residential dishwashers" not "domestic dishwashing machines." The standard regulating residential dishwashers is entitled, "Residential Dishwashers." There, the change is made in the terminology.

The connection of a residential dishwasher has always been permitted to be a direct connection to a kitchen sink tailpiece or a dishwasher connection of a food waste disposer. The indirect connection has always been optional. Therefore, the waste connection requirements belong in Section 409.4, not Chapter 8. Chapter 8 is reserved for indirect connections that are required. Section 802.1.6 does not belong under indrect waste. The section specifically allows a direct connection for dishwashers. This is the common type of connection, not an indrect connection.

The indirect connection is a hold-over from when dishwashers were first introduced. It was incorrectly assumed that an indirect connection was necessary. However, the plumbing profession recognized that an indirect connection is not necessary.

Cost Impact: Will not increase the cost of construction
This has no impact on the cost of construction since the connections permitted for a residential dishwasher remain the same.

P 57-15 : 409.3-BALLANCO3383

P 58-15

410.1, Chapter 14

Proponent: John Watson, Elkay, representing Elkay (john.watson@elkay.com)

2015 International Plumbing Code

Revise as follows:

410.1 Approval. Drinking fountains shall conform to ASME A112.19.1/CSA B45.2 or ASME A112.19.2/CSA B45.1 and water coolers shall conform to ~~AHRI 1010~~ASHRAE 18. Drinking fountains ~~and~~ , *water coolers* and water dispensers shall conform to NSF 61, Section 9. Electrically operated, refrigerated drinking *water coolers* and water dispensers shall be listed and labeled in accordance with UL 399.

Add new standard(s) as follows:

ASHRAE 18-2008 (RA 2013) Methods of Testing for Rating Drinking-Water Coolers with Self Contained Mechanical Refrigeration

Reason: Products/Devices that are installed to meet the requirements of drinking fountains need to comply to the same approval requirements as drinking fountains and water coolers. With the addition of water dispensers during the 2015 code cycle, we inadvertently failed to outline such requirements.

Cost Impact: Will not increase the cost of construction
This is a product certification issue which should not impact the product itself; therefore, there should be no cost increase.

Analysis: A review of the standard proposed for inclusion in the code, ASHRAE 18-2008 (RA 2013), with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 58-15 : 410.1-WATSON5458

P 59-15

410.2 (IBC 2902.6)

Proponent: Stephen DiGiovanni, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Plumbing Code

Revise as follows:

410.2 Small occupancies. Drinking fountains shall not be required for an occupant load of ~~15~~30 or fewer.

Reason: IPC Section 410.2 (IBC Section 2902.6) is revised to increase the occupant load up to 30 for those small occupancies where drinking fountains are not required. The increase in the occupant load for both drinking fountains and service sinks would provide a favorable code limitation to very small occupancies and a decrease in cost to small business owners. Real occupancy of spaces and the calculated occupant loads may differ to the point where the requirements of the current code may be too stringent.

Cost Impact: Will not increase the cost of construction
This proposal will result in a less stringent code requirement, and therefore would presumably lower the cost of construction.

P 59-15 : 410.2-DIGIOVANNI4738

P 60-15

410.2 (IBC 2902.6)

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

410.2 Small occupancies. Drinking fountains shall not be required for an occupant load of ~~15~~50 or fewer.

Reason: The following is provided as support that drinking fountains for smaller occupancies are just not needed as evidenced by the experience (two code cycles) in one of the hottest and driest areas of the country.
As many should know, the climate in Phoenix, Arizona is HOT and DRY. The following Wikipedia quote sums up the general facts:

Phoenix has a subtropical desert climate, typical of the Sonoran Desert in which it lies. Phoenix has extremely hot summers and warm winters. The average summer high temperatures are some of the hottest of any major city in the United States, and approach those of cities such as Riyadh and Baghdad.[60] On average (1981–2010), there are 107 days annually with a high of at least 100 °F (38 °C),[61] including most days from late May through early October. Highs top 110 °F (43 °C) an average of 18 days during the year[62] Every day from June 10 through August 24, 1993, the temperature in Phoenix reached 100 °F or more, the longest continuous number of days (76) in the city's history. Officially, the number of days with a high of at least 100 °F has historically ranged from 48 in 1913 to 143 in 1989. For comparison, since 1870, New York City has seen a temperature of 100 degrees or more a total of only 59 days.[63] On June 26, 1990, the temperature reached an all-time recorded high of 122 °F (50 °C).[64]

60. "Collier Center". Collier Center of Phoenix. RetrievedSeptember 12, 2012.

61. "NowData - NOAA Online Weather Data". National Oceanic and Atmospheric Administration.
Retrieved 2011-12-18.

62. "Climatology of heat in the southwest". National Weather Service. Retrieved January 6, 2009.

63. NWS Upton, NY. Retrieved 2014-05-24

64. Dorish, Joe. "10 All-Time Hottest Weather Temperature Days in Phoenix". Knoji. Retrieved February 5, 2014.

Another source indicates the average relative humidity is second to the lowest in the nation with Las Vegas having the lowest. Here's a typical year for Morning (M) and Afternoon (A) Relative Humidities in Phoenix:

JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		OCT		NOV		DEC	
M	A	M	A	M	A	M	A	M	A	M	A	M	A	M	A	M	A	M	A	M	A	M	A
67	33	60	27	57	24	43	16	35	13	31	12	44	20	51	23	49	23	50	22	57	27	67	34

Our mouths are parched just thinking about those afternoon conditions!

The City of Phoenix has always believed that the threshold of 15 occupants for not requiring drinking fountains was far too low such that it created a significant waste of building space for smaller buildings and tenant spaces. Phoenix made the decision two code cycles ago to raise the threshold to 50. In the 8 plus years of this new threshold in place for new and renovated buildings in Phoenix, there have not been any complaints about not having drinking fountains in smaller establishments. Not one.

It is believed that the low threshold is unwarranted for the remainder of the United States as those areas are not nearly as hot or dry as Phoenix.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This PMGCAC Item 97.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 60-15 : 410.2-SNYDER3947

P 61-15

411.3 (New), Chapter 14

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com)

2015 International Plumbing Code

Add new text as follows:

411.3 Water supply The temperature of the water supply to an emergency shower or eyewash station shall be controlled only by a temperature actuated mixing valve complying with ASSE 1071.

Add new standard(s) as follows:

ASSE 1071-2012 Performance Requirements for Temperature Actuated Mixing Valves for Plumbed Emergency Equipment

Reason: The temperature of the water to emergency fixtures is regulated by ASSE 1071 devices. These devices raise the temperature of the cold water by the introduction of hot water. The cold water flows freely through the device. This feature is imperative to prevent the water supply to an emergency fixture from shutting off.
The most important requirement of an emergency fixture is the constant flow of high volumes of water.

Without this code requirement, the water supply could be regulated with an ASSE 1070 device. This would be dangerous in that such a device could shut off the flow of water if there is a loss of either hot or cold water. By listing that the "only" means of protection is an ASSE 1071 device, no other mixing valve can be used.

The use of these devices is also consistent with the OSHA requirements for emergency fixtures.

Cost Impact: Will increase the cost of construction
There is a cost for an ASSE 1071 mixing valve.

Analysis: A review of the standard proposed for inclusion in the code, ASSE 1071-2012, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 61-15 : 411.3 (New)-BALLANCO3810

P 62-15

411.3 (New), Chapter 14

Proponent: Ronald George, representing Self (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Add new text as follows:

411.3 Delivery of tepid water for emergency fixtures. Water for emergency shower and eyewash flushing water shall be delivered through a properly sized, cold water by-pass equipped mixing valve conforming to ASSE 1071 Flushing fluid temperatures for eyewashes shall not exceed 100°F (37.8°C) Final adjustment of emergency shower and eyewash flushing water temperatures shall be determined by safety personnel at the site to assure a temperature that is adequate to encourage a full 15 minute flush of hazardous chemicals.

Add new standard(s) as follows:

ASSE 1071-2012 Temperature Actuated Mixing Valves for Plumbed Emergency Equipment

Reason: There was currently no requirement for emergency fixtures to use mixing valves that are listed to ASSE 1071. The aSSE 1071 standard has tight temperature control tolerences to address low flows associated with emergency eyewashes and hoigh flows associated with emergency showers. This industry standard was not referenced in the code.

Bibliography: www.ASSE-Plumbing.org
www.Plumb-Tech Design & Consulting Services LLC
www.ScaldPrevention.org

Cost Impact: Will not increase the cost of construction
Currently mixing valves were required in orger to meet the tepid water temperature range identified in the ANSI/ISEA Z358.1 standard. Installations havve been using products listed to this standard without reference in the codes.
This is simply catching up with waht is happening in the industry.

Analysis: A review of the standard proposed for inclusion in the code, ASSE 1071, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 62-15 : 411.3 (New)-GEORGE5591

P 63-15

411.3 (New), Chapter 14

Proponent: Billy Smith, American Society of Plumbing Engineers Legislative Committee, representing American Society of Plumbing Engineers Legislative Committee (bsmith@aspe.org)

2015 International Plumbing Code

Add new text as follows:

411.3 **Water supply.** The temperature of the water supply to an emergency shower or eyewash station shall only be controlled by a temperature actuated mixing valve complying with ASSE 1071.

Add new standard(s) as follows:
ASSE 1071 - 2012 Performance Requirements for Temperature Actuated Mixing Valves for Plumbed Emergency Equipment

Reason: The temperature of the water to emergency fixtures is regulated by ASSE 1071 devices. These devices raise the temperature of the cold water by the introduction of hot water. The cold water flows freely through the device. This feature is imperative to prevent the water supply to an emergency fixture from shutting off. The most important requirement of an emergency fixture is the constant flow of high volumes of water.
Without this code requirement, the water supply could be regulated with an ASSE 1070 device. This would be dangerous in that such a device could shut off the flow of water if there is a loss of either hot or cold water. By listing that the "only" means of protection is an ASSE 1071 device, no other mixing valve can be used.

The use of these devices is also consistent with the OSHA requirements for emergency fixtures.

Cost Impact: Will not increase the cost of construction
This merely adds the proper reference to the thermostatic mixing valve required for an emergency shower.
This is already a requirement of OSHA.

Analysis: A review of the standard proposed for inclusion in the code, ASSE 1071, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 63-15 : 411.3 (New)-SMITH5398

P 64-15

416.5, 416.6 (New)

Proponent: Ronald George, Self, Plumb-Tech Design & Consulting Services LLC; www.Plumb-TechLLC.com; www.ScaldPrevention.org, representing Self; Plumb-Tech Design & Consulting Services LLC (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Revise as follows:

416.5 Tempered water for public hand-washing facilities. *Tempered water* shall be delivered from lavatories and group wash fixtures located in public toilet facilities provided for customers, patrons and visitors. *Tempered water* shall be delivered through an *approved* water-temperature limiting device that conforms to ASSE 1070 or CSA B125.3, or through a faucet having an integral limit stop that is field-adjusted and set.

Add new text as follows:

416.6 Hot or tempered water delivery from private lavatories *Hot water* or t*empered water* shall be delivered from lavatories and group wash fixtures located in private toilet facilities through an *approved* water-temperature limiting device conforming to ASSE 1070 or CSA B125.3, or through a faucet having an integral limit-stop that can be field-adjusted and set. Limiting devices and limit-stops shall be adjustable from 85°F (29.4°C) to 120°F (48.8°C). The setting of the device or limit-stop shall not allow a discharge water temperature exceeding 120°F (48.8°C).

Reason: This code change is intended to provide controls at a lavatory (either a limit stop on the lavatory handle or a point-of use temperature limiting valve under the sink to allow users to limit the maximum temperature flowing from a faucet to prevent scald injuries to children, elderly or handicapped persons when they are present in a facility.

Bibliography: www.ScaldPrevention.org
American Society of Sanitary Engineers standard: ASSE1070-2004 Water Temperature Limiting Devices

Cost Impact: Will increase the cost of construction
The cost for a faucet with a limit stop is minimal for the ability to limit the hot water in a home, apartment or hotel room where children, the elderly or handicapped persons may be injured using the fixture. This code change gives an option of a limit stop on the faucet or a temperature limiting valve conforming to ASSE 1070.

P 64-15 : 416.5-GEORGE5422

P 65-15

417.3.1 (New), 424.3.1 (New), 305.4

Proponent: James Richardson, Jr, City of Columbus Ohio, representing City of Columbus Ohio (jarichardson@columbus.gov)

2015 International Plumbing Code

Add new text as follows:

417.3.1 Rinsing showers on pool decks. Rinsing showers provided for outdoor swimming pools shall be located on the pool deck. The drains for the showers shall be directly connected to the building storm drain, the building storm sewer or, where a storm sewer does not exist, in accordance with storm water runoff requirements of the jurisdiction.

Rinsing showers provided for indoor swimming pools shall be located on the pool deck. The drains for such indoor showers shall be connected to a pool deck drain system that is installed in accordance with Section 802.1.4.

424.3.1 Pool deck rinsing shower controls. Shower heads for rinsing showers on outdoor swimming pool decks shall be supplied with water through an automatic temperature control mixing valve complying with ASSE 1069 or CSA B125.3. The valve shall be set to limit the water temperature to not greater than 120°F (48.9°C). Each valve shall be rated for the total flow of all shower heads served by the valve. Valves shall be located in a space that is maintained at a temperature of not less than 40°F (4.4°C).

Shower heads for rinsing showers on indoor swimming pool decks shall be contolled by valves in accordance with Section 425.3.

Revise as follows:

305.4 Freezing. Water, soil and waste pipes shall not be installed outside of a building, in attics or crawl spaces, concealed in outside walls, or in any other place subjected to freezing temperatures unless adequate provision is made to protect such pipes from freezing by insulation or heat or both. Exterior water supply system piping shall be installed not less than 6 inches (152 mm) below the frost line and not less than 12 inches (305 mm) below grade.

> **Exception:** Water, soil and waste piping in seasonal-use buildings and structures, or for outdoor seasonal-use plumbing fixtures such as pool deck rinsing showers, shall not be required to be protected as indicated this section provided that the water in the piping is evacuated by draining, by blowing out with air or by vacuuming. Evacuated traps shall be plugged or shall be refilled with a piping-compatible, environmentally-safe liquid that is freeze-resistant at the lowest expected outdoor temperature.

Reason: Rinsing showers are often provided for public pools with no real direction in the plumbing code as to how to address water and waste connections
Changing the wording for freeze protections would allow for owners who have seasonal out buildings or fixtures to winterize rather than providing "heat, insulation or both" when in many cases the only way to prevent freezing is actually evacuating water from the water lines.

Cost Impact: Will not increase the cost of construction
Rinsing showers are already provided with some form of temperature limiting valve, but in most cases are unable to be protected from freezing.

P 65-15 : 417.3.1 (New)-RICHARDSON5734

P 66-15

202 (New), 418.4 (New)

Proponent: Ronald George, Self; Plumb-Tech Design & Consulting Services LLC; www.Plumb-TechLLC.com; www.ScaldPrevention.org, representing Self; Plumb-Tech Design & Consulting Services LLC (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Add new definition as follows:

SECTION 202 DEFINITIONS

SCALD HAZARD A condition where the discharge of high temperature hot water from a plumbing fixture can cause serious burn injuries.

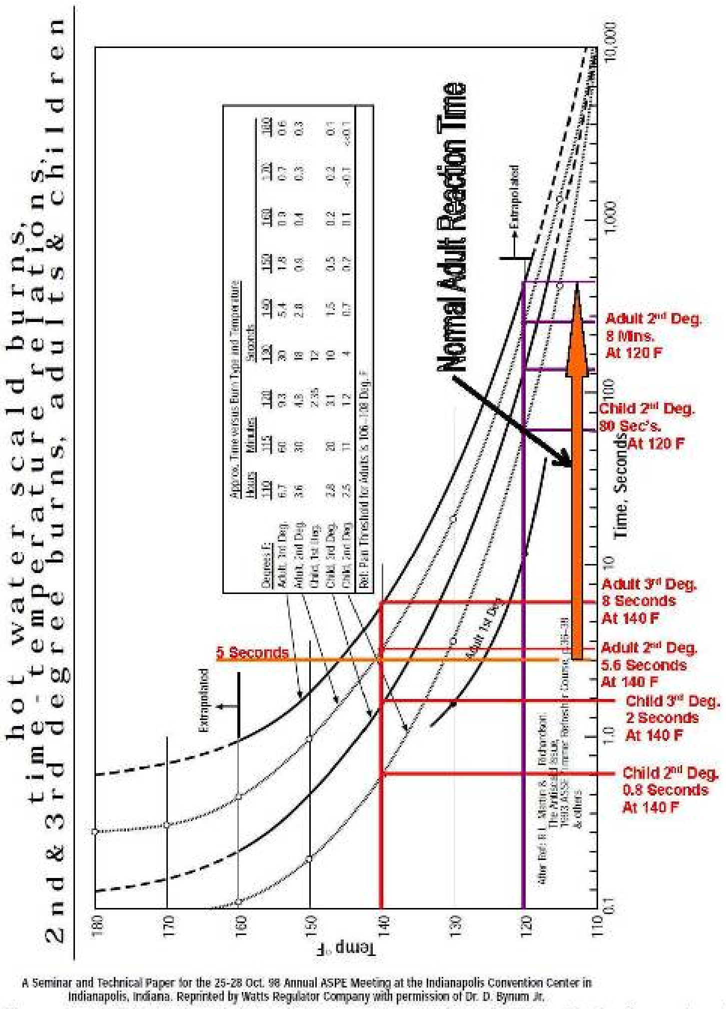
Add new text as follows:

418.4 Hot water temperature limits at sinks. To provide for the reduction of scald hazards for people, including the elderly, persons with physical disabilities and children, using public or private sinks where *hot water* is supplied to sink faucets, the water discharged to the sink shall flow through one or more of the following:

1. A device conforming to ASSE 1017.
2. A device conforming to ASSE 1070.
3. A device conforming to ASSE 1062.
4. A faucet having an integral, field-adjustable limit-stop that can be adjusted from 110°F (43.3°C) to 135°F (57.2°C).

Adjustable devices and limit-stop-equipped faucets shall be set at a faucet discharge water temperature, as determined by the building owner, that protects the intended users provided that the setting does not result in a water temperature exceeding 135°F (57.2°C). Non-adjustable devices complying with ASSE 1062 shall significantly reduce flow from the faucet when discharge water temperatures exceed 115°F (46.1°C).

Reason: This code change is intended to provide scald protection at sinks and it offers several options for controls. The code change is intended to allow limitation and adjustment of the hot water temperature to prevent scald injuries to children, elderly or handicapped persons when they are present in a facility.



A Seminar and Technical Paper for the 25-28 Oct. 98 Annual ASPE Meeting at the Indianapolis Convention Center in Indianapolis, Indiana. Reprinted by Watts Regulator Company with permission of Dr. D. Bynum Jr.

Figure 1 – Hot Water Scald Burns – Time vs Temperature Relationship for Second and Third Degree Burns for Adults and Children.
(Notes By: Ron George, CPD, See: www.ScaldPrevention.org)

Bibliography: www.ScaldPrevention.org

Cost Impact: Will increase the cost of construction
The cost for a faucet with a limit stop or an ASSE 1062 device (TAFR) is minimal for the ability to limit the hot water in a home, apartment or hotel room where children, the elderly or handicapped persons may be injured using the fixture. This code change gives several options to comply without spending too much for safety.

P 66-15 : 418.4 (New)-GEORGE5436

P 67-15

[BG] 419.3

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Delete without substitution:

~~**[BG] 419.3 Surrounding material.** Wall and floor space to a point 2 feet (610 mm) in front of a urinal lip and 4 feet (1219 mm) above the floor and at least 2 feet (610 mm) to each side of the urinal shall be waterproofed with a smooth, readily cleanable, nonabsorbent material.~~

Reason: IBC Section 1210 already covers wall and floor materials in toilet facilities. There is no longer a need for this information to be in the IPC as the IPC does not have control of the section (as indicated by the [B] prior to the section number). Many code editions ago, this section was only in the IPC. However, it was later placed in the IBC as the IBC is concerned with the construction of interior spaces, toilet facilities being an interior space.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 134.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 67-15 : [BG] 419.3-SNYDER3948

P 68-15

420.2, Table 604.4

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com)

2015 International Plumbing Code

Revise as follows:

420.2 Water closets for public or employee toilet facilities. Water closet bowls for *public* or employee toilet facilities shall be of the elongated type. The full flush cycle water consumption of water closets for public use shall not exceed that indicated in Table 604.4 for public use water closets.

TABLE 604.4
MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY [b]
Water closet, private use	1.6 gallons per flushing cycle
Water closet, public use	1.28 gallons per full flush cycle or, where equipped with a dual flushing device, 1.6 gallons per full flush cycle

(Portions of table not shown remain unchanged)

For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. A hand-held shower spray is a shower head.

b. Consumption tolerances shall be determined from referenced standards.

Reason: This will increase the water conservation requirements for public use water closets. Every manufacturer of water closets has a 1.28 gallon per flush public water closet. Similarly, every manufacturer of water closets has a bowl for public use that can be equipped with a dual flush device.
If you consider a standard commercial building with 100 water closets. The water savings amounts to more than 33,000 gallons per year. This savings is accomplished without any loss in performance of the plumbing system.

Cost Impact: Will increase the cost of construction
If a dual flush water closet is installed, the cost for the water closet is higher than a 1.6 gpf water closet. The added cost is for the fixture. The labor remains the same.

P 68-15 : 420.2-BALLANCO3815

P 69-15

422.1, 609.1, 713.1

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

422.1 Scope. This section shall govern those aspects of health care plumbing systems that differ from plumbing systems in other structures. Health care plumbing systems shall conform to the requirements of this section in addition to the other requirements of this code. The provisions of this section shall apply to the special devices and equipment installed and maintained in the following *occupancies*: ~~nursing homes~~Group I-1, ~~homes for the aged~~Group I-2, ~~orphanages, infirmaries, first aid stations, psychiatric~~Group B ambulatory care facilities, ~~clinics, professional~~medical offices ~~of dentists~~ and ~~doctors, mortuaries, educational facilities, surgery, dentistry,~~ research and testing laboratories, ~~establishments~~and Group F facilities manufacturing pharmaceutical drugs and medicines~~ and other structures with similar apparatus and equipment classified as plumbing~~.

609.1 Scope. This section shall govern those aspects of health care plumbing systems that differ from plumbing systems in other structures. Health care plumbing systems shall conform to the requirements of this section in addition to the other requirements of this code. The provisions of this section shall apply to the special devices and equipment installed and maintained in the following occupancies: ~~nursing homes~~Group I-1, ~~homes for the aged~~Group I-2, ~~orphanages, infirmaries, first aid stations, psychiatric~~Group B ambulatory care facilities, ~~clinics, professional~~medical offices ~~of dentists~~ and ~~doctors, mortuaries, educational facilities, surgery, dentistry,~~ research and testing laboratories, ~~establishments~~and Group F facilities manufacturing pharmaceutical drugs and medicines~~ and other structures with similar apparatus and equipment classified as plumbing~~.

713.1 Scope. This section shall govern those aspects of health care plumbing systems that differ from plumbing systems in other structures. Health care plumbing systems shall conform to this section in addition to the other requirements of this code. The provisions of this section shall apply to the special devices and equipment installed and maintained in the following occupancies: ~~nursing homes; homes for the aged; orphanages; infirmaries; first aid stations; psychiatric~~Group I-1, Group I-2, Group B ambulatory care facilities~~; clinics; professional~~, medical offices ~~of dentists~~ and ~~doctors; mortuaries; educational facilities; surgery, dentistry,~~ research and testing laboratories~~; establishments~~, and Group F facilities manufacturing pharmaceutical drugs and medicines~~; and other structures with similar apparatus and equipment classified as plumbing~~.

Reason: This proposal replaces a laundry list of healthcare related facilities with the corresponding occupancy groups. These occupancy groups are the ones most likely to have healthcare related activity that might have an impact on the supply and waste systems.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal is clarification only, therefore, the cost of construction will not change.

P 69-15 : 422.1-WILLIAMS4246

P 70-15

422.10

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Plumbing Code

Delete without substitution:

~~**422.10 Special elevations.** Control valves, vacuum outlets and devices protruding from a wall of an operating, emergency, recovery, examining or delivery room, or in a corridor or other location where patients are transported on a wheeled stretcher, shall be located at an elevation that prevents bumping the patient or stretcher against the device.~~

Reason: Clinical needs must determine the location of control valves, vacuum outlets and other plumbing control devices. The chance that a patient or stretcher could accidentally bump them is too broad for consistent interpretation. Given the need for ready access to some of these devices this could cause conflicts with other codes and standards, such as NFPA 99. In addition, the language cannot be consistently interpreted and enforced.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal removes a potentially hazardous requirement. There are many more options available, therefore, the cost of construction will not change.

P 70-15 : 422.10-WILLIAMS4252

P 71-15

422.3

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Plumbing Code

Delete without substitution:

~~**422.3 Protection.** All devices, appurtenances, appliances and apparatus intended to serve some special function, such as sterilization, distillation, processing, cooling, or storage of ice or foods, and that connect to either the water supply or drainage system, shall be provided with protection against backflow, flooding, fouling, contamination of the water supply system and stoppage of the drain.~~

Reason: This section is duplicative and therefore not needed. The issue of backflow protection is handled broadly in section 608. The items on this list are repeated almost verbatim in Section 608.3. We recommend the committee delete this section and let Section 608 serve the purpose of backflow/ back siphonage protection.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This section is a duplication, therefore, there is no change in construction costs.

P 71-15 : 422.3-WILLIAMS4247

P 72-15

422.4

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

422.4 Materials. Fixtures designed for therapy, special cleansing or disposal of waste materials~~, combinations of such purposes, or any other special purpose,~~ shall be of smooth, impervious, corrosion-resistant materials~~ and, where subjected to temperatures in excess of 180°F (82°C), shall be capable of withstanding, without damage, higher temperatures~~.

Reason: The phrase "combination of such purposes" is already addressed in the list and not needed. The phrase "or any other special purpose" is too broad. There are hundreds of specialty sinks throughout health care facilities. The phrase "and, where subjected to temperatures in excess of 180°F (82°C), shall be capable of withstanding, without damage, higher temperatures" is also proposed to be deleted. It does not provide any limits on how high of a temperature the fixture has to be designed for. In addition, water in excess of 180 degrees would not be found in a fixture as described in the list of what this section is applicable to. Temperatures in excess of 180 degrees would burn skin, so this is only within sealed systems.

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Cost Impact: Will not increase the cost of construction
This proposal is clarification only, therefore, the cost of construction will not change.

P 72-15 : 422.4-WILLIAMS4248

P 73-15

422.5, 422.9.1

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Plumbing Code

Delete without substitution:

~~**422.5 Access.** *Access* shall be provided to concealed piping in connection with special fixtures where such piping contains steam traps, valves, relief valves, check valves, vacuum breakers or other similar items that require periodic inspection, servicing, maintenance or repair. *Access* shall be provided to concealed piping that requires periodic inspection, maintenance or repair.~~

~~**422.9.1 Sterilizer piping.** *Access* for the purposes of inspection and maintenance shall be provided to all sterilizer piping and devices necessary for the operation of sterilizers.~~

Reason: This proposal deletes language that is too broad to be practically enforceable. All plumbing is required to have access for inspections, maintenance and repairs, therefore, it does not need to be repeated here. The term "all sterilizer piping" could be construed to mean all supply and waste piping. Current language could be read to require the entire length of the supply and waste pipes to be exposed.

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Cost Impact: Will not increase the cost of construction
This proposal is clarification, therefore, the cost of construction will not change.

P 73-15 : 422.5-WILLIAMS4249

P 74-15

422.6, 422.7, 713.2

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

422.6 ~~Clinical~~Flushing rim sink. A ~~clinical~~flushing rim sink shall have an integral trap in which the upper portion of a visible trap seal provides a water surface. The fixture shall be designed so as to permit complete removal of the contents by siphonic or blowout action and to reseal the trap. A flushing rim shall provide water to cleanse the interior surface. The fixture shall have the flushing and cleansing characteristics of a water closet.

422.7 Prohibited usage of ~~clinical~~flushing rim sinks and service sinks. A ~~clinical~~flushing rim sink serving a soiled utility room shall not be considered as a substitute for, or be utilized as, a service sink. A service sink shall not be utilized for the disposal of urine, fecal matter or other human waste.

713.2 ~~Bedpan washers and clinical~~Flushing rim sinks. ~~Bedpan washers and clinical~~
Flusing rim sinks shall connect to the drainage and vent system in accordance with the requirements for a water closet. ~~Bedpan washers shall also connect to a local vent.~~

Reason: This proposal attempts to clarify terms to ones that are more commonly accepted by the healthcare industry. Clinical sink or bed pan washer is too broad a term. The last sentence in 713.2 is not needed. It is covered by the 1st sentence. Section 713.2 appears to indicate that a bedpan washer and a clinical sink are different items, but Sections 422.6 and 422.7 is just clinical sinks but has requirements for bed pan washers. The hospital industry uses the term flushing rim sink for sinks used to clean bedpans. This proposals assumes that a "service sink" is some type of utility sink, quite often a mop sink.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal is clarification only, therefore, the cost of construction will not change.

P 74-15 : 422.6-WILLIAMS4250

P 75-15

422.8

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

422.8 Ice prohibited in soiled utility room. Machines for ~~manufacturing~~producing ice, or any device for the~~ handling or~~ storage of ice, shall not be located in a soiled utility room.

Reason: Manufacturing is too large of a scale for anything provided in a health care environment. "Handling" should be deleted because this could be read to not allow pitchers that hold ice to be brought to the soiled linen room to clean.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal is clarification only, therefore, the cost of construction will not change.

P 75-15 : 422.8-WILLIAMS4251

P 76-15

423.3, 424.10 (New)

Proponent: Ronald George, Self; www.ScaldPrevention.org, representing Self (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Revise as follows:

423.3 Footbaths~~,~~ <u>and</u> pedicure baths ~~and head shampoo sinks~~. The water supplied to specialty plumbing fixtures, such as pedicure chairs having an integral foot bathtub~~, footbaths,~~ and ~~head shampoo sinks,~~<u>footbaths</u> shall be limited to a maximum temperature of 120°F (49°C) by a water temperature limiting device that conforms to ASSE 1070 or CSA B125.3.

Add new text as follows:

<u>**424.10** **Head shampoo sink faucets** Head shampoo sink faucets shall be supplied with hot water that is limited to a maximum temperature of 120°F (49°C) by a water temperature limiting device that conforms to ASSE 1070 or CSA B125.3. Each faucet shall have integral check valves to prevent crossover flow between the hot and cold water supply connections.</u>

Reason: The hot water temperature limit requirement for head shampoo sinks was approved for the 2015 IPC and inserted, along with footbaths and pedicure chairs, in Section 423.3. As the faucet is normally mounted on a plumbing fixture, a (shampoo) sink, the requirement for temperature limiting is better located with all of the other faucets and fixture fittings in Section 424 so the requirement doesn't go unnoticed.
This proposal leaves the footbath and pedicure bath water temperature limitation requirements in Section 423.3 (as those "baths" are not usually considered as "plumbing fixtures" but *specialty* fixtures.) This proposal moves the shampoo sink faucets requirement part of 423.3 to a new Section 424.10.

A new requirement was added for integral check valves in shampoo sink faucets to reduce the potential for thermal shock to the user. The scald hazard is abated by the tempering valve but there still could be the "thermal shock" issue (rapid change in temperature, usually going to cold). Where multiple shampoo sinks are installed but only served by one master ASSE 1070 (or CSA B125.3) tempering valve, there can be cross flow between the sink faucets such that the user-set water temperature can vary considerably, very quickly. The person getting their head shampooed is in a mostly prone position and reactively moves their head to the side (rather than up and out of the way), hitting their head hard on the side of the shampoo sink basin. In elderly persons, a bruise can easily happen, sometimes leading to a break in the skin. This is just an unecessary injury.

Most quality shampoo faucets are already equipped with integral check valves so for the most part, this proposal doesn't change anything that is commonly being installed today. The proposal simply protects the user (the person getting their head shampooed) from thermal shock should a type of faucet without integral check valves is being considered for installation at a shampoo sink.

Cost Impact: Will not increase the cost of construction
Quality shampoo sink faucets that are most commonly installed already include intergal check valves so there won't be any increase in the cost of construction. The new requirement just prevents designers and installers from choosing an inappropriate faucet type.

P 76-15 : 424.10 (New)-GEORGE5596

P 77-15

424.3

Proponent: Julius Ballanco, representing Self (JBENGINEER@aol.com)

2015 International Plumbing Code

Revise as follows:

424.3 Individual shower valves. Individual shower and ~~tubshower~~tub-shower combination valves shall be balanced-pressure, thermostatic or combination balanced-pressure/thermostatic valves that conform to the requirements of ASSE 1016/ ASME A112.1016/CSA B125.16 or ASME A112.18.1/CSA B125.1 and shall be installed at the point of use. ~~Shower and~~The maximum temperature of water discharging from an individual shower or tub-shower combination ~~valves required by this section~~valve shall be ~~equipped with a means to limit the maximum setting of the valve to~~ 120°F (49°C)~~, which~~. The maximum discharge water temperature shall be ~~field adjusted in accordance with~~limited by a temperature-actuated mixing valve conforming to ASSE 1017, ASSE 1070, or CSA B125.3, by a temperature-actuated, flow reduction device conforming to ASSE 1062 that is installed at every discharge outlet, or by the ~~manufacturer's instructions. In-line thermostatic valves shall not be utilized for compliance with this section.~~field adjustment and setting of the hot water temperature limit stop within the individual shower or tub-shower combination valve.

Reason: The plumbing engineering community has found it to be safer for large installations, such as hotels and motels, to limit the temperature of the hot water to shower valves and tub-shower combination valves. This avoids the need to adjust every shower valve.
The maximum temperature requirement is based on someone inadvertently turning the water to full hot. This was typically assumed to be a child. Hence, this limitation is not related to thermal shock. As such a thermostatic mixing valve can be used to accomplish this level of protection, including an ASSE 1017, ASSE 1070, or CSA B125.3 valve.

This change still permits the handle limit stop on the individual valve to be used to limit the temperature of the hot water.

The last sentence regarding in-line thermostatic mixing valves predates the change to ASME A112.18.1/CSA B125.1. It no longer has any meaning. Furthermore, with the allowance of a central thermostatic mixing valve to limit the temperature of the hot water, this sentence would only add confusion to the requirements.

Temperature actuated flow reduction devices are extremely effective in protecting users from high temperatures in a shower. The devices reduce the flow of water to a trickle, thus preventing water in excess of 120°F from hitting the bather. These devices meet the intent of the code requirement for limiting the maximum temperature of hot water.

Cost Impact: Will not increase the cost of construction
The change allows an option. Hence, there is no cost impact for options.

P 77-15 : 424.3-BALLANCO3386

P 78-15

424.3

Proponent: John Koeller, representing Maximum Performance (MaP) Testing (jkoeller@map-testing.com)

2015 International Plumbing Code

Revise as follows:

424.3 Individual shower valves. Individual shower and tubshower combination valves shall be balanced-pressure, thermostatic or combination balanced-pressure/thermostatic valves that conform to the requirements of ASSE 1016/ ASME A112.1016/CSA B125.16 or ASME A112.18.1/CSA B125.1 and shall be installed at the point of use. Shower and tub-shower combination valves required by this section shall be equipped with a means to limit the maximum setting of the valve to 120°F (49°C), which shall be field adjusted in accordance with the manufacturer's instructions. In-line thermostatic valves shall not be utilized for compliance with this section. <u>Shower and tub-shower combination valves shall bear the manufacturer's tag, label, or mark stating the minimum rated flow of the valve and such tag, label, or mark shall be visible by the code official and the shower end-user after installation of the valve.</u>

Reason: The marking of in-line plumbing products for the purpose of informing inspectors and others is not without precedent. IPC section 501.7 requires a visible mark of "maximum working pressure" on storage tanks as follows: "Such markings shall be in an accessible position outside of the tank so as to make inspection or reinspection readily possible." A similar situation exists with shower valves, because those valves are usually not readily visible to the inspector (nor, if they were visible, are they required to have a product marking of the minimum rated flow). Therefore, the proposed language provides for a visible indication of that rating for the inspector, similar to the provision for storage tanks cited above.

Installation of a shower valve meeting the referenced ASSE/ASME/CSA standard is not necessarily fully sufficient to ensure shower safety. The thermal protection afforded by shower valves can be compromised if the flow rate of the showerhead is less than the flow rate for which the protective components of the valve have been designed. The referenced ASME/ASSE/CSA standards for shower valves allow for acceptance and certification at a rated flow of up to 2.5 gpm. However, showerheads with maximum flow rates significantly below 2.5 gpm are widely available on the market today. For example, the current EPA WaterSense specification for showerheads sets a maximum flow rate of 2.0 gpm, and many showerheads are already available with flow rates between 2.0 and 1.5 gpm. After-market showerheads are available at flow rates as low at 1.0 gpm.

As manufacturers continue to innovate with more water- and energy-efficient showerheads, it is important to ensure that both new and retrofit installations of showerheads be accompanied by the shower valve information needed to safely protect the user.

Two significant reasons exist for adopting the proposed code change:

(1) Facilitate inspection and compliance: provides a readily visible statement of the minimum flow rate at which the shower valve is certified, such that it can be easily compared with, and its compatibility confirmed with the flow rate of the installed showerhead.

(2) Inform the homeowner/occupant: When a homeowner determines to replace an existing aging showerhead, it is important that he/she understands the limitations of the thermal protection afforded by the in-wall shower valve. As such, the homeowner must have access to the minimum flow rate at which such protection is provided by the installed valve. Without such information, safety would be compromised if the flow rate of the showerhead is less than the flow rate for which the protective components of the valve have been designed. By requiring a permanent mark, removable tag, or removable label on or attached to the faceplate or escutcheon, the homeowner/occupant is informed.

The permanent mark may be applied by the manufacturer of the valve or, in the event they are different, the manufacturer of the escutcheon or face plate, . A removable tag or label (provided by the manufacturer) must be either affixed to the valve, to the escutcheon, or to the face plate by the manufacturer of the valve.

Cost Impact: Will increase the cost of construction
Every model of shower valve meeting the referenced standard has been tested for thermal protection at at a flow rate of 2.5 gpm or a lesser flow rate designated by the manufacturer. This proposal will require manufacturers to convey the information <u>they already have</u> about the rated flow of each model of valve to the installer and the end user via a tag, removable label, or mark. There is <u>no additional testing required</u> nor is there special handling or distribution required. The cost of the proposal is de minimis, associated with affixing a tag, label or mark. If a permanent mark on the shower valve is the manufacturer's choice, the cost to the manufacturer is unknown, but certainly nominal. If a paper tag or removable adhesive label is chosen as the compliance path, the cost is similarly nominal, estimated to be less than one dollar ($1.00). In some cases, a valve body common to several models may be designed to accommodate different cartridges containing thermal protection components with differing performance characteristics. This may require additional inventory control by the manufacturer to ensure that outwardly similar valves with different cartridges (and different rated flows) are properly marked or labeled before entering the supply chain.

P 78-15 : 424.3-KOELLER5488

P 79-15

424.3, 424.4

Proponent: Ed Osann, representing Natural Resources Defense Council (eosann@nrdc.org)

2015 International Plumbing Code

Revise as follows:

424.3 Individual shower valves. Individual shower and tubshower combination valves shall be balanced-pressure, thermostatic or combination balanced-pressure/thermostatic valves that conform to the requirements of ASSE 1016/ ASME A112.1016/CSA B125.16 or ASME A112.18.1/CSA B125.1 and shall be installed at the point of use. Shower control valves shall provide thermal shock protection for the rated flow rate of the installed showerhead. Shower and tub-shower combination valves required by this section shall be equipped with a means to limit the maximum setting of the valve to 120°F (49°C), which shall be field adjusted in accordance with the manufacturer's instructions. In-line thermostatic valves shall not be utilized for compliance with this section.

424.4 Multiple (gang) showers. Multiple (gang) showers supplied with a single-tempered water supply pipe shall have the water supply for such showers controlled by an *approved* automatic temperature control mixing valve that conforms to ASSE 1069 or CSA B125.3, or each shower head shall be individually controlled by a balanced-pressure, thermostatic or combination balanced-pressure/thermostatic valve that conforms to ASSE 1016/ASME A112.1016/CSA B125.16 or ASME A112.18.1/CSA B125.1 and is installed at the point of use. Where showerheads are individually controlled, shower control valves shall provide thermal shock protection for the rated flow rate of the installed showerhead. Such valves shall be equipped with a means to limit the maximum setting of the valve to 120°F (49°C), which shall be field adjusted in accordance with the manufacturers' instructions.

Reason: Installation of a shower valve meeting the referenced ASSE/ASME/CSA standard is not sufficient to ensure shower safety. The thermal protection afforded by shower valves can be compromised if the flow rate of the showerhead is less than the flow rate for which the protective components of the valve have been designed. The referenced standard for shower valves allows for acceptance at a rated flow of up to 2.5 gpm. However, 2.5 gpm at 80 psi is the current federal *maximum* flowrate for showerheads, and showerheads with maximum flow rates well below 2.5 gpm are widely available. The current EPA *WaterSense* specification for showerheads has a maximum flow rate of 2.0 gpm, and over 3,000 qualifying models are on the market today. Many showerheads are available with flow rates between 2.0 and 1.5 gpm. As manufacturers continue to innovate with more water- and energy-efficient showerheads, the code change proposed here is needed to ensure that new buildings built to this code will safely accommodate the showerheads selected by the designer or builder.
Note that this language does not require that the showerhead itself have a flow rate of less than 2.5 gpm, but simply that the shower valve provide the thermal protection called for under the recognized standard when tested at a flow rate that matches the flow rate of the showerhead.

The 2012 Uniform Plumbing Code, Section 408.3, contains a similar requirement for 'matching' the valve and showerhead flow rates as follows:

> "Showers and tub-shower combinations shall be provided with individual control valves of the pressure balance, thermostatic, or combination pressure balance/thermostatic mixing valve type that provide scald and thermal shock protection for the rated flow of the installed showerhead."

The IRC should be no less protective of health and safety than the UPC.

Additional Technical Background

As noted above, the thermal protection afforded by shower valves can be compromised if the flow rate of the showerhead is less than the flow rate for which the protective components of the valve have been designed. As noted by Martin and Johnson (2008) (as cited in Codes and Standards Enhancement Initiative (CASE), "Multi-Head Showers and Lower-Flow Shower Heads," 2013 California Building Energy Efficiency Standards, California Utilities Statewide Codes and Standards Team, September 2011), combinations of valves and shower heads were tested to determine whether pressure-compensating valves and thermostatic valves with rated flows of 2.5 gpm would perform adequately at lower flow rates. The tests included 22 shower valves from six manufacturers, and the valves were assessed on their ability to maintain water temperature within certain bounds for a given time after a change in pressure event, as described by the ASSE 1016-2005 standard for shower valves. The results indicated that a significant share of shower valves rated for 2.5 gpm failed to provide the thermal protection specified by ASSE 1016 when tested at lower flow rates. As summarized in the CASE report (p. 15): "These results indicate that shower valve temperature maintenance is strongly affected by flow rate, and that new showers with lower-flow shower heads would have to be installed with valves that are designed for 2.0 and lower flow rates."

Cost Impact: Will not increase the cost of construction
Adoption of this proposal will have no effect on the cost of construction, since it calls for the installation of showerheads and shower mixing valves that are compatible, rather than calling for the installation of a particular showerhead or mixing valve that might carry a cost premium. Care in specification and installation is required, not a special product or special installation technique. As noted above, the proposal does not require that the showerhead itself have a flow rate of less than 2.5 gpm, and compliance can be achieved with minimally compliant valves and showerheads. If an architect or builder chooses to install a more efficient showerhead with a lower flow rate, there are valves available at moderate price points that can accomodate the builder's deision. For example, in January 2015, Moen was offering numerous models of showerhead, valve, and trim featuring a pressure-balance type valve retail priced at $102.90 that is fully compatible with showerheads rated at 1.75 gpm maximum or higher. Valves of the temperature-balancing type are more expensive, but are not required by this proposal.

P 79-15 : 424.3-OSANN5195

P 80-15

424.3

Proponent: Billy Smith, American Society of Plumbing Engineering Legislative Committee, representing American Society of Plumbing Engineers Legislative Committee (bsmith@aspe.org)

2015 International Plumbing Code

Revise as follows:

424.3 Individual shower valves. ~~Individual~~Point-of-use-controlled shower and ~~tubshower~~tub-shower combination valves shall be balanced-pressure, thermostatic or combination balanced-pressure/thermostatic valves that conform to the requirements of ASSE 1016/ASME A112.1016/CSA B125.16 or ASME A112.18.1/CSA B125.1~~ and~~. The temperature of water discharging from such valves shall ~~be installed at the point of use. Shower and tub-shower combination valves required by this section shall be equipped with a means to limit the maximum setting of the valve to~~not exceed 120°F (49°C)~~, which~~. The temperature shall be ~~field adjusted in accordance with~~limited either by a temperature-actuated master mixing valve conforming to ASSE 1017, ASSE 1070, or CSA B125.3, or by the ~~manufacturer's instructions~~limit stop integral to each point-of-use-controlled shower or tub-shower combination valve. ~~In-line thermostatic~~Master mixing valves or integral limit stops, whichever serves as the temperature limiting means, shall~~ not~~ be ~~utilized for compliance with this section.~~field-adjusted and set after the hot water distribution system is operational.

Reason: This change will recognize a common means of limiting the maximum temperature from a shower valve, which is a central thermostatic mixing valve. Plumbing engineers have used this method of design in many large installations, including high rise residential buildings, hotels, and motels. It is an effective means of preventing the temperature from rising above of 120°F. This also removes the possible problem with improperly adjusted individual shower valves.
Since the maximum temperature requirement is not a means of protecting against thermal shock, any thermostatic mixing valve can be used. There is no need for end point protection of shutting off the flow of water. This is still accomplished by the shower valve. Therefore, a thermostatic mixing valve can conform to ASSE 1017, ASSE 1070, or CSA B125.3 valve.

The individual valve handle limit stop can still be used to limit the maximum temperature of hot water. This is the common means of providing this level of protection in individual dwelling units.

The existing last sentence has been deleted since it adds confusion regarding the use of central thermostatic mixing valves for limiting the temperature of the hot water. The code requirements are complete without having this confusing last sentence.

Cost Impact: Will not increase the cost of construction
This does not increase the cost since the change merely provides options for the installer or designer.

P 80-15 : 424.3-SMITH5386

P 81-15

424.5

Proponent: James Richardson, Jr (jarichardson@columbus.gov)

2015 International Plumbing Code

Delete without substitution:

~~**424.5 Bathtub and whirlpool bathtub valves.** The *hot water* supplied to bathtubs and whirlpool bathtubs shall be limited to a maximum temperature of 120°F (49°C) by a water-temperature limiting device that conforms to ASSE 1070 or CSA B125.3, except where such protection is otherwise provided by a combination tub/shower valve in accordance with Section 424.3.~~

Reason: Bathtub and whirlpool bathtub valves - Generally, individuals using these type of fixtures will check the temperature of the water prior to entering into the fixture. These fixtures are also typically hold large volumes and limiting the temperature to 120 gegrees Fahrenheit will cause long fill times and most like cause the user to end up with an other than desired entry temperature due to the excessive fill times. These are not cases where someone has been incapacitated and is unable to remove themselves from harms way.

Cost Impact: Will not increase the cost of construction
This proposal will result in less material and labor costs as temperature limiting devices don't have to be installed.

P 81-15 : 424.5-RICHARDSON6020

P 82-15

Part I:
424.5
Part II:
P2713.3

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

Revise as follows:

424.5 Bathtub and whirlpool bathtub valves. The *hot water* supplied to bathtubs and whirlpool bathtubs shall be limited to a maximum temperature of 120°F (49°C) by a water-temperature limiting device that conforms to ASSE 1070 or CSA B125.3, except where such protection is otherwise provided by a combination tub/shower valve in accordance with Section 424.3. <u>Access shall be provided to the ASSE 1070 or CSA B125.3 devices. Such access shall be large enough to enable removal of the device for replacement and for temperature adjustments.</u>

Part II

2015 International Residential Code

Revise as follows:

P2713.3 Bathtub and whirlpool bathtub valves. Hot water supplied to bathtubs and whirlpool bathtubs shall be limited to a temperature of not greater than 120°F (49°C) by a water-temperature limiting device that conforms to ASSE 1070 or CSA B125.3, except where such protection is otherwise provided by a combination tub/shower valve in accordance with Section P2708.4. <u>These ASSE 1070 or CSA B125.3 devices shall be accessible. Such access shall be large enough to enable removal of the device for replacement and for temperature adjustments.</u>

Reason: Designers and installers don't think about these devices needing periodic adjustment, cleaning or replacement. Although it should be obvious that these devices should not be covered up without any way to get to them, this happens frequently, because, "the code doesn't make me do otherwise". This is loophole that needs to be eliminated so that these safety devices can be accessed.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 51.

Cost Impact:

Part I: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, these valves might have to be located elsewhere where access can be made to the valve. This might involve a little more piping and labor. Or, at a minimum, an access panel might have to be installed in a wall or ceiling. As access wasn't required before, this extra work to provide access might increase the cost of construction in some situations.

Part II: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, these valves might have to be located elsewhere where access can be made to the valve. This might involve a little more piping and labor. Or, at a minimum, an access panel might have to be installed in a wall or ceiling. As access wasn't required before, this extra work to provide access might increase the cost of construction in some situations.

P 82-15 : 424.5-SNYDER3949

P 83-15

424.7

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com)

2015 International Plumbing Code

Revise as follows:

424.7 Temperature-actuated, flow reduction ~~valves~~devices for individual fixture fittings. Temperature-actuated, flow reduction devices, where installed for individual fixture fittings, shall conform to ASSE 1062. A temperature-actuated, flow reduction device shall be an *approved* method for limiting the water temperature to not greater than 120º F (49º C) at the outlet of a faucet or fixture fitting. Such ~~valves~~devices shall not be used alone as a substitute for the balanced-pressure, thermostatic or combination shower valves required in Section 424.3 or as a substitute for bathtub or whirlpool tub water-temperature limiting valves required in Section 424.5.

Reason: Temperature actuated flow reduction (TAFR) devices are extremely effective in protecting users from high temperatures, especially in a shower. The devices reduce the flow of water to a trickle, thus preventing water in excess of 120°F from hitting the user. When the code limits the maximum temperature of hot water, TAFR devices can provide this level of protection.
The reason for not permitting these devices on a bathtub or whirlpool tub are because of the operation of the TAFR device. When the maximum temperature is met, these devices reduce the flow to a trickle. In a bathtub, this would still allow scalding water to accumulate in the bathtub. If a small child is placed in the bathtub, or falls into the bathtub, TAFR devices do not provide any protection from scalding.

Cost Impact: Will not increase the cost of construction
Options do not increase the cost of construction.

P 83-15 : 424.7-BALLANCO3387

P 84-15

202, 425.3.4, 501.7, 712.3.2, 1103.4, 1113.1.2, 1302.5, 1302.8.1, 1302.9, 1303.8, 1303.12, 604.11

Proponent: Janine Snyder (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Add new definition as follows:

SECTION 202 DEFINITIONS

ACCESSIBLE. Describes a site, building, facility of portion thereof that complies with Chapter 11 of the *International Building Code.*

Revise as follows:

SECTION 202 DEFINITIONS

Supply fitting. A fitting that controls the volume, direction of flow or both, of water and is either attached to or ~~accessible~~is accessed from a fixture, or is used with an open or atmospheric discharge.

425.3.4 Access required. All parts in a flush tank shall be ~~accessible~~provided with access for repair and replacement.

501.7 Pressure marking of storage tanks. Storage tanks and water heaters installed for domestic hot water shall have the maximum allowable working pressure clearly and indelibly stamped in the metal or marked on a plate welded thereto or otherwise permanently attached. Such markings shall be in ~~an accessible~~a position with access on the outside of the tank so as to make inspection or reinspection readily possible.

712.3.2 Sump pit. The sump pit shall be not less than 18 inches (457 mm) in diameter and not less than 24 inches (610 mm) in depth, unless otherwise *approved*. The pit shall be ~~accessible~~provided with access and shall be located such that all drainage flows into the pit by gravity. The sump pit shall be constructed of tile, concrete, steel, plastic or other *approved* materials. The pit bottom shall be solid and provide permanent support for the pump. The sump pit shall be fitted with a gastight removable cover that is installed flush with grade or floor level, or above grade or floor level. The cover shall be adequate to support anticipated loads in the area of use. The sump pit shall be vented in accordance with Chapter 9.

1103.4 Cleanout. ~~An accessible~~ A cleanout shall be installed on the building side of the trap and shall be provided with access.

1113.1.2 Sump pit. The sump pit shall be not less than 18 inches (457 mm) in diameter and not less than 24 inches (610 mm) in depth, unless otherwise *approved*. The pit shall be ~~accessible~~provided with access and shall be located such that all drainage flows into the pit by gravity. The sump pit shall be constructed of tile, steel, plastic, cast iron, concrete or other *approved* material, with a removable cover adequate to support anticipated loads in the area of use. The pit floor shall be solid and provide permanent support for the pump.

1302.5 Filtration. Untreated water collected for reuse shall be filtered as required for the intended end use. Filters shall be ~~accessible~~provided with access for inspection and maintenance. Filters shall utilize a pressure gauge or other *approved* method to provide indication when a filter requires servicing or replacement. Filters shall be installed with shutoff valves immediately upstream and downstream to allow for isolation during maintenance.

1302.8.1 Bypass valve. One three-way diverter valve listed and labeled to NSF 50 or other approved device shall be installed on collection piping upstream of each storage tank, or drainfield, as applicable, to divert untreated on-site reuse sources to the sanitary *sewer* to allow servicing and inspection of the system. Bypass valves shall be installed downstream of fixture traps and vent connections. Bypass valves shall be marked to indicate the direction of flow, connection and storage tank or drainfield connection. Bypass valves shall be installed in ~~accessible locations~~locations that are provided with access. Two shutoff valves shall not be installed to serve as a bypass valve.

1302.9 Pumping and control system. Mechanical equipment including pumps, valves and filters shall be ~~easily accessible and removable~~provided with access that allows for removal in order to perform repair, maintenance and cleaning. The minimum flow rate and flow pressure delivered by the pumping system shall be appropriate for the application and in accordance with Section 604.

1303.8 Filtration. Collected rainwater shall be filtered as required for the intended end use. Filters shall be ~~accessible~~provided with access for inspection and maintenance. Filters shall utilize a pressure gauge or other *approved* method to provide indication when a filter requires servicing or replacement. Filters shall be installed with shutoff valves installed immediately upstream and downstream to allow for isolation during maintenance.

1303.12 Pumping and control system. Mechanical equipment including pumps, valves and filters shall be ~~easily accessible and removable~~provided with access that allows for removal in order to perform repair, maintenance and cleaning. The minimum flow rate and flow pressure delivered by the pumping system shall be appropriate for the application and in accordance with Section 604.

604.11 Individual pressure balancing in-line valves for individual fixture fittings. Where individual pressure balancing in-line valves for individual fixture fittings are installed, such valves shall comply with ASSE 1066. Such valves shall be installed in ~~an accessible location~~location with access and shall not be utilized alone as a substitute for the balanced pressure, thermostatic or combination shower valves required in Section 424.3.

Reason: The purpose of this proposal is consistency between terminologies in the codes.
The term 'accessible' is defined in the IBC. This same definition should appear in the IPC . It is used as defined in Sections 110.2, 403.3.1, 403.4, 403.5, 404.1, 404.2, 404.3, 417.4.2 and 1002.4. This proposal had revised language for other locations.

The term 'Access (to)' is already defined in the IPC as follows:

> **[M] ACCESS (TO).** That which enables a fixture, appliance or equipment to be reached by ready access or by a means that first requires the removal or movement of a panel, door or similar obstruction (see "Ready access").

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is CTC/PMG Proposal Item 2.

In July/2014 the ICC Board decided to sunset the activities of the Code Technology Committee (CTC). This is being accomplished by re-assigning many of the CTC Areas of Study to the applicable Code Action Committee (CAC). This proposal falls under the CTC Area of Study entitled Accessibily. Information on the CTC, including: the sunset plan; meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the CTC website.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 84-15 : 425.3.4-SNYDER5912

P 86-15

202 (New), Section 428 (New), 428.1 (New)

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Add new text as follows:

SECTION 428
SERVICE SINKS

428.1 General. A service sink shall be a wall-mounted or floor-mounted mop sink. The sink drain shall have an outlet that is not less than 3-inches (76 mm) in diameter. Laundry trays and laundry sinks shall be prohibited to serve as a service sink. Where a service sink is required by Table 403.1, there shall be one service sink available for each tenant space or where public and employee toilet facilities are located in a central core of a building, there shall be one service sink on each floor of a building. Service sinks shall not be located within a toilet facility except where such sinks are located in a locked janitor closet of the toilet facility.

> **Exception:** Where tenant spaces will not have access to a centrally-located service sink and the tenant spaces have limited areas of hard-surface floors, a service sink shall not be required provided that not less than one toilet facility in the tenant space is equipped with a floor drain, hose bibbs for hot and cold water are provided in that toilet facility and such sink omission is approved.

SECTION 202 DEFINITIONS

SERVICE SINK. A general purpose utlity sink intended to be used for facilitating the cleaning of a building or tenant space.

Reason: The code has always lacked information on service sinks, other than to require them in certain building uses. This section provides the necessary information. It is a plumbing fixture and deserve to be included in Chapter 4. Similar requirements have been added (to the model code) at code adoption for some State codes such as New York.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC 172.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. This proposal does not require any more service sinks than required by the 2015 IPC. In fact, the proposed language offers a reasonable exception to not have a service sink. Therefore, as service sinks were always required for specific applications, the cost impact of this proposal should be negligible, in the big picture.

P 86-15 : 428.1 (New)-SNYDER3951

P 87-15

501.4

Proponent: Ronald George, Self; Plumb-Tech Design & Consulting Services LLC; www.Plumb-TechLLC.com; www.ScaldPrevention.org, , representing Self; Plumb-Tech Design & Consulting Services LLC (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Revise as follows:

501.4 Location. Water heaters and storage tanks shall be located in close proximity to the pressure zone of the distribution system served so that the water pressure at the water heater is not greater than 35 psi (241.3 kPa) less than the water heater pressure relief valve setting. Water heaters and storage tanks shall be located and connected so as to provide *access* for observation, maintenance, servicing and replacement.

Reason: Over the years I have investigated may plumbing system failures where improper designs located all of the water heaters in the basement of a high rise building. In many of these cases the system pressure exceeded the pressure relief valve discharge pressure or came close enough to where intermitteent pressure spikes from water hammer or pressure chanfges in the system caused intermittent discharges of the relief valve. I have seen system designs using plate and frame heat exchangers on high rise buildings that did not have relief valves, integrated temperature controls or thermal expansion tanks on extremely tall buildings. Because of this design, the system pressure exceeded the relief valve pressure and thermal expansion tank working pressure rating. The relief valved were completely removed creating a bomb. In other installations, the relief valves were hanged out to much higher relief valve pressure settings, well above the pressure rating of the equipment. These fabricated and unlisted and unlabeled (built on site) Hot water generator systems were bombs waiting for the right moment to go off. There is no third party listing for the fabricated system and they are controled by piping system applied controls that are not listed for use with the heat exchanger. Adding the language to locate the water heaters within the pressure zone prevents this from occuring. Improper location of the water heaters has been occuring because there is no limitation on where the water heater is located with respect to elevation or pressure zone limitations and often owners/engineers/contractors may unknowingly force the issue of placing the water heater in a basement and creating pressure problems and not providing mechanical rooms up in or near the pressure zones in the building. This code change will help to address these issues. This is a health and safety issue in high rise buildings.

Cost Impact: Will increase the cost of construction
This is a health and safety issue that will require additional material and some additonal labor costs to locate water heaters in the appropriate locations to be within the pressure zones of the water distribution system.

P 87-15 : 501.4-GEORGE5835

P 88-15

501.8, 501.9 (New)

Proponent: Ronald George, Plumb-Tech Design & Consulting Services LLC; www.ScaldPrevention.org; www.LegionellaPrevention.org, representing Self; Plumb-Tech Design & Consulting Services LLC (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Revise as follows:

501.8 ~~Temperature~~Water heater temperature controls. ~~Hot water supply systems~~Water heaters shall be equipped with automatic temperature controls capable of adjustments from the lowest to the highest acceptable temperature settings for the intended temperature operating range.

501.9 Hot water distribution system temperature controls. The temperature of the hot water discharging from all water heaters shall be controlled by a tempering valve conforming to ASSE 1017. The minimum hot water temperature in the hot water distribution system shall be 124 degrees F to prevent Legionella bacteria growth. This provision shall not supersede the requirements for temperature limiting devices for scald protection at fixtures.

Reason: The existing language was always confusing as it was not clear if the temperature controls were for the water heater or the plumbing system. This code change clears up this language.
Water Heater Thermostats Do Not Control the Water Heater Outlet Temperatures
If you adjust the water heater thermostat for the burner or heating element on a water heater down to 120 degrees, it will not prevent scalding. Water heater thermostats cannot be relied upon to control the hot water temperature leaving a water heater. Water heater manufacturers recommend that installers set thermostats at 120 - 125 F, and most of them ship the water heaters at an even lower temperature setting. It is not possible to set a water heater thermostat at a given temperature and get a relatively constant temperature of hot water from a water heater. The thermostat can not accurately control the water heater outlet temperature with a water heater thermostat.

My experience has been that not many people know that water heater thermostats cannot control the outlet temperature of a water heater. This warrants an explanation of how a water heater thermostat works so everyone understands the dial on the water heater does not have the accuracy to control the outlet temperature of storage type heater.

Water heater thermostats do not provide precise temperature controls for hot water systems. For example: the thermostat dial calibration test of ANSI Z21.10.1-1998, which is the applicable standard for gas-fired water heaters, allows the temperature to vary 10 degrees above or below the thermostat setting. I have talked to water heater manufacturers that have indicated that the controls can vary as much as 15 to 18 degrees Fahrenheit above or below the set point of the thermostat. From my experience, I have recorded the temperature leaving the top portion of a water heater over a long period of time during intermittent uses and saw temperature swings over 40 degrees Fahrenheit leaving the water heater. The shower valve standards do not have this kind of temperature fluctuation included their testing for all types of shower valves. The significant temperature swings are because the thermostat is inserted into the lower portion of a water heater tank and turns the fuel supply to the heater on and off. Most new water heater thermostat dials have no way to know what the temperature in the tank is. There is rarely a fixed temperature indicated on the dial, however some manufacturers publish temperatures associated with various marks on the thermostat dial or in their literature even though the dial cannot not control the outlet temperature of the water heater, it only controls when the energy to the heater is turned "on" and "off" by sensing the cold water coming into the bottom of the heater.

Generally, if the water heater thermostat dial is set at 120 degrees Fahrenheit, the burner would come on when the temperature at the thermostat reaches about 105 degrees Fahrenheit. The burner stays on until the water around the thermostat which is near the bottom of the heater reaches about 135 degrees Fahrenheit. (The "burner off" temperature is about 30 degrees higher than when the burner came "on" and generally about 15 degrees above the theoretical set point of the thermostat).

Most people don't realize that the maximum temperature limit test of the ANSI Z21.10.1 Gas Water Heater Standard allows the outlet water temperature of the water heater to rise significantly above the thermostat setting. This provision in the standard accounts for the phenomenon known as "stacking" or "thermal layering". The hot water is less dense and rises to the top of the hot water tank. Just like hot air rises and lifts a hot air balloon, hot water rises to the top of the tank and the cooler water drops to the bottom of the tank. Stacking or thermal layering occurs when the hot water rises to the top of the heater due to recurring short duration heating cycles caused by a frequent number of small quantity hot water uses. Frequent short draws cause cold water to enter the bottom of the water heater where the thermostatic element senses the cold water from the turbulent flow stirring in the bottom of the heater. The cold water causes the water heater to cycle on. This phenomenon can occur in any type of storage water heater and generally is more significant in vertical heaters.

I have recorded temperatures as high as 150 to 166 degrees Fahrenheit at the top of water heaters that had the thermostats set between 120 to 125 degrees Fahrenheit. Temperatures over 151 degrees Fahrenheit are extremely high temperatures and can cause serious scald burns in only a two seconds of contact with the skin. (See Table 1 - Water Temperature Effects on Adult Skin) It should be noted that the time temperature relationships in Table 1 are based upon the thickness of the skin for adult males. Children and the elderly typically have a thinner layer of the skin or epidermis and the exposure times can be shorter or the same burns can occurs in a given time at slightly lower temperatures.

Cost Impact: Will increase the cost of construction
This code change will require a tempering valve on the outlet of all water heaters. This is because the controls on water heaters are not acurate and when controls are set to lower temperatures, it promotes Legionella bacteria growth. This code change will require temperatures that do not promote Legionell bacteria growth and it will provide for scald protection.

P 88-15 : 501.8-GEORGE5840

P 89-15

502.1, Chapter 14

Proponent: Rex Gillespie (rex.gillespie@caleffi.com)

2015 International Plumbing Code

Revise as follows:

502.1 General. Water heaters shall be installed in accordance with the manufacturer's instructions. Oil-fired water heaters shall conform to the requirements of this code and the *International Mechanical Code*. Electric water heaters shall conform to the requirements of this code and provisions of NFPA 70. Gas-fired water heaters shall conform to the requirements of the *International Fuel Gas Code*. Solar thermal water heating systems shall conform to the requirements of the *International Mechanical Code* and SRCC 300.

Add new standard(s) as follows:
SRCC Standard 300, Minimum Standard for Solar Thermal Water Heating Systems, January 3, 2013, Solar Rating and Certification Corporation.

Reason: This section of the IPC establishes the appropriate reference for the requierments for various types of water heaters, but omits solar thermal water heaters. These water heaters are covered in both the IRC and the IMC in Chapter 23 and Chapter 14, respectively. Additionally, the 2015 IRC references the SRCC 300 standard for these systems. This new language directs the user to the appropriate code and reference standard for this increasingly common type of water heater.

Bibliography:
SRCC Standard 300, Minimum Standard for Solar Thermal Water Heating Systems, January 3, 2013.

Cost Impact: Will not increase the cost of construction
The proposed changes are not anticipated to raise the cost of construction. Most solar thermal systems and collectors are already certified to this standard in order to meet state requirements, those of the Internal Revenue Service for federal rebates, or to comply with the requiements of the 2015 IRC. Therefore, no additional product certifications are required.

Analysis: A review of the standard proposed for inclusion in the code, SRCC Standard 300, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 89-15 : 502.1-GILLESPIE4821

P 90-15

202 (New), 502.6 (New), 502.6.1 (New), 502.6.2 (New)

Proponent: Ronald George, Self; Plumb-Tech Design & Consulting Services LLC; www.Plumb-TechLLC.com; www.ScaldPrevention.org, representing Self; Plumb-Tech Design & Consulting Services LLC; www.Plumb-TechLLC.com (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Add new definition as follows:

SECTION 202 DEFINITIONS

SCALD HAZARD A condition where high temperature hot water discharged from a plumbing fixture can cause serious burn injuries to the user.

Add new text as follows:

502.6 Water heater replacement and scald protection Where the water temperature in a hot water distribution system changes as the result of a water heater replacement, repair or an alteration of the hot water distribution system such as a water heater thermostat adjustment or master mixing valve adjustment or replacement, each shower or combination tub-shower supplied by the system shall be inspected for the presence of a means for reducing scald hazards to the users.

Where the means for limiting the hot water temperature is a master mixing valve complying with ASSE 1017, a mixing valve complying with ASSE 1070 or an integral limit stop on the shower or combination tub-shower valve, adjustments shall be made in accordance with Section 609.4.1. Where the means for limiting the hot water temperature discharged at the fixture is a device complying with ASSE 1062, then the operation of the device shall be verified that it significantly reduces flow when the discharge temperature approaches 120◦F (48.8◦C).

Where a shower or tub-shower combination does not have a means for scald protection for a user, a means shall be installed in accordance with Section 609.4.2.

502.6.1 Adjustment procedure Temperature limit adjustments for shall be made and set to limit the temperature of the hot water discharged to any user to not greater than 120◦F (48.8◦C). These adjustments and settings shall only be performed after both of the following are satisfied:

1. The water heater has reached the water heater temperature control setting as recommended by the water heater manufacturer and has shut off its burner or electric elements.

2. Hot water has sufficiently reached the valve such that the temperature of the discharging at the fixture does not continue to rise.

A water heater thermostat shall be prohibited as a means for limiting hot water temperature for the purposes of required scald protection for a user of hot water.

502.6.2 Showers and combination tub-showers without means of protection against scalding.
Where a shower or tub-shower combination valve does not have a means for scald protection for a user, one or more of the following shall be performed:

1. The shower or combination tub/shower valve shall be replaced with a valve complying with ASSE 1016/ASME A112.1016/CSA B125.16. After replacement, the temperature limit stop shall be adjusted in accordance with Section 502.6.1

2. A master temperature actuated mixing valve complying with ASSE 1017 or ASSE 1070 shall be installed in the hot water outlet piping at the water heater. After installation, the temperature setting of the valve shall be adjusted in accordance with Section 502.6.1.

3. A point-of-use water temperature limiting valve complying with ASSE 1070 shall be installed at or near each shower or tub-shower combination valve After installation,the the temperature setting of the ASSE 1070 valve shall be adjusted in accordance with Section 502.6.1. ASSE 1070 valves shall be provided with access.

4. A temperature-actuated, flow reduction valve complying with ASSE 1062 shall be installed on the shower arm prior to connection of shower head and, for tub-shower combinations, on both the tub spout and the shower arm. ASSE 1062 devices shall be capable of significantly limiting the flow of water discharged as the water temperature rises towards 120◦F (48.8◦C).

Reason: Reason: There are currently no provisions in the code to require protection for unsafe existing plumbing installations where scalding is a hazard. Hundreds of people are scalded each year where non-code compliant (Two-handle) shower valves are installed and a wateer heater is replaced causing a hotter temperature than was present prior to the water heater replacement. This code change is iintended to address this and other hot water scald hazards in existing installations.

What are safe hot water temperatures?

By Ron George
President, Ron George Design & Consulting Services
Plumbing Engineer Magazine Aug 2009

I am often asked, "What is a safe hot water temperature for domestic hot water?" If you read the model codes, it states the maximum hot water temperature for a shower or bathtub is 120 degrees Fahrenheit. If you read the warning labels on the side of most water heaters the maximum hot water temperature is 120 degrees Fahrenheit on some labels and 125 degrees Fahrenheit on other labels. The 125 degree limit probably allows for some temperature loss before the hot water gets to the fixtures. Most water heater literature and warning labels mention the availability of thermostatic mixing valves or automatic temperature compensating valves and they recommend their use. If you look at many of the industry standards for shower mixing valves, they state the valves must have limit stops that are adjustable to limit the maximum hot water temperature to 120 degrees Fahrenheit. The testing in the standards gives test criteria for testing the shower valves to these limits.

I have served on the working groups for several plumbing industry standards committees for temperature actuated mixing valves and shower valves and it is generally agreed that 120 degrees is the maximum, safe hot water temperature. I also have served on hot water system design standards committees where the participants had agreed that maximum domestic hot water temperature from plumbing fixtures used for bathing and washing purposes should be 120 degrees Fahrenheit. There were a few exceptions for bidets, sitz baths and whirlpool tubs that had temperatures lower than 120 degrees Fahrenheit for the recommended maximum temperatures to prevent scalding. It also should be noted that some other uses like commercial dishwashers and laundries may need temperatures higher than 120 degrees Fahrenheit. There were two temperatures discussed for each fixture during the design standard meetings. One was the "use temperature" and the other was "the maximum temperature" to prevent scalding.

It's generally agreed that 120 degrees Fahrenheit is the maximum safe hot water temperature that should be delivered from a fixture. Therefore hot water above 120 degrees Fahrenheit can be considered hazardous. Model codes address this in various plumbing code sections...

...The codes generally agree if there is a hazardous condition or a condition that is unsafe or a nuisance to life, health and property it should be corrected but in the existing building code and property maintenance code there is little guidance. It is also generally agreed that water above 120 degrees Fahrenheit at fixtures for bathing and washing with a few exceptions for lower temperatures can be considered dangerous and proper precautions should be taken to prevent the hot water from being a scalding hazard by using the proper safety devices.
When I hear about people setting their water heater to 120 degrees Fahrenheit to prevent scalding, I know they have good intentions, but most people do not know you cannot accurately control the hot water temperature leaving a water heater with the thermostat dial.
Maximum Hot Water Temperature to Prevent Scalding
I have served on many industry committees dealing with hot water system code requirements, hot water system design standards and product standards related to domestic hot water systems devices for temperature control and scald prevention. There has been consensus in all of these committees that the maximum safe hot water delivery temperature for a shower or bathtub is 120

degrees Fahrenheit to prevent scalding with a few exceptions for lower temperatures for bidets and emergency eye wash fixtures. (See the attached Figure 1 - Hot Water Scald Burns – Time vs Temperature Relationship for Second and Third Degree Burns for Adults and Children)

There were discussions in a plumbing code ad-hoc committee on temperature limits for the hot water system where everyone agreed the maximum safe temperature was 120 F. The ASPE Hot water committee dealing with a proposed standard for temperature limits in hot water systems also agreed the maximum safe hot water temperature to prevent scalding is 120 Fahrenheit. Several ASSE working groups that I have served on dealing with hot water temperature controls have all have discussed the reaction time of bathers and they have taken into consideration that children, the elderly and people with disabilities usually take longer to get out of harm's way if the water suddenly gets hot and they agreed 120 Fahrenheit is the maximum safe hot water temperature that a valve should deliver. At 120 F it takes about 80 seconds to develop a second degree burn in a child and it takes about 8 minutes to develop a second degree burn in an adult. (See Figure 1) The 120 Degree F temperature limit gives bathers or users an adequate amount of time to get out of harm's way before an irreversible scald burn injury can occur. Each of these committees looked back to the data that was the result of burn studies done by Dr. Moritz and Dr. Henrique's at Harvard Medical College in the 1940s. The burn studies were done using baby pigs that had skin thicknesses similar to that of adult males. The studies exposed the pig's skin to various temperatures of hot water for various periods of time and the severity of the burns were studied and recorded. These were the studies used to develop the time and temperature exposure charts. There have been numerous white papers, seminars, and reports since then discussing the fact that burns can occur quicker than those recorded in the Moritz & Henrique's studies for adult males. The skin is thinner for children and the elderly and the amount of time to receive an irreversible 2nd degree burn injury is less because their skin is thinner. Many of the white papers use the Moritz and Dr. Henrique's original burn studies and they use a ratio of the skin thickness to come up with burn times for thinner skin of children and the elderly. Children, the elderly and handicapped are also slower to react because it takes them more time to realize what is happening and try to react to get out of harm's way. Someone once told me an apartment complex was not intended for children or the elderly. I said everyone grows old and children often come visit so we need to consider prevention of scalds to children, the elderly and people with disabilities more so than burns to adults because burns can occur quicker for those groups.

The PIEV Theory for Reaction Time

There is a PIEV theory relates to reaction time. The PIEV theory is most commonly used to address braking distance in automobile accidents. It addresses the amount of time it takes a driver to sense a problem and decide to react, then the reaction time is added to the braking time for the total distance that a car travels before stopping. The PIEV theory can also apply to reaction times for a bather with respect to hot water scalds.

PIEV relates to the amount of time it takes a person to react to a hazard. PIEV means - Perception, Intellection, Emotion and Volition. It is usually referred to as the PIEV theory. Before we recognize and react to a hazard, four specific areas of activity need to be processed by the brain for the muscles to react. Those processes are:

1. **Perception** - We need to perceive or gain a Perception of a hazard. There can be delays in the perception with limitation in sight, sound, feeling, or any other of our senses.
2. **Intellection** - We go through a period called, Intellection or the act or process of using the intellect by thinking or reasoning. The bather must determine if the hazard is legitimate and deciding either move out of the way of the hazard or eliminate the hazard by adjusting the controls or in some cases where the bather may be sitting out of the reach of the controls the bather may choose to pull the shower curtain in front of them. If the adjustment of the controls is the choice one must decide which control to turn and try to remember which way to turn each control to adjust the temperature or turn the water off in order to eliminate the hazard. If a wrong choice is made during this process it could compound the situation by making the water even hotter. I travel a lot and I often find that shower controls can be very confusing with respect to how to adjust the controls. I still find two handle shower controls that do not meet code requirements. This is critically important when there is no temperature limit on the shower controls. For example if the shower has a two-handle shower valve and 160 degree hot water is supplied to the system, then turning of the cold water first could lead to instant scalding injuries. Turning down the hot water to 120 F or below creates a system where it could incubate Legionella Bacteria to very high levels.
3. **Emotion** - There is an Emotion or evaluation factor which is defined as a conscious mental reaction (as anger or fear) subjectively experienced as strong feeling usually directed toward a specific object and typically accompanied by physiological and behavioral changes in the body with respect to deciding or assessing how we want to react. A person with reduced mental capacity or someone that is just very old will take longer to process this information and ultimately decide to react.
4. **Volition** - There is the physical Volition or deciding/choosing to act and acting. In the case of braking distance it is when the choice is made to move the foot from the gas pedal to the brake pedal and pressing on the brake pedal. This can be related to the time the bather chooses to adjust the control, and they move their hand to the shower control valve, plus the time to rotate or re-adjust the shower valve plus the time from the adjustment until the water temperature changes coming out of the shower head. Often it can take as much as 3-5 seconds to re-adjust the shower head and another few seconds until the water temperature changes coming out of the shower head. For ultra-low-flow (ULF) showers the delay from the time of the adjustment of the shower valve until the water temperature changes coming out of the shower head can be even longer. So burns can become more severe with ULF shower heads. This is one more area where water conservations measures can unintentionally make plumbing systems less safe.

As the temperature of the water increases this PIEV reaction time becomes more important. Using a bathtub/shower controller with a single handle and a rotational limit-stop adjustment allow for adjustment to a safe temperature and it would reduce the mental processing time and reduce the possibility of making an error when turning off the water. As Figure 1 shows the higher the temperatures get, the quicker the burns can occur. within seconds or less and the degree and severity of the burn can be affected by this reaction time.

As you can see by the chart in Figure 1, if the water is at 140 F it will take about 0.8 seconds for a child to receive a 2nd degree irreversible burn injury and it will take about 5.6 seconds for an adult male to receive an irreversible burn injury at 140 degrees F. Everyone else will fall somewhere in between. An adult will often find it very difficult to react to a sudden change in temperature within five (5) seconds. If the shower head is an Ultra-Low-Flow (ULF) shower head the delay can be several seconds longer before the water temperature is reduced because the mixed water temperature must evacuate or flush out the hot water in the pipe riser from the shower valve to the shower head. There is basically very little or no time to react at higher temperatures. For a typical adult that is alert and aware the PIEV theory shows it can take well over five (5) seconds to react to a sudden burst of hot water in a shower. For an elderly person or a small child that is confused it could take several minutes or more before they are able to react and adjust the controls or get out of harm's way. There has been a lot of information that suggests reducing the domestic hot water temperature to 120 F or less as it flows from the fixtures will minimize scalding and allow most people to react or get out of harm's way before a scald injury occurs.

Reducing the water temperature flowing from the fixture can be done in several ways by:

1. Reducing the hot water temperature at the fixture by adjusting the maximum temperature limit-stop on the shower valve. (The best way)
2. Using local mixing valves conforming to ASSE 1070 to reduce the hot water temperature flowing from a faucet.
3. Reducing the temperature at the source (Water Heater) with the use of a master mixing valve or temperature actuated mixing valve conforming to ASSE 1017.
4. For existing non code compliant shower or tub/shower installations, Two handle tub/shower valves without a maximum temperature limit adjustment) an ASSE 1062 valve could be used. An ASSE 1062 valve is a Temperature Actuated Flow Reduction (TAFR) valve. It looks like a chrome pipe coupling and it screws on between the shower head and the shower arm. Other models screw into a tub spout or onto a sink faucet in place of the aerator. If the water flowing from fixture exceeds about 117-120 degrees Fahrenheit the TAFR valve will shut the flow of water down to just a trickle so that scalding hot water does not spray onto the bather. It can be reset by adjusting the fixture control valve to a cold water setting and when the cold water reaches the valve it will reset and begin flowing again. This can be a bit of a nuisance in buildings where the hot water temperature is erratic, but it is an inexpensive way to provide protection against scald injuries in older buildings without code compliant shower valves.

Water Heater Thermostats Do Not Control the Water Heater Outlet Temperatures

If you adjust the water heater thermostat for the burner or heating element on a water heater down to 120 degrees, it will not prevent scalding. Water heater thermostats cannot be relied upon to control the hot water temperature leaving a water heater. Water heater manufacturers recommend that installers set thermostats at 120 - 125 F, and most of them ship the water heaters at an even lower temperature setting. It is not possible to set a water heater thermostat at a given temperature and get a relatively constant temperature of hot water from a water heater. The thermostat can not accurately control the water heater outlet temperature with a water heater thermostat.

My experience has been that not many people know that water heater thermostats cannot control the outlet temperature of a water heater. This warrants an explanation of how a water heater thermostat works so everyone understands the dial on the water heater does not have the accuracy to control the outlet temperature of storage type heater.

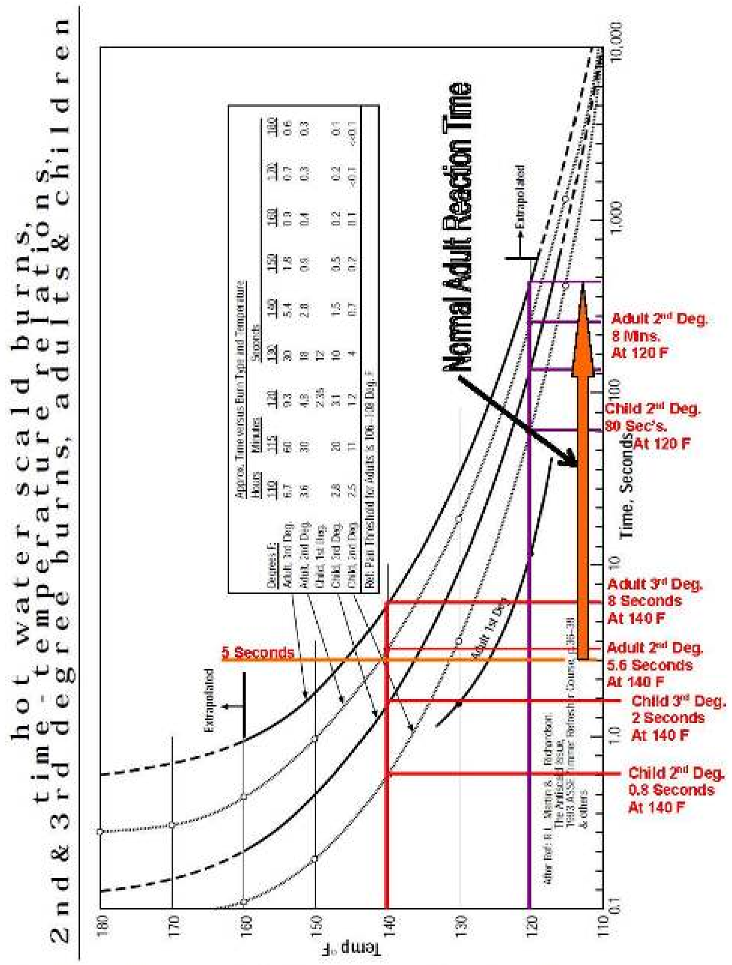
Water heater thermostats do not provide precise temperature controls for hot water systems. For example: the thermostat dial calibration test of ANSI Z21.10.1-1998, which is the applicable standard for gas-fired water heaters, allows the temperature to vary 10 degrees above or below the thermostat setting. I have talked to water heater manufacturers that have indicated that the controls can vary as much as 15 to 18 degrees Fahrenheit above or below the set point of the thermostat. From my experience, I have recorded the temperature leaving the top portion of a water heater over a long period of time during intermittent uses and saw temperature swings over 40 degrees Fahrenheit leaving the water heater. The shower valve standards do not have this kind of temperature fluctuation included their testing for all types of shower valves. The significant temperature swings are because the thermostat is inserted into the lower portion of a water heater tank and turns the fuel supply to the heater on and off. Most new water heater thermostat dials have no way to know what the temperature in the tank is. There is rarely a fixed temperature indicated on the dial, however some manufacturers publish temperatures associated with various marks on the thermostat dial or in their literature even though the dial cannot not control the outlet temperature of the water heater, it only controls when the energy to the heater is turned "on" and "off" by sensing the cold water coming into the bottom of the heater.

Generally, if the water heater thermostat dial is set at 120 degrees Fahrenheit, the burner would come on when the temperature at the thermostat reaches about 105 degrees Fahrenheit. The burner stays on until the water around the thermostat which is near the bottom of the heater reaches about 135 degrees Fahrenheit. (The "burner off" temperature is about 30 degrees higher than when the burner came "on" and generally about 15 degrees above the theoretical set point of the thermostat).

Most people don't realize that the maximum temperature limit test of the ANSI Z21.10.1 Gas Water Heater Standard allows the outlet water temperature of the water heater to rise significantly above the thermostat setting. This provision in the standard accounts for the phenomenon known as "stacking" or "thermal layering". The hot water is less dense and rises to the top of the hot water tank. Just like hot air rises and lifts a hot air balloon, hot water rises to the top of the tank and the cooler water drops to the bottom of the tank. Stacking or thermal layering occurs when the hot water rises to the top of the heater due to recurring short duration heating cycles caused by a frequent number of small quantity hot water uses. Frequent short draws cause cold water to enter the bottom of the water heater where the thermostatic element senses the cold water from the turbulent flow stirring in the bottom of the heater. The cold water causes the water heater to cycle on. This phenomenon can occur in any type of storage water heater and generally is more significant in vertical heaters.

I have recorded temperatures as high as 150 to 166 degrees Fahrenheit at the top of water heaters that had the thermostats set between 120 to 125 degrees Fahrenheit. Temperatures over 151 degrees Fahrenheit are extremely high temperatures and can cause serious scald burns in only a two seconds of contact with the skin. (See Table 1 - Water Temperature Effects on Adult Skin) It should be noted that the time temperature relationships in Table 1 are based upon the thickness of the skin for adult males. Children and the elderly typically have a thinner layer of the skin or epidermis and the exposure times can be shorter or the same burns can occurs in a given time at slightly lower temperatures.

Source: http://www.plumbingengineer.com/aug_09



A Seminar and Technical Paper for the 25-28 Oct. 98 Annual ASPE Meeting at the Indianapolis Convention Center in Indianapolis, Indiana. Reprinted by Watts Regulator Company with permission of Dr. D. Bynum Jr.

Figure 1 – Hot Water Scald Burns – Time vs Temperature Relationship for Second and Third Degree Burns for Adults and Children.
(Notes By: Ron George, CPD, See: www.ScaldPrevention.org)

Bibliography: www.ScaldPrevention.org
www.Plumb-TechLLC.com
www.LegionellaPrevention.org

ASSE 1016-2011/ASME A112.1016-2011/CSA B125.16-11 Automatic Compensating Valves for Individual Shower & Tub/Shower Combinations

ASSE 1017-2009: Temperature Actuated Mixing Valves for Hot Water Distribution Systems

ASSE 1070-2004: Water Temperature Limiting Devices

ASSE 1062-2006: Temperature Actuated, Flow Reduction (TAFR) Valves for Individual Supply Fittings

Cost Impact: Will increase the cost of construction
The cost impact is minimal. TAFR devices sell for less than $10. Other options cost more and provide a better level of safety. The health and safety impact of this code change is very significant when dealing with older non-code compliant showers and bathtubs. This code change will save countless lives and prevent countless life altering, very painful scald injuries.

P 90-15 : 502.6 (New)-GEORGE5558

P 91-15

504.6

Proponent: William Chapin, representing Professional Code Consulting, LLC (bill@profcc.us)

2015 International Plumbing Code

Revise as follows:

504.6 Requirements for discharge piping. The discharge piping serving a pressure relief valve, temperature relief valve or combination thereof shall:

1. Not be directly connected to the drainage system.
2. Discharge through an *air gap* located in the same room as the water heater.
3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the *air gap*.
4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.
5. Discharge to the floor~~, to the pan serving the water heater~~ or storage tank, to a waste receptor or to the outdoors.
6. Discharge in a manner that does not cause personal injury or structural damage.
7. Discharge to a termination point that is readily observable by the building occupants.
8. Not be trapped.
9. Be installed so as to flow by gravity.
10. Terminate not more than 6 inches (152 mm) above and not less than two times the discharge pipe diameter above the floor or *flood level rim* of the waste receptor.
11. Not have a threaded connection at the end of such piping.
12. Not have valves or tee fittings.
13. Be constructed of those materials listed in Section 605.4 or materials tested, rated and *approved* for such use in accordance with ASME A112.4.1.

Reason: A water heater pan does not have sufficient volume or drain size to adequately drain the volume of water that is delivered when the relief valve opens due to an over temperature event.

Cost Impact: Will not increase the cost of construction
This will not increase the cost of construction as there is already a drain in place if there is a water heater pan.

P 91-15 : 504.6-CHAPIN5707

P 92-15

504.6

Proponent: James Richardson, Jr (jarichardson@columbus.gov)

2015 International Plumbing Code

Revise as follows:

504.6 Requirements for discharge piping. The discharge piping serving a pressure relief valve, temperature relief valve or combination thereof shall:

1. Not be directly connected to the drainage system.
2. Discharge through an *air gap* located in the same room as the water heater.
3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the *air gap*.
4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.
5. Discharge to the floor~~, to the pan serving the water heater or storage tank~~, to a waste receptor or to the outdoors.
6. Discharge in a manner that does not cause personal injury or structural damage.
7. Discharge to a termination point that is readily observable by the building occupants.
8. Not be trapped.
9. Be installed so as to flow by gravity.
10. Terminate not more than 6 inches (152 mm) above and not less than two times the discharge pipe diameter above the floor or *flood level rim* of the waste receptor.
11. Not have a threaded connection at the end of such piping.
12. Not have valves or tee fittings.
13. Be constructed of those materials listed in Section 605.4 or materials tested, rated and *approved* for such use in accordance with ASME A112.4.1.

Reason: It is easy to forget that some water heaters are not installed on a floor. Some are installed above ceilings, on walls well above the floor or at the edge of a storeroom mezzanine above a lower floor. Having a rare "full trip" discharge of a relief valve into a water heater pan located on a floor simply makes a mess because the pan is not shaped to contain the blast of water nor is it (and its drain) sized to handle the flow rate. But where these water heaters in pans are suspended above a ceiling or well above the floor, a splash-out or overflow of hot water from the pan will cascade down onto people who might be below. This is a recipe for scald burns. It just isn't smart design or a safe construction practice.

Cost Impact: Will not increase the cost of construction
The water heater drip pan drain has to be run to a point of disposal so running the T&P valve discharge pipe to the same point of disposal isn't a big deal especially where plastic piping is used. An installer is not going to charge the builder any more for doing it this way.

P 92-15 : 504.6-RICHARDSON6026

P 93-15

Part I:
504.6
Part II:
P2804.6.1

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

Revise as follows:

504.6 Requirements for discharge piping. The discharge piping serving a pressure relief valve, temperature relief valve or combination thereof shall:

1. Not be directly connected to the drainage system.
2. Discharge through an *air gap* located in the same room as the water heater.
3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the *air gap*.
4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.
5. Discharge to the floor, to the pan serving the water heater or storage tank, to a waste receptor or to the outdoors.
6. Discharge in a manner that does not cause personal injury or structural damage.
7. Discharge to a termination point that is readily observable by the building occupants.
8. Not be trapped.
9. Be installed so as to flow by gravity.
10. Terminate not more than 6 inches (152 mm) above and not less than two times the discharge pipe diameter above the floor or *flood level rim* of the waste receptor.
11. Not have a threaded connection at the end of such piping.
12. Not have valves or tee fittings.
13. Be constructed of those materials listed in Section 605.4 or materials tested, rated and *approved* for such use in accordance with ASME A112.4.1.
14. <u>Be one nominal size larger than the size of the relief valve outlet, where the relief valve discharge piping is constructed of PEX or PE-RT tubing installed with insert fittings. The outlet end of such tubing shall be fastened in place.</u>

Part II

2015 International Residential Code

Revise as follows:

P2804.6.1 Requirements for discharge pipe. The discharge piping serving a pressure-relief valve, temperature-relief valve or combination valve shall:

1. Not be directly connected to the drainage system.
2. Discharge through an air gap located in the same room as the water heater.
3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the air gap.
4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.
5. Discharge to the floor, to the pan serving the water heater or storage tank, to a waste receptor or to the outdoors.
6. Discharge in a manner that does not cause personal injury or structural damage.
7. Discharge to a termination point that is readily observable by the building occupants.
8. Not be trapped.
9. Be installed to flow by gravity.
10. Terminate not more than 6 inches (152 mm) and not less than two times the discharge pipe diameter above the floor or waste receptor flood level rim.
11. Not have a threaded connection at the end of the piping.
12. Not have valves or tee fittings.
13. Be constructed of those materials indicated in Section P2906.5 or materials tested, rated and *approved* for such use in accordance with ASME A112.4.1.
14. Be one nominal size larger than the size of the relief-valve outlet, where the relief-valve discharge piping is constructed of PEX or PE-RT tubing <u>installed with insert fittings</u>. The outlet end of such tubing shall be fastened in place.

Reason: PART I: This revision was accepted to the IRC in the last cycle. The issue is simply this: In some cases (perhaps the majority of cases), PEX and PE-RT tubing is connected using insert fittings. Where an insert fitting is used to connect to a relief valve, the ID of the insert fitting is significantly smaller than the ID of PEX or PE-RT tubing of the same nominal size of the relief valve outlet. This smaller opening might create excessive restriction where the relief valve had a full trip event. Therefore, increasing the size of the tubing increases the size of the insert fitting to allow for less restriction.
Fastening the end of the tubing is a safety measure to keep the discharge of water at the intended location. PEX and PE-RT tubing can be "springy" and could easy dislodge from the intended discharge point.

PART II: Item 14 was added to this section in the last cycle. The issue is simply this: In some cases (perhaps the majority of cases), PEX and PE-RT tubing is connected using insert fittings. Where an insert fitting is used to connect to a relief valve, the ID of the insert fitting is significantly smaller than the ID of PEX or PE-RT tubing of the same nominal size of the relief valve outlet. This smaller opening might create excessive restriction where the relief valve had a full trip event. Therefore, increasing the size of the tubing increases the size of the insert fitting to allow for less restriction. What was forgotten is that there are fittings that fit on the outside diameter of this type of tubing such that the inside area would not be restricted. This added phrase allows for same size (as the relief valve outlet) tubing to be used where these "outside connect fittings" are used.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC 147.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

Part II: Will not increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 94-15

504.6.1 (New)

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Add new text as follows:

504.6.1 Relief valve indirect waste piping. Indirect waste piping that receives the discharge from not more than two ¾ inch (19 mm) relief valves shall be not less than ¾ inch (19 mm)nominal pipe size. Where indirect waste piping receives the discharge from more than two ¾ inch (19 mm) relief valves, the piping shall be not less than 1 ½ inch (38.1 mm) nominal pipe size. Indirect waste piping receiving only the discharge from relief valves shall not require liquid-seal traps.

Reason: Multi-story buildings having water heaters on each floor (water heaters "stacked") sometimes have an indirect waste pipe "stack" to catch each of the T&P discharge pipes. There is currently no sizing criteria in the code. The proposed language is what the State of New York has used successfully for many years. The 3+ relief valve indirect waste pipe size doesn't have to be any bigger for more water heaters as all of the T&P valves would never be leaking all at once. The 1 ½ inch pipe size is easy to work with in walls, is resistant to accidental damage during rough-in and is economical.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 29.

Cost Impact: Will not increase the cost of construction

This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 94-15 : 504.6.1 (New)-SNYDER3955

P 95-15

504.7

Proponent: Ronald George, Self, representing Self

2015 International Plumbing Code

Revise as follows:

504.7 Required pan. Where a storage ~~tank-type~~tank type water heater~~ or~~, a hot water storage tank, or a tankless water heater is installed in a location where water leakage from the tank or heater will cause damage, the water heater and tank shall be installed in a galvanized steel pan having a material thickness of not less than 0.0236 inch (0.6010 mm) (No. 24 gage), or other pans *approved* for such use.

Reason: During the last code cycle, there was a push to remove requirements for drain pans for tankless water heaters. There have been many failures of tankless heaters that have led to serious water damage to buildings. Tankless heaters fail too and the comment made about there was only a few ounces of water in them is incorrect and misleading. Tankless water heaters are connected to the water distribution piping and can leak hundreds of thousands of gallons of water. Drain pans should be required for tankless heaters too.

Cost Impact: Will increase the cost of construction
Cost appearrs to be the primary reason the pans weere removed during the last code cycle at the expensee of the homeowner and common sense. The cost for a home builder is a few bucks, the cost for the home owners when there is a leak with no pan can be hundreds of thousands of dollars. This will actually save money for the homeowner.

P 95-15 : 504.7-GEORGE5604

P 96-15

504.7

Proponent: James Richardson, Jr (jarichardson@columbus.gov); Dynice Broadnax (dbroadnax@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

504.7 ~~Required pan.~~Water Heater Pan. Where a storage tank-type water heater or a hot water storage tank is installed in ~~a~~an elevated location ~~where~~above the finished floor of a space, a water heater pan shall be provided to collect leakage from the tank ~~will cause damage,~~and the tank connections. A pan required by this section or required by the design professional shall be ~~installed in~~ a galvanized steel pan having a material thickness of not less than 0.0236 inch (0.6010 mm) (No. 24 gage), or other pans *approved* for such use. Water heater pans shall be optional for all other installations.

Reason: There is not one documented case of a leaking water heater causing a structure to fail. There are places where they should be installed, such as elevated locations where leakage could cause injury to someone who may not know the water heater is above them in a ceiling, or where they are elevated above a fixture and the leakage or blow-off from the T&P valve could injure a person using the fixture.

Cost Impact: Will not increase the cost of construction
Not putting in pans in locations where there are not needed will save significant labor and material costs in the long run.

P 96-15 : 504.7-RICHARDSON6027

P 97-15

504.7

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

504.7 Required pan. Where a storage tank-type water heater or a hot water storage tank is installed in a location where water leakage from the tank will cause damage, the tank shall be installed in a ~~galvanized~~pan constructed of one of the following:

1. Galvanized steel ~~pan having a material thickness~~or aluminum of not less than 0.0236 inch (0.6010 mm) in thickness.
2. Plastic not less than 0.036 inch (0.9 mm) in thickness.
3. Other approved materials.

A plastic pan shall not be installed beneath a gas-fired water heater. ~~(No. 24 gage), or other pans *approved* for such use.~~

Reason: It would be very rare for a large commercial water heater installation to be requiring a pan. Those installations are well thought out and provisions are made for floor drains in the area of the water heater or the location of such large units are in areas where leakage will not cause damage. Thus, the existing section never comes into play for those installations.
Where this section is primarily used is in multi-family residential construction where each unit has its own water heater. Because the proposed language was approved for the 2015 IRC, there should be any reason to allow this revision for the IPC. Factory-made pans are widely available and have been used for decades. Use of such pans keeps the installed costs low as compared to what a sheet metal shop would charge to make custom, galvanized sheet steel pan. It is just not necessary.

As stated in the IRC proposal, another reason for allowing these factory-made aluminum and plastic pans is that they have smooth edges. In a residential environment, some water heaters are in a laundry room where people, including children, move about. A slip or fall against the top edge or corner of a galvanized steel pan would be unpleasant. Galvanized steel can also begin to look unsightly after many years.

This proposal is needed for consistency with the IRC.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 146.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 97-15 : 504.7-SNYDER3956

P 98-15

Part I:
602.3.1, Chapter 14
Part II:
P2602.1, Chapter 44

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

Proponent: Janine Snyder, Chair, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

602.3.1 Sources. Dependent on geological and soil conditions and the amount of rainfall, individual water supplies are of the following types: drilled well, driven well, dug well, bored well, spring, stream or cistern. Surface bodies of water and land cisterns shall not be sources of individual water supply unless properly treated by *approved* means to prevent contamination. Individual water supplies shall be constructed and installed in accordance with the applicable state and local laws. Where such laws do not address all of the requirements set forth in NGWA-01, individual water supplies shall comply with NGWA-01 for those requirements not addressed by state and local laws.

Add new standard(s) as follows:
ANSI/NGWA-01-14 Water Well Construction Standard

Part II

2015 International Residential Code

Revise as follows:

P2602.1 General. The water-distribution and drainage system of any building or premises where plumbing fixtures are installed shall be connected to a public water supply or sewer system, respectively, if available. Where either a public water-supply or sewer system, or both, are not available, or connection to them is not feasible, an individual water supply or individual (private) sewage-disposal system, or both, shall be provided. Individual water supplies shall be constructed and installed in accordance with the applicable state and local laws. Where such laws do not address all of the requirements set forth in NGWA-01, individual water supplies shall comply with NGWA-01 for those requirements not addressed by state and local laws.

Add new standard(s) as follows:
ANSI/NGWA-01-14 Water Well Construction Standard

Reason: Many locations where wells will be constructed are covered by state and local laws for well construction. However, some areas in a jurisdiction might not be covered by those laws (or possibly, state or local laws don't exist). Adding this standard to the code is an important backstop to make sure that wells in those areas are safely constructed to be able to provide a reliable water supply for the building(s).
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC). The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 29.

Cost Impact:

Part I: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, in situations where state or local laws don't exist for the construction of wells, these requirements could add additional costs over those cost for a well that would be constructed to a quality level less than what this standard requires. Where a standard for construction does not exist, there could be ways to "cut corners" to lessen costs of construction such as not installing a well casing, not performing tests and generally, expending less labor to construct a well that might not be safe or provide a reliable supply of water.

Part II: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, in situations where state or local laws don't exist for the construction of wells, these requirements could add additional costs over those cost for a well that would be constructed to a quality level less than what this standard requires. Where a standard for construction does not exist, there could be ways to "cut corners" to lessen costs of construction such as not installing a well casing, not performing tests and generally, expending less labor to construct a well that might not be safe or provide a reliable supply of water.

Analysis:

Part I: A review of the standard proposed for inclusion in the code, ANSI/NGWA-01, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

Part II: A review of the standard proposed for inclusion in the code, ANSI/NGWA-01, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 98-15 : 602.3.1-SNYDER3957

P 99-15

Part I:
602.3.1, Chapter 14
Part II:
P2602.1, Chapter 44

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC PLUMBING COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Donald Surrena, National Association of Home Builders, representing National Association of Home Builders (dsurrena@nahb.org)

Part I

2015 International Plumbing Code

Revise as follows:

602.3.1 Sources. Dependent on geological and soil conditions and the amount of rainfall, individual water supplies are of the following types: drilled well, driven well, dug well, bored well, spring, stream or cistern. Surface bodies of water and land cisterns shall not be sources of individual water supply unless properly treated by *approved* means to prevent contamination. Individual water supplies shall be constructed in accordance with the applicable state and local laws. Where the construction of individual water supplies is not regulated by state or local laws, such individual water supplies shall be constructed in accordance with ANSI/NGWA-01.

Add new standard(s) as follows:
ANSI/NGWA-01-14 Water Well Construction Standard

Part II

2015 International Residential Code

Revise as follows:

P2602.1 General. The water-distribution and drainage system of any building or premises where plumbing fixtures are installed shall be connected to a public water supply or sewer system, respectively, if available. Where either a public water-supply or sewer system, or both, are not available, or connection to them is not feasible, an individual water supply or individual (private) sewage-disposal system, or both, shall be provided. Individual water supplies shall be constructed in accordance with the applicable state and local laws. Where the construction of individual water supplies is not regulated by state of local laws, such individual water supplies shall be constructed in accordance with ANSI/NGWA-01.

Add new standard(s) as follows:
ANSI/NGWA-01-14 Water Well Construction Standard

Reason: The IRC currently refers the user to the IPC for requirements regarding well construction, as it does for all plumbing not addressed in the IRC (P2601.1). Often locations where wells will be constructed are covered by state and local laws for well construction. The provisions for wells in the IPC are also incomplete and spreadout through several sections of the code, making tracking difficult. This proposal is a simple change that clarifies where to go for well construction requirements—either state/local regulations or an ANSI standard.
This proposal is the same as what passed in the 2013 Group B hearing for the IRC. The change, however, was not included in the 2015 IRC because the referenced standard was not published by the ICC deadline. The standard was published in 2014.

Cost Impact:

Part I: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, in situations where state or local laws don't exist for the construction of wells, these requirements will add additional costs over those costs for a well that would be constructed to a quality level less than what this standard requires. Where a standard for construction does not exist, there could be ways to "cut corners" to lessen costs of construction such as not installing a well casing, not performing tests and generally, expending less labor to construct a well that may adversely affect the safety or reliability of the supply of water. Where local/state regulations are already in place, there may be no cost impact depending on the level of local/state regulation in place.

Part II: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, in situations where state or local laws don't exist for the construction of wells, these requirements will add additional costs over those costs for a well that would be constructed to a quality level less than what this standard requires. Where a standard for construction does not exist, there could be ways to "cut corners" to lessen costs of construction such as not installing a well casing, not performing tests and generally, expending less labor to construct a well that may adversely affect the safety or reliability of the supply of water. Where local/state regulations are already in place, there may be no cost impact depending on the level of local/state regulation in place.

Analysis:

Part II: A review of the standard proposed for inclusion in the code, ANSI/NGWA-01-14, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 99-15 : 602.3.1-SURRENA5013

P 100-15

603.1 (New), 608.16.1 (New), 608.16.2 (New)

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Add new text as follows:

603.1 Protection for public water main. Public water mains shall be protected from backflow from connected water service lines in accordance with Section 608.16.1 and 608.16.2.

608.16.1 Backflow preventer required for water service lines. A backflow prevention assembly in accordance with Section 608.13.2 shall be installed in the water service lines serving the following:

1. Hospitals
2. Surgical clinics
3. Laboratories
4. Morgues
5. Mortuaries
6. Veterinary hospitals
7. Industrial occupancies
8. Packing plants
9. Slaughter houses
10. Chemical plants
11. Municipal waste treatment facilities
12. Construction sites

The location of the required backflow prevention assembly shall be on the building site. The backflow prevention assembly shall be installed in the water service line at a point that is upstream of any site connections to the water service line.

608.16.2 Protection of site water service loop system. Where a building site such as a campus has a water service loop system that serves two or more water service connections to buildings on the building site, a backflow prevention assembly in accordance with Section 608.13.2 or 608.13.7 shall be installed in the water service line for each building connecting to the loop.

Reason: New Section 608.16.1:
The code is lacking requirements for backflow protection of public water supplies that connect to buildings or building sites known to have High Risk, High Hazard activities occurring. The building and site applications identified in this new Section 608.16.1 are according to the University of Southern California's Cross Connection Control Manual. The USC Cross Connection Control Manual is a highly regarded publication produced and periodically updated by the Foundation for Cross-Connection Control and Hydraulic Research at USC. The Foundation has been involved in backflow issues for over 100 years. Many jurisdictions and water utilities operate cross-connection control programs using this Manual and their tenants concerning backflow protection.

Section 101.3 states that the intent of the International Plumbing Code is "…to establish minimum standards to provide a reasonable level of safety, health, protection of property and public welfare….." Section 101.2 states that scope of the code applies to "….plumbing systems within the jurisdiction."

The plumbing code assumes that the code-required backflow protection at each of the potable water outlets in a building (or on a building site) protects the water distribution system of the building (or site). And that this "primary protection" is adequate protection for the public water supply that the water service line serving those buildings (and sites) connects to. The problem with this assumption for the indicated buildings and building sites is that building owners and system operators have difficulty controlling every possible situation that might lead to a backflow event. Many of these operations are large complexes with miles and miles of potable water piping with thousands of potable water outlets. Some of these complexes undergo constant construction for upgrades and repair of industrial systems where potable water piping may or may not be involved. There is great potential for a cross-connection to be made.

Adding to this great potential for a cross-connection is the nature of the substances involved with these operations. The code doesn't distinguish between various hazard levels of contaminates but in practice, there is obviously a significantly higher risk for a contaminate that can make thousands of people very ill with only a small amount of material introduced into the public water supply. The organizations and companies who have administered backflow protection programs for large public water supplies have realized this for decades. The USEPA has also realized this for a long time. For public water suppliers who do have a backflow protection program, the suppliers will not allow these buildings and building sites to connect to the public water main without a Reduced Pressure Zone backflow protection assembly (reference Section 608.13.2) in the water service line.

The following question might be asked: "Why not continue to let the public water suppliers deal with this issue?" There are several issues surrounding this question:

1. Where the public water supplier does require this RPZ, it is installed on the building owner's property and in the water service line that is regulated by the IPC. Should not the plumbing code have this requirement in the code as this involves piping that the code regulates?
2. The IPC has the regulations for backflow preventers such as the appropriate standards and details about their installation. The building owner is buying this equipment (through the plumbing contractor) so the code provides the requisite information. There has been many situations where the plumbing contractor has said, "Why do I have to provide this equipment? I have complied with the IPC. Show me the IPC code section that it where it requires that I am responsible to provide this.
3. What about jurisdictions where there is not a backflow protection program in place for the public water supply? Should the public connected to that water system be any less protected than anyone else? Keep in mind what Section 101.3 says. With everyone in the backflow protection field knowing that these buildings and building sites have significant contamination risks involved, should not the IPC be a leader in protecting the public water supply for all those connected to that supply for these High Risk, High Hazard situations?

New Section 608.16.2:

This new section has nothing to do with the necessity for new Section 608.16.1. There can be building sites having multiple buildings that are served by a "loop" water service line arrangement. In other words, there is one "tap" on the public water main but once the water service line on the building site, it splits to run in different directions to service multiple buildings on the site. The two different "split" water service lines eventually meet up and connect to each other somewhere on the building site. The reasons for this "loop" design are germane to this proposal.

The problem is that this "loop" water service line design can create conditions for a backflow event to occur between buildings connected to the loop. For example, consider a campus with several high rise buildings and several low rise buildings. Where the water demand in a low rise building becomes significant, the pressure decreases in the high rise building and because the elevation of the water is so much higher than it the low rise building, the water in the high rise building moves into the "loop" towards the low rise building. *Remember that a backflow event occurs because of a change in pressurebetween two points.* Now imagine many buildings on a campus with water moving back and forth in the "loop" many times a day. It only takes one failed "primary" backflow preventer in one building on the campus to end up contaminating the water supply for all the buildings connected to the loop.

A double check valve backflow protection assembly for each building is sufficient to protect against this situation. It is field testable to be able to verify its proper operation. An RPZ backflow protection assembly can also provide the same protection, however, because of the higher cost, such a device would only need to be used for applications where higher hazards (such as those in new Section 608.16.1) might exist on a campus loop system.

The PMGCAC urges approval of this important proposal.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 165.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

Specifically, the code doesn't require these backflow protection assemblies so yes, because the code will require them, the change in the code *appears* to make the cost of construction higher. However, knowing that many public water suppliers already mandate these backflow protection assemblies (and the building and site owners already are having to install them), there won't be an increase in construction cost. And, many owners of these buildings or sites are already smart enough to know that they don't want to be responsible for a public water supply contamination event because they failed to correctly do something correctly somewhere in the depths of their operations. They already had voluntarily complied. Where the cost impact will show up is where the building or site owner doesn't care to incur the cost, there is no backflow protection program in place in the jurisdiction, the code official recognizes the issue but can't require the RPZ because it is not in the code. In those situations there will be the added cost of RPZ backflow protection assembly, the labor to install it and, where located inside of a building, the labor and material for a drain to capture a backflow event from the RPZ.

P 100-15 : 603.1 (New)-SNYDER3959

P 101-15

Part I:
603.1
Part II:
P2903.7

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC PLUMBING COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Julius Ballanco, representing Self (JBENGINEER@aol.com)

Part I

2015 International Plumbing Code

Revise as follows:

603.1 Size of water service pipe. The water service pipe shall be sized to supply water to the structure in the quantities and at the pressures required in this code. The water service pipe shall be not less than ~~3/4~~ 1 inch (~~19.1~~25.4 mm) in diameter.

Part II

2015 International Residential Code

Revise as follows:

P2903.7 Size of water-service mains, branch mains and risers. The size of the water service pipe shall be not less than ~~3/4~~ 1 inch (19 mm) diameter. The size of water service mains, branch mains and risers shall be determined from the water supply demand [gpm (L/m)], available water pressure [psi (kPa)] and friction loss caused by the water meter and *developed length* of pipe [feet (m)], including *equivalent length* of fittings. The size of each water distribution system shall be determined according to design methods conforming to acceptable engineering practice, such as those methods in Appendix P and shall be *approved* by the code official.

Reason: The minimum pipe size of ¾ inch dates back to the Hoover Code days, whereby it was understood that the minimum pipe size for a single family dwelling could be ½ inch galvanized steel pipe. This sizing was based on one bathroom and a kitchen sink. That was the original indoor plumbing required for a single family dwelling. The code predated the use of copper tube or plastic pipe. However, in case additional fixtures were added to the home, it was mandated that the water service be a minimum of ¾ inch. Most water services during this period of time were lead pipe. The inside diameter of ¾ inch lead pipe was ¾ inch.
Today's modern home has minimum plumbing requirements that dictate a pipe size of at least ¾ inch. Following the concept of the earlier codes, this would result in upsizing the water service to a minimum of 1 inch pipe. Additionally, both the International Building Code and International Plumbing Code require residential sprinklers for all single family dwellings. With a typical demand of two residential sprinklers, the minimum flow rate for the system becomes 16 gpm. The residential sprinkler flow rate can be as high as 40 gpm or more. This would result in the need for a 1 inch water service.

The most popular pipe used today for residential water service is polyethylene. It has been estimated that 90 percent of the water services for single family dwellings in the United States is polyethylene.

A ¾ inch polyethylene tube has an inside diameter that range from 0.625 inches to 0.715 inches depending on the SDR. A 1 inch polyethylene tube would be more in line with the older ¾ inch lead water service regarding size. Furthermore, the inside diameter of 1 inch polyethylene is very similar to 3/4 inch galvanized steel pipe. The inside diameter of ¾ inch galvanized steel pipe is 0.824 inches. The inside diameter of 1 inch polyethylene pipe, SDR 9 is 0.875 inches.

Based on the additional fixtures required for a single family dwelling and the requirement for residential sprinklers, the minimum water service must be increased to 1 inch.

Cost Impact:

Part I: Will increase the cost of construction
The increase in cost is minimal based on the cost of the piping material. The labor and installation costs remain the same.

Part II: Will increase the cost of construction
The cost of the piping material will be higher.

P 101-15 : 603.1-BALLANCO3697

P 102-15

604.2

Proponent: Ronald George, Self; Plumb-Tech Design & Consulting Services LLC, representing Self; Plumb-Tech Design & Consulting Services LLC (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Revise as follows:

604.2 System interconnection. At the points of interconnection between the hot and cold water supply piping systems and the individual fixtures, appliances or devices, provisions shall be made to prevent flow between such piping systems. Hot water circulation systems shall not utilize cold water distribution piping for the return of water to the water heater.

Reason: This is a health hazard routing hot water return through the cold water distribution system. Routing hot water return through the cold water supply pipes creates a condition where it will not be possible to get cold water in some cases. It also creates a condition where LEgionell bacteria can grow.

Cost Impact: Will not increase the cost of construction
Cross connections are already prohibited. Returning hot water through the cold water pipe is a cross-connection where hot water can be routed to other fixtures.

P 102-15 : 604.2-GEORGE5205

P 103-15

Table 604.3

Proponent: Michael Anthony, University of Michigan, representing University of Michigan (maanthon@umich.edu)

2015 International Plumbing Code

Revise as follows:

TABLE 604.3
WATER DISTRIBUTION SYSTEM DESIGN CRITERIA REQUIRED CAPACITY AT FIXTURE SUPPLY PIPE OUTLETS

FIXTURE SUPPLY OUTLET SERVING	FLOW RATE[a] (gpm)	FLOW PRESSURE (psi)
Bathtub, balanced-pressure, thermostatic or combination balanced-pressure/thermostatic mixing valve	4	20
Bidet, thermostatic mixing valve	2	20
Combination fixture	4	8
Dishwasher, residential	2.75	8
Drinking fountain	0.75	8
Laundry tray	4	8
Lavatory, private	0.8	8
Lavatory, private, mixing valve	0.8	8
Lavatory, public	0.4	8
Shower	2.5	8
Shower, balanced-pressure, thermostatic or combination balanced-pressure/thermostatic mixing valve	2.5[b]	20
<u>Shower room, athletic center or student housing</u>	<u>2.0</u>	<u>8</u>
Sillcock, hose bibb	5	8
Sink, residential	1.75	8
Sink, service	3	8
Urinal, valve	12	25
Water closet, blow out, flushometer valve	25	45
Water closet, flushometer tank	1.6	20
Water closet, siphonic, flushometer valve	25	35
Water closet, tank, close coupled	3	20
Water closet, tank, one piece	6	20

For SI: 1 pound per square inch = 6.895 kPa, 1 gallon per minute = 3.785 L/m.

a. For additional requirements for flow rates and quantities, see Section 604.4.

b. Where the shower mixing valve manufacturer indicates a lower flow rating for the mixing valve, the lower value shall be applied.

Reason: Multiple showers in the same room are common in athletic and recreation facilities and student housing (residences, living centers). Diversity of use permits lower flow rates.

Bibliography:
We have provided background information at this web site:
https://sites.google.com/a/umich.edu/14-39-international-plumbing-code-2018-revision/home

Cost Impact: Will not increase the cost of construction
Piping systems may be smaller thereby reducing the cost.

P 104-15

603.1 (New)

Proponent: Michael Anthony, University of Michigan, representing University of Michigan (maanthon@umich.edu)

2015 International Plumbing Code

Add new text as follows:

<u>**603.1** **Water service meter sizing** Water service meters shall be sized based upon 1-year historical demand measurements of identical occupancy or use classes.</u>

Reason: Water service meters are generally too large; and they are getting more oversized as water consumption is reduced. To use historical demand patterns for the specification of the water meter borrows from a concept that has worked in the National Electrical Code for many years. It permits a designer to size a power system capacity if he has the data to substantiate it. For the committee's information, that passage is reproduced in part below:

> 220.87 Determining Existing Loads. The calculation of a feeder or service load for existing installations shall be permitted to use actual maximum demand to determine the existing load under all of the following conditions:
> (1) The maximum demand data is available for a 1-year period.
> Exception: If the maximum demand data for a 1-year period is not available, the calculated load shall be permitted to be based on the maximum demand (measure of average power demand over a 15-minute period) continuously recorded over a minimum 30-day period using a recording ammeter or power meter connected to the highest loaded phase of the feeder or service, based on the initial loading at the start of the recording. The recording shall reflect the maximum demand of the feeder or service by being taken when the building or space is occupied and shall include by measurement or calculation the larger of the heating or cooling equipment load, and other loads that may be periodic in nature due to seasonal or similar conditions.
> (2) The maximum demand at 125 percent plus the new load does not exceed the ampacity of the feeder or rating of the service.
> (3) The feeder has overcurrent protection in accordance with 240.4, and the service has overload protection in accordance with 230.90.

While the system is an electrical system, much of it -- conceptually -- can be brought to bear upon the specification of the water meter -- i.e. data driven.

Bibliography:
Background and reference information about this proposal will be available at this web site:

https://sites.google.com/a/umich.edu/14-39-international-plumbing-code-2018-revision/

Cost Impact: Will not increase the cost of construction
Smaller meters generally should cost less; though local jurisdictions may change their connection fees to secure lost revenue.

P 104-15 : 604.4 (New)-ANTHONY5509

P 105-15

Table 604.4

Proponent: John Addario, New York State Department of State - Building Standards and Codes, representing New York State Department of State - Building Standards and Codes (john.addario@dos.state.ny.us)

2015 International Plumbing Code

Revise as follows:

TABLE 604.4
MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY [b]
Water closet - public and private	~~1.6~~1.28 gallons per flushing cycle[c]
Water closet—public and remote[d]	1.6 gpf

(Portions of table not shown remain unchanged)

For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. A hand-held shower spray is a shower head.

b. Consumption tolerances shall be determined from referenced standard.

c. The effective flush volume for dual-flush water closet is defined as the composite, average flush volume of two reduced flushes and one full flush.In public settings, the maximum water use of a dual flush water closet is based solely on its full flush operation; not an average of full and reduced volume flushes.

d. A water closet is remote where its discharge is combined with less than 1.5 DFU discharge from other fixtures and such discharge must flow horizontally for 30 feet or more.

Reason: This proposal reflects the current requirements in the IGCC for high efficiency water closets. The last cycle the committee was concerned that there was a need for further study in the use of high effeciency water closets. The proposed change addresses these concerns by exempting them in a public setting when they are installed in a remote location. This proposal is in line with the IGCC and addresses the concerns from the committee from the last cycle.

Cost Impact: Will not increase the cost of construction
The price of plumbing fixtures and fittings vary due to style, trim, and material. The attached documents demonstrate that esssentially there will be no cost impact in response to adopting these requirements. The attached only reflects the bare cost comparision of the fixtures and does not include the cost saving realized from water conservation.

P 105-15 : T604.4 -ADDARIO4773

P 106-15

Table 604.4

Proponent: John Addario, New York State Department of State - Building Standards and Codes, representing New York State Department of State Building Standards and Codes (john.addario@dos.state.ny.us)

2015 International Plumbing Code

Revise as follows:

TABLE 604.4
MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY [b]
Lavatory, private	~~2.2~~1.5 gpm at 60 psi
Lavatory, public (metering)	0.25 gallon per metering cycle
Lavatory, public (other than metering)	0.5 gpm at 60 psi
Shower head [a]	~~2.5~~ 2.0 gpm at 80 psi
Sink faucet	2.2 gpm at 60 psi
Urinal	~~1.0~~0.5 gallon per flushing cycle
Water closet	1.6 gallons per flushing cycle

For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. A hand-held shower spray is a shower head.

b. Consumption tolerances shall be determined from referenced standards.

Reason: This proposal reflects the current WaterSense rates for lavatories, shower heads and urinals. WaterSense fixtures have been available and in use since 2006. These products are now widely available, accepted and proven to perform as well as less water effecient products. Additionally they are now available at the same price point as less efficient fixtures.

Cost Impact: Will not increase the cost of construction
The price of plumbing fixtures and fittings vary due to style, trim, and material. The attached documents demonstrate that esssentially there will be cost impact in response to adopting these requirements. The attached only reflects the bare cost comparision of the fixtures and does not include the cost saving realized from water conservation.
Seven (7) PDF used to verify costs attached:

P 106-15 : T604.4-ADDARIO4727

P 107-15

Part I:
Table 604.4
Part II:
Table P2903.2

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

Proponent: Anthony Floyd, City of Scottsdale, representing City of Scottsdale (afloyd@scottsdaleaz.gov)

Part I

2015 International Plumbing Code

Revise as follows:

TABLE 604.4
MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY [b]
Lavatory, private	~~2.2~~ 1.5 gpm at 60 psi
Lavatory, public (metering)	0.25 gallon per metering cycle
Lavatory, public (other than metering)	0.5 gpm at 60 psi
Shower head (s) discharge[a,c]	2.5 gpm at 80 psi
Sink faucet	2.2 gpm at 60 psi
Urinal	1.0 gallon per flushing cycle
Water closet - remote[d]	1.6 gallons per flushing cycle
Water closet - nonremote[d]	1.28 gallons per flushing cycle average[e,f]

For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. A hand-held shower spray is a shower head.

b. Consumption tolerances shall be determined from referenced standards.

c. The combined flow rate from shower heads that are capable of operating simultaneoulsy including rain systems, waterfalls, body sprays and jets shall not exceed 2.5 gpm for every 2600 square inches or portion thereof. In shower compartments required to comply with the requirements of Chapter 11 of the International Bulding Code, the combined flow rate shall not exceed 4.0 gpm for every 2600 square inches or portion thereof.

d. A water closet is remote where its discharge is combined with less than 1.5 DFU discharge from other fixtures and such discharge flows horizontally for 30 feet or more.

e. The effective flush volume for a dual-flush water closet is defined as the composite, average flush volume of two reduced flushes and one full flush.

f. In public settings, the maximum water use of a dual flush water closet is based solely on its full flush operation; not an average of full and reduced volume flushes.

Part II

2015 International Residential Code

Revise as follows:

TABLE P2903.2
MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS[b]

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY [b]
Lavatory faucet	~~2.2~~ 1.5 gpm at 60 psi
Shower head(s) discharge[ac]	2.5 gpm at 80 psi
Sink faucet	2.2 gpm at 60 psi
Water closet	~~1.6~~ 1.28 gallons per flushing cycle

For SI: 1 gallon per minute = 3.785 L/m,

1 pound per square inch = 6.895 kPa.

a. A handheld shower spray shall be considered a shower head.

b. Consumption tolerances shall be determined from referenced standards.

c. The combined flow rate from shower heads that are capable of operating simultaneously including rainfall shower systems, waterfalls, body sprays and jets shall not exceed 2.5 gpm for every 2600 square inches or portion thereof of shower compartment floor area.

Reason: Recent advancements have allowed water closets to use 1.28 gallons per flush (gpf) or less while still providing equal or superior performance. This is 20 percent less water than the current federal standard of 1.6 gpf. Toilets are by far the main source of water use in the home, accounting for nearly 30 percent of an average home's indoor water consumption. Water-efficient toilets significantly reduce water use and help preserve the nation's water resources. Unlike some first-generation, "low-flow" toilets, high-efficiency toilets combine efficiency with high performance. Design advances enable high-efficiency toilets to save water with no trade-off in flushing power. In fact, many perform better than standard toilets in consumer testing. Faucets account for more than 15 percent of indoor household water use - more than 1 trillion gallons of water across the United States each year. High efficiency lavatory faucets that use a maximum of 1.5 gallons per minute (gpm) can reduce a sink's water flow by 30 percent or more from the current standard flow of 2.2 gpm without sacrificing performance.
The maximum flush volumes in the current IRC are based upon a nationwide standard enacted 20 years ago. In December 2010, the US Department of Energy determined that states were no longer preempted from adopting more stringent efficiency standards for water closets, among other products. Federal Regisister, Vol. 75, No. 245, December 22, 2010, p. 80289. This document may be assess here: http://www.regulations.gov/#!documentDetail;D=EERE-2010-BT-WAV-0045-0001

Water closets operating at 1.28 gpf or better are commonly available and perform as well as those with higher flush volumes. Since 2006, the establishment of the WaterSense labeling program for water efficient products and services by the Environmental Protection Agency has provided a framework for the recognition of products that are substantially more efficient than minimum federal requirements while maintaining functionality and customer satisfaction. WaterSense criteria for tank-type water closets were established in 2007. Manufacturers have responded by bringing large numbers of models to market that meet or exceed WaterSense specifications. Based on the most recent reports by WaterSense partners, more than 1,621 models of tank-type toilets from nearly 100 brands currently meet WaterSense specifications, showing the widespread availability and commercial viability of these more efficienct plumbing fixtures. With the pace of introduction of new models that meet WaterSense specifications, it is reasonable to expect that these figures will be substantially larger by 2015.

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Safe Plumbing, Water Efficiency Overview - www.safeplumbing.org/water-efficiency

Safe Plumbing, Water Efficiency Position Paper - www.safeplumbing.org/pmi/position-papers/water-efficiency

US EPA WaterSense - www.epa.gov/watersense

Part II: Alliance for Water Efficiency, National Water Efficiency Standards and Specifications - http://www.allianceforwaterefficiency.org/WorkArea/DownloadAsset.aspx?id=8796
ICC-ES Water Efficienct Plumbing Fixtures - http://www.icc-es.org/News/Articles/High-EfficiencyPlumbingFixtures.pdf

Natural Resource Defense Council, Appliance Efficiency Comments - http://listserver.energy.ca.gov/appliances/2014-AAER-01/prerulemaking/comments/14-AAER-01_NRDC_T_Quinn_Comments_on_Appliance_Efficiency_Pre_Rulemaking_2014-06-16_TN-73213.pdf

Safe Plumbing, Water Efficiency Overview - www.safeplumbing.org/water-efficiency

Safe Plumbing, Water Efficiency Position Paper - www.safeplumbing.org/pmi/position-papers/water-efficiency

US EPA WaterSense - www.epa.gov/watersense

Cost Impact:

Part I: Will not increase the cost of construction
Based on manufacturer's mass production and market-wide availability, high-efficiency water closets and lavatory faucets dominate the market and are cost neutral with the current standard low-flow fixtures. The National Resources Defense Council (NRDC) estimates that if the flush volumes specified in this proposal were applied to new construction nationwide effective 2016, the following savings would be realized in the residential sector alone: 41.6 million gallons of water per day by 2030 with a cumulative savings for consumers of more that $138 million through 2030.

Part II: Will not increase the cost of construction
Based on manufacturer's mass production and market-wide availability, high-efficiency water closets and lavatory faucets dominate the market and are cost neutral with the current standard low-flow fixtures. The National Resources Defense Council (NRDC) estimates that if the flush volumes specified in this proposal were applied to new construction nationwide effective 2016, the following savings would be realized in the residential sector alone: 41.6 million gallons of water per day by 2030 with a cumulative savings for consumers of more that $138 million through 2030.

Analysis:

Part II: The heading of the second column of Table P2903.2 was published incorrectly for 2015 as PLUMBING FIXTURE OR FIXTURE FITTING. This has been identified as errata. The header has been corrected in this proposal to read MAXIMUM FLOW RATE OR QUANTITY [b]. This will be corrected for publication of the 2018 IRC.

P 107-15 : T604.4-FLOYD3394

P 108-15

Table 604.4

Proponent: Karen Hobbs, Natural Resources Defense Council, representing Natural Resources Defense Council (khobbs@nrdc.org); Ed Osann (eosann@nrdc.org)

2015 International Plumbing Code

Revise as follows:

TABLE 604.4
MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY [b]
Urinal	~~1.0~~ 0.5 gallon per flushing cycle
Water closet[c,d,e]	~~1.6~~ 1.28 gallons per flushing cycle

(Portions of table not shown remain unchanged)

For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. A hand-held shower spray is a shower head.

b. Consumption tolerances shall be determined from referenced standards.

c. 1.6 gallons per flushing cycle for a water closet connected to the sanitary drainage system of an existing building.

d. The effective flush volume for a dual-flush water closet is defined as the composite, average flush volume of two reduced flushes and one full flush.

e. In public settings, the maximum water use of a dual flush water closet is based solely on its full flush operation; not the average of full and reduced volume flushes.

Reason: Recent advancements have allowed toilets to use 1.28 gallons per flush or less while providing equal or superior performance. This is 20 percent less water than the current federal standard of 1.6 gallons per flush. Toilets are by far the main source of water use in the home, accounting for nearly 30 percent of an average home's indoor water consumption. Water-efficient toilets can reduce water use in the home and help preserve the nation's water resources. Unlike some first-generation, "low-flow" toilets, high-efficiency toilets combine efficiency with high performance. Design advances enable high-efficiency toilets to save water with no trade-off in flushing performance or drainline function. In fact, many perform better than standard toilets in consumer testing (Source: EPA *WaterSense*:http://www.epa.gov/WaterSense/products/toilets.html).
WaterSense criteria for tank-type water closets were established in 2007. Based on the most recent reports by *WaterSense* partners, more than 2,305 models of tank-type toilets from more than 115 brands currently meet the *WaterSense* specification, showing the widespread availability and commercial viability of these more efficient water closets.

Like toilets, urinals operating at 0.5 gpf or better are commonly availabile today and perform as well as those with higher flush volume. WaterSense criteria for flushing urinals were established in 2009. Manufacturers have reponded by bringing large numbers of models to market that meet or exceed WaterSense specifications. Based on the most recent reports by WaterSense partners, 151 models of urinal fixtures from 15 brands and 91 models of urinal valves from 7 brands currently meet the WaterSense specification of 0.5 gpf, demonstrating the widespread availability and commercial viability of more efficient urinals. With the pace of introduction of new models that meet WaterSense specifications, it is reasonable to expect that these figures will be even larger by 2018.

The Natural Resources Defense Council (NRDC) estimates that significant water savings could be realized if these standards were applied nationwide effective in 2018:

- **For toilets**, approximately 36 million gallons of water per day could be saved in the residential sector by 2030 (this value represents savings from residential toilets; it does not exclude flushometer valve toilets in the residential secctor and tank-type toilets in the Commercial and Industrial sectors). NRDC estimates savings in the commercial sector of 8 million gallons of water per day by 2030.
- **For urinals**, water savings would reach 2 million gallons per day by 2030.

Reducing water use is an integral part of the stated purpose of the International Plumbing Code. As noted in Chapter 1 of the 2015 edition: "**101.3 Intent**. The purpose of the code is to establish minimum standards to provide a reasonable level of safety, health, property protection and public welfare by regulating the controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of plumbing equipment and systems."

Nothing is more fundamental to public "health, safety, property protection and public welfare" than the maintenance of adequate water supplies. Water-saving technologies, such as high-efficiency toilets and urinals, reduce water use, helping to ensure that water supplies are maintained at safe and reliable levels, maintaining human health and firefighting capability, as well as environmental resources.

Maximum Performance (MaP) of Toilet Fixtures

December 3, 2014

The following list of toilet fixtures was screened from the current MaP database of 3,084 tank-type models. All models on this list include these characteristics: WaterSense compliant, single-flush, 1.28 gallons per flush maximum, gravity-fed, elongated ADA height bowl, floor-mounted, 12-inch rough-in, minimum 3-inch flush valve, and a MaP score of 1,000 grams. Except for the 3 models highlighted below, all feature a trapway in excess of 2 inches. Current retail prices for the models were obtained where possible from retailer websites.

MaP Report No.	Brand Name	Model Name	Model Number	MaP Flush Performance Score (grams of waste removed in a single flush)	1- or 2-piece	Flush Valve-Flapper size (in.)	Round (R) or Elongated (E) bowl	ADA Height Bowl	Pressure- or power-assist (P), gravity-fed (G), OR gravity-fed with a vacuum assist (V)	Single-Flush HET	Floor- (F) OR Wall-Mounted (W)	Trapway diameter	Pricing, Availability, Comments	
17-078RN33	American Standard	C3 Concealed Trap EL ADA	2621.101: 3075.001 bowl, 4000.101 tank	1,000	2	3	E	ADA	G	HET	F	2.1250	Model no. no longer offered by Am Std	Identical to Am Std 2989.101
17-078RN33	American Standard	C3 Concealed Trap EL ADA	2989.101: 3075.001 bowl, 4000.101 tank	1,000	2	3	E	ADA	G	HET	F	2.1250	Amer Std List of $516; $328 @ Amazon; $341 @ efaucets.com	
29-024	American Standard	Champion 4 HET EL ADA	2793.128: 3195A.101R bowl, 4149A.101R tank	1,000	2	4	E	ADA	G	HET	F	2.1250	$239 @ Lowe's	
24-105	American Standard	Champion 4 Max EL ADA	231AA.104: 3395A.001 bowl, 4215A.104 tank	1,000	2	3	E	ADA	G	HET	F	2.1875	$279 @ Home Depot	
24-105	American Standard	Champion 4 Max EL ADA	2586.128ST: 3195A.001R bowl, 4215A.101 tank	1,000	2	3	E	ADA	G	HET	F	2.1875	$219 @ Home Depot	
24-114	American Standard	Champion PRO HET EL ADA	211AA.104: 3195A.101 bowl, 4225A.104 tank	1,000	2	3	E	ADA	G	HET	F	2.1875	$256 @ Ferguson	
17-078RN33	American Standard	Clean EL ADA	2514.101: 3075.100 bowl, 4000.107 tank	1,000	2	3	E	ADA	G	HET	F	2.1250	$219 @ Lowe's	Identical to Am Std 2989.101
17-078RN33	American Standard	Clean EL ADA	2523.101: 3075.200 bowl, 4000.107 tank	1,000	2	3	E	ADA	G	HET	F	2.1250	Discontinued by Am Std	Identical to Am Std 2989.101
30-079	American Standard	New Cadet 3.1 EL ADA	270FA.101: 3717F.001 bowl, 4019.101N tank	1,000	2	3	E	ADA	G	HET	F	2.0625	$231 @ Home Depot	
24-114	American Standard	Portsmouth Champion PRO HET EL ADA	213AA.104: 3195A.101 bowl, 4327A.104 tank	1,000	2	3	E	ADA	G	HET	F	2.1875	$303 @ faucetdirect.com, faucet.com, and build.com; $312 @ Home Depot	
17-078RN33	American Standard	Ravenna 3 EL (concealed trap)	2629.101: 3075.000 bowl, 4000.101 tank	1,000	2	3	E	ADA	G	HET	F	2.1250	Discontinued by Am Std	Identical to Am Std 2989.101
24-114	American Standard	Retrospect Champion PRO HET EL ADA	212AA.104: 3195A.101 bowl, 4326A.104 tank	1,000	2	3	E	ADA	G	HET	F	2.1875	$338 @ Ferguson	
27-074	Axent	None EL ADA	LW0207	1,000	2	3	E	ADA	G	HET	F	2.1300	$164 @ Lowe's	
14-020RN29	Chelini	Cabot EL ADA (lined tank)	B1516E bowl, T10348 tank (lined tank)	1,000	2	3	E	ADA	G	HET	F	2.2500	Unavailable here; http://www.chelinicollection.com/showad.php?view=showad&adid=32	
18-011RN34	Dolphin Plumbing Industrial	Chicago EL ADA	Z59E16 bowl, S19348 tank	1,000	2	3	E	ADA	G	HET	F	2.0500	Unavailable here	http://www.dolphinhomeware.com/product1841416.html
23-036	Dolphin Plumbing Industrial	Hilton EL ADA	Z40E16 bowl, S40348 tank	1,000	2	3	E	ADA	G	HET	F	2.0500	Unavailable here	
34-007	Foremost	Dietrich EL ADA (lined tank)	TL-7227-*L: LL-7227 bowl, T-7227-*L tank	1,000	2	3	E	ADA	G	HET	F	2.0870	Only available in Canada	
28-024	Foremost	HET EL ADA	TL-8832-* : T-8832 unlined tank, LL-8832 bowl	1,000	2	3	E	ADA	G	HET	F	2.0500	Available as Mirabelle thru Ferguson (see below)	
27-068	Gerber	Allerton EL ADA	HE-20-008: HE-21-577 bowl, HE-28-585 tank	1,000	2	3	E	ADA	G	HET	F	2.0500	$445 list by Gerber; $260 @ chicagofaucetshoppe	http://www.chicagofaucetshoppe.com/Gerber_20_008_Allerton_Elongated_Toilet_p/ger-20008.htm
27-069	Gerber	Allerton EL ADA	HE-20-007: HE-21-577 bowl, HE-28-580 tank	1,000	2	3	E	ADA	G	HET	F	2.0500	$385 list by Gerber; $369 @ Home Depot	

MaP Report No.	Brand Name	Model Name	Model Number	MaP Flush Performance Score (grams of waste removed in a single flush)	1- or 2-piece	Flush Valve-Flapper size (in.)	Round (R) or Elongated (E) bowl	ADA Height Bowl	Pressure- or power-assist (P), gravity-fed (G), OR gravity-fed with a vacuum assist (V)	Single-Flush HET	Floor- (F) OR Wall-Mounted (W)	Trapway diameter	Pricing, Availability, Comments	
29-034	Home Depot	Glacier Bay EL ADA	SKU 686-826: 331-725B bowl, N2428T tank (by Niagara)	1,000	2	3	E	ADA	G	HET	F	2.0000	$98 @ Home Depot	Doesn't meet trapway criteria
29-037, 15-007b & 12 129	Home Depot	Glacier Bay EL ADA	SKU 331-725: 331-725B bowl, 331-725T tank (by Niagara) **(Also sold as All-In-One package with UPC bar code: 732291222518)**	1,000	2	3	E	ADA	G	HET	F	2.0000	Discontinued by HD	
13-037RN28	Jacuzzi	Espree HET EL ADA	Jacuzzi SKU EZ36959 **(Also sold as Lowe's SKU 48624) Sold as complete toilet set (includes bowl, tank, seat, and installation accessories).**	1,000	2	3	E	ADA	G	HET	F	2.1250	Not currently sold at Lowe's or elsewhere	
13-032RN28	Kohler	Cimarron EL ADA	K-3609: 4309 bowl, 4421 tank - **NOTE: this fixture is also sold as K-11451, K-11813, K-11823, and K-98977 when included as part of the "COMPLETE SOLUTION" package**	1,000	2	3	E	ADA	G	HET	F	2.1250	$299 @ Lowe's; $185 @ Home Depot; $292 @ Ferguson	
13-032RN28	Kohler	Cimarron Touchless EB EL ADA	K-6418: 4309 bowl, 5692 tank **NOTE: this fixture is also sold as K-99249 when included as part of the "COMPLETE SOLUTION" package.**	1,000	2	3	E	ADA	G	HET	F	2.1250	$436 @ Home Depot; $341 @ Ferguson	
25-060	Lixil Corporation	Lafayette EL ADA	C-616S-MC-US: C61S bowl, T-4566U-US tank	1,000	2	2	E	ADA	G	HET	F	2.0500	American std discontinuing Lixil models	
27-074	Lowe's	Aquasource EL ADA (by Axent)	352027/LW0207	1,000	2	3	E	ADA	G	HET	F	2.1300	$164 @ Lowe's	
28-024 & 14-005	Mirabelle (Ferguson brand)	Boca Raton HET EL ADA	MIRBR240AWH bowl, MIRBR200AWH tank (white color)	1,000	2	3	E	ADA	G	HET	F	2.0500	$380 @ Ferguson	
29-034	Niagara Conservation	None EL ADA (12-in rough-in)	N2428E: 331-725B bowl, N2428T tank	1,000	2	3	E	ADA	G	HET	F	2.0000	See Home Depot Glacier Bay above; this model is identical to HD SKU 686-826	
23-043	Unison Ridge	Galliani EL ADA	UB1916E3 bowl, T19348 tank	1,000	2	3	E	ADA	G	HET	F	2.0500	Unavailable here	

www.map-testing.com

December 3, 2014

Bibliography: Koeller, John, "Single-flush toilet matrix-2014-12-03.pdf"; December, 2014.

Cost Impact: Will not increase the cost of construction
Adoption of this code change proposal will not increase the cost of construction. As noted above, more than 2,305 models of tank-type toilets from more than 115 brands currently meet the 1.28 gpf standard in this proposal; for urinals, 151 models of urinal fixtures from 15 brands and 91 models of urinal valves from 7 brands currently meet the *WaterSense* specification of 0.5 gpf

(Source: MaP Testing: http://www.map-testing.com/high-efficiency-toilets.html). *Consumer Reports* identifies top-performing toilets at 1.28 gpf, ranging in cost from $100 to $380 (Source: *Consumer Reports*, "Water-saving toilets from Consumer Reports' tests: Stop flushing water and money down the drain," July 14, 2014: http://www.consumerreports.org/cro/news/2014/07/water-saving-toilets-from-consumer-reports-tests/index.htm.

In addition, attached is a list of toilet fixtures that was screened from the current MaP database; all models on the list are 1.28 gpf. Current retail prices for the models were obtained where possible from retailer websites (file name: "Single-flush toilet matrix-2014-12-03.pdf."

According to EPA's *WaterSense*, "Our product research has found that high-efficiency urinal fixtures and flushing devices are no more expensive than their standard (1.0 gpf) counterparts. The average price of a new high-efficiency or standard urinal fixture is about $350 and the average cost for a high-efficiency or standard pressurized flushing device (flushometer valve) is approximately $200. Because there is very little to no cost difference between high-efficiency flushing urinals and standard flushing urinals, installing high-efficiency models in new construction or as part of the natural replacement process is cost-effective with immediate payback in water cost savings" (Source: EPA *WaterSense*: http://www.epa.gov/WaterSense/pubs/faq_lfu.html).

The City of Tucson has found that "Prices [for urinals] are comparable to those for regular urinals and toilets" (Source: City of Tucson, "Commercial-Industrial High Efficiency Urinal Rebate Program," http://water.tucsonaz.gov/files/water/docs/Urinal_Brochure_2-13.pdf).

P 108-15 : T604.4-HOBBS5110

P 109-15

Part I:
Table 604.4
Part II:
Table P2903.2

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

Proponent: Karen Hobbs, Natural Resources Defense Council, representing Natural Resources Defense Council (khobbs@nrdc.org)

Part I

2015 International Plumbing Code

Revise as follows:

TABLE 604.4
MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY [b]
Lavatory, private	~~2.2~~1.5 gpm at 60 psi
Shower head [a]	~~2.5~~2.0 gpm at 80 psi

(Portions of table not shown remain unchanged)

For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. A hand-held shower spray is a shower head.

b. Consumption tolerances shall be determined from referenced standards.

Part II

2015 International Residential Code

Revise as follows:

TABLE P2903.2
MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY[b]
Lavatory faucet	~~2.2~~1.5 gpm at 60 psi
Water closet[c]	~~1.6~~1.28 gallons per flushing cycle

(Portions of table not shown remain unchanged)

For SI: 1 gallon per minute = 3.785 L/m,

1 pound per square inch = 6.895 kPa.

a. A handheld shower spray shall be considered a shower head.

b. Consumption tolerances shall be determined from referenced standards.

c. 1.6 gallons per flushing cycle for a water closet connected to the sanitary drainage system of an existing building.

Reason: Showerheads operating at 2.0 gpm at 80 psi are commonly available and perform as well as showerheads operating at 2.5 gpm. The *WaterSense* specification for showerheads was adopted in 2010, including a maximum flow rate of 2.0 gpm at 80 psi. Based on the most recent reports by *WaterSense* partners, more than 800 models from 45 brands currently meet the proposed standard, demonstrating the widespread availability and commercial viability of these types of showerheads (Source: MaP Testing: http://www.map-testing.com/).
Residential lavatory faucets rated at 1.5 gpm or less are also commonly available and perform as well as those with higher flow rates. WaterSense established criteria for residential lavatory faucets and faucet accessories such as aerators in 2007. Based on the most recent reports by WaterSense partners, over 5,200 models from 134 brands currently meet the WaterSense specification, showing the widespread availability and commercial viability of more efficient lavatory faucets (Source: MaP Testing: http://www.map-testing.com/).

The Natural Resources Defense Council (NRDC) estimates that significant water and energy savings could accrue nationwide if these revised flow rates for showerheads and faucets became effective in 2018 (savings estimates apply only to the residential sector):

- **Water and energy savings potential for showerheads**:
- 86 million gallons of water per day by 2030;
- 1,553 MWh (Megawatt hours) of electricity per year by 2030; and;
- 112 million therms of natural gas per year by 2030.

- **Water and energy savings potential for faucets**:
- 122 million gallons of water per day by 2030;
- 2,199 MWh (Megawatt hours) of electricity per year by 2030; and

- 158 million therms of natural gas per year by 2030.

Reducing water use is an integral part of the stated purpose of the International Plumbing Code. As noted in Chapter 1 of the 2015 edition: "**101.3 Intent.** The purpose of the code is to establish minimum standards to provide a reasonable level of safety, health, property protection and public welfare by regulating the controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of plumbing equipment and systems."

Nothing is more fundamental to public "health, safety, property protection and public welfare" than the maintenance of adequate water supplies. Water-saving technologies, such as high-efficiency faucets and showerheads, reduce water use, helping to ensure that water supplies are maintained at safe and reliable levels, protecting human health and firefighting capability, as well as environmental resources.

Bibliography:

Part II: Koeller, John, "Single-flush toilet matrix-2014-12-03.pdf"; December, 2014.

Cost Impact:

Part I: Will not increase the cost of construction
As noted above, both showerheads and faucets operating at the flow rates proposed are commonly available and perform as well as less efficient fixtures. For showerheads, more than 800 models from 45 brands currently meet the proposed standard; for faucets, over 5,200 models from 134 brands currently meet the proposed standard (Source: MaP Testing; http://www.map-testing.com/). According to EPA WaterSense, "Showerheads are available at a variety of price points and ranges in cost may be due to a number of factors including style or functional design" (Source: EPA WaterSense: http://www.epa.gov/WaterSense/pubs/faq_showerheads.html).
Consumer Reports found that, "If you think you have to spend top dollar to get a strong performer, think again. Our top-rated multisetting showerhead costs a quarter of the price of the model that finished second" (Source: *Consumer Reports*: http://www.consumerreports.org/cro/showerheads/buying-guide.htm).

Regarding faucets, EPA WaterSense also found that, "Most high-efficiency faucet accessories that restrict flow are no more expensive that their conventional counterparts. However, pressure compensating faucet accessories that are designed to provide and maintain a constant flow rate despite fluctuations in water pressure typically cost a few dollars more." http://www.epa.gov/WaterSense/faucets.html. Lowe's Home Improvement Store features more than 1,759 residential bathroom faucets that meet the proposed standard of 1.5 gpm from 19 brands, ranging in cost from $15 to $2000 (Source: Lowe's Home Improvement Store website: http://www.lowes.com/Bathroom/Bathroom-Faucets/Bathroom-Sink-Faucets/_/N-1z0wz0vZ1z0z4i4/pl#!). For showerheads, Lowe's lists 185 products from 15 brands, ranging in cost from $5 to $400 (Source: Lowe's Home Improvement Store website: http://www.lowes.com/Bathroom/Showers-Shower-Accessories/Showerheads/_/N-1z0wz0vZ1z0z4gq/pl#!).

Part II: Will not increase the cost of construction
Adoption of this code change proposal will not increase the cost of construction. As noted above, more than 2,305 models of tank-type toilets from more than 115 brands currently meet the 1.28 gpf standard in this proposal. (Source: MaP Testing; http://www.map-testing.com/). *Consumer Report*s identifies top-performing high-efficiency toilets at 1.28 gpf, ranging in cost from $100 to $380. (Source: *Consumer Reports*, "Water-saving toilets from *Consumer Reports*' tests: Stop flushing water and money down the drain," July 14, 2014: http://www.consumerreports.org/cro/news/2014/07/water-saving-toilets-from-consumer-reports-tests/index.htm).
In addition, attached is a list of toilet fixtures screened from the current MaP database; all models on the list are 1.28 gpf. Current retail prices for the models were obtained where possible from retailer websites (file name: "Single-flush toilet matrix-2014-12-03.pdf").

Consumer Reports tested 16 brands of faucets ranging in price from $80 to $600 and found little difference in performance or durability (Source: "Water Conservation with Shower and Faucet Tips", http://www.scgh.com/go-green/water-fixtures-and-plumbing/water-wise-showers-and-faucets/).

Regarding faucets, EPA WaterSense also found that, "Most high-efficiency faucet accessories that restrict flow are no more expensive that their conventional counterparts. However, pressure compensating faucet accessories that are designed to provide and maintain a constant flow rate despite fluctuations in water pressure typically cost a few dollars more" (Source: EPA WaterSense: http://www.epa.gov/WaterSense/faucets.html). Lowe's Home Improvement Store features more than 1,759 residential bathroom faucets that meet the proposed standard of 1.5 gpm from 19 brands, ranging in cost from $15 to $2000 (Source: Lowe's Home Improvement Store website: http://www.lowes.com/Bathroom/Bathroom-Faucets/Bathroom-Sink-Faucets/_/N-1z0wz0vZ1z0z4i4/pl#!).

P 109-15 : T604.4-HOBBS5292

P 110-15

Table 604.4

Proponent: Billy Smith, American Society of Plumbing Engineers Legislative Committee, representing American Society of Plumbing Engineers Legislative Committee (bsmith@aspe.org)

2015 International Plumbing Code

Revise as follows:

TABLE 604.4
MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY [b]
Water closet, private use application	1.6 gallons per flushing cycle
Water closet, public use application	1.28 gallons per full flushing cycle or, where equipped with dual flush device, 1.6 gallons per full flush cycle

For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. A hand-held shower spray is a shower head.

b. Consumption tolerances shall be determined from referenced standards.

Reason: This will increase the water conservation requirements for public use water closets. Every manufacturer of water closets has a 1.28 gallon per flush public water closet. Similarly, every manufacturer of water closets has a bowl for public use that can be equipped with a dual flush device.
If you consider a standard commercial building with 100 water closets. The water savings amounts to more than 33,000 gallons per year. This savings is accomplished without any loss in performance of the plumbing system.

Cost Impact: Will increase the cost of construction
This may increase the cost depending on which fixture is selected to install. The cost of the fixture may be higher. The installation is the same cost.

P 110-15 : T604.4-SMITH5395

P 111-15

604.4 (New)

Proponent: Ronald George, Self; Plumb-Tech Design & Consulting Services LLC; www.LegionellaPrevention.org, representing Self; Plumb-Tech Design & Consulting Services LLC (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Add new text as follows:

604.4 **Maximum length of dead leg piping** The length of dead legs in the hot or cold water distribution piping systems shall not exceed four branch pipe diameters.

Reason: The length of the dead leg was determined from examining several glass piping installations with colored water in order to illustrate how stagnant water reacts in piping branches[1]. In the testing that I witnessed, the clear water flowing past a branch illustrated that the colored water remained beyond 4 to 5 pipe diameters from the tee. Based on this observation, water treatment chemicals would be able to reach about 4 pipe diameters into a branch pipe to control Legionella bacteria but not beyond about 4 pipe diameters. For this reason, 4 pipe diameters is an appropriate maximum distance for dead legs. Longer dead legs would be possible with some form of parralel piping flow or circulation to maintain water treatment chemical levels in branches. Dead legs are a significant source of Legionella bacteria and other pathogen growth in biofilms in the plumbing system. Dead legs are sections of pipe where water does not normally flow. Stagnant water in dead legs allows the water treatment chemicals to dissipate, rendering them ineffective for controling Legionella.

1. Video of colored water flowing by a tee: http://mechanical-hub.com/minimizing-legionella-bacteria-in-building-water-systems

Bibliography: www.LegionellaPrevention.org
ASHRAE - Guideline 12-2000 - Minimizing the Risk of Legionellosis Associated with Building Water Systems

http://mechanical-hub.com/minimizing-legionella-bacteria-in-building-water-systems

www.Plumb-TechLLC.com

ASHRAE Standard 188 - Legionellosis: Risk Management for Building Water Systems (not finalized as of this submission)

Cost Impact: Will increase the cost of construction
The cost increase will be minimal. In some installations, there may be the addition of one pipe fitting. In more elaborate installations, the cost could be as much as 10-15 percent more for the water distribution pipe and fittings.

P 111-15 : 604.12 (New)-GEORGE5462

P 112-15

Table 605.3, Table 605.4

Proponent: Larry Gill, representing IPEX USA LLC (larry.gill@ipexna.com)

2015 International Plumbing Code

Revise as follows:

TABLE 605.3
WATER SERVICE PIPE

MATERIAL	STANDARD
Polyethylene of raised temperature (PE-RT) plastic tubing	ASTM F 2769; CSA B137.18

(Portions of table not shown remain unchanged)

TABLE 605.4
WATER DISTRIBUTION PIPE

MATERIAL	STANDARD
Polyethylene of raised temperature (PE-RT) plastic tubing	ASTM F 2769; CSA B137.18

(Portions of table not shown remain unchanged)

Add new standard(s) as follows:
CSA B137.18-13 Polyethylene of raised temperature resistance (PE-RT) tubing systems for pressure applications.

Reason: CSA B137.18 - Polyethylene of raised temperature resistance (PE-RT) tubing systems for pressure applications is a new consensus system standard (tubing and fittings). The scope includes the following: potable water distribution systems or other applications including, municipal water service lines,reclaimed water distribution, radiant panel heating and cooling systems, hydronic baseboard heating systems, snow and ice melting heating systems, building services piping, compressed air distribution, and ground source geothermal systems.

Cost Impact: Will not increase the cost of construction
Adding an alternate standard for a piping material will not affect the cost of an installation.

Analysis: A review of the standard proposed for inclusion in the code, CSA B137.18-13, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 112-15 : 605.3-GILL4429

P 113-15

Part I:
Table 605.3, Table 605.4
Part II:
Table P2906.4, Table P2906.5

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

Proponent: Mike Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservnet.com)

Part I

2015 International Plumbing Code

Revise as follows:

TABLE 605.3
WATER SERVICE PIPE

MATERIAL	STANDARD
Cross-linked polyethylene (PEX) plastic pipe and tubing	ASTM F 876; ~~ASTM F 877;~~ AWWA C904; CSA B137.5

(Portions of table not shown remain unchanged)

TABLE 605.4
WATER DISTRIBUTION PIPE

MATERIAL	STANDARD
Cross-linked polyethylene (PEX) plastic tubing	ASTM F 876~~; ASTM F 877;~~ CSA B137.5

(Portions of table not shown remain unchanged)

Part II

2015 International Residential Code

Revise as follows:

TABLE P2906.4
WATER SERVICE PIPE

MATERIAL	STANDARD
Cross-linked polyethylene (PEX) plastic tubing	ASTM F 876; ~~ASTM F 877;~~ CSA B137.5

(Portions of table not shown remain unchanged)

TABLE P2906.5
WATER DISTRIBUTION PIPE

MATERIAL	STANDARD
Cross-linked polyethylene (PEX) plastic tubing	ASTM F 876; ~~ASTM F 877;~~ CSA B137.5

(Portions of table not shown remain unchanged)

Reason: ASTM F877 has been revised a few years ago to remove redundant pipe/tubing dimensional and performance specifications which are otherwise specified in ASTM F876. F877 remains a PEX fitting and PEX system materials and performance standard exclusive for use with ASTM F876 piping/tubing.
ASTM F877 is already in the code.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal simply deletes a standard that is no longer pipe or tubing related from the code. The piping material is now covered by a different standard, and as such, the option is not deleting or adding a material. Thus the code with this proposal added will not cause the cost of construction to increase.

Part II: Will not increase the cost of construction
This proposal simply deletes a standard that is no longer pipe or tubing related from the code. The piping material is now covered by a different standard, and as such, the option is not deleting or adding a material. Thus the code with this proposal added will not cause the cost of construction to increase.

P 114-15

Table 605.3

Proponent: Pennie L Feehan, Copper Development Association, representing Copper Development Association (penniefeehan@me.com)

2015 International Plumbing Code

Revise as follows:

TABLE 605.3
WATER SERVICE PIPE

MATERIAL	STANDARD
~~Brass pipe~~	~~ASTM B 43~~

(Portions of table not shown remain unchanged)

Reason: The proposal removes brass because brass is a copper-alloy and copper-alloy is the term used to identify materials manufactured where copper is the base metal and includes brass and bronze.

Cost Impact: Will not increase the cost of construction
This proposal will not impact the cost of construction as this is only a clarification of a product name.

P 114-15 : T605.3-FEEHAN3791

P 115-15

Part I:
605.4
Part II:
P2906.5

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

Proponent: Gary Morgan, Viega LLC, representing Viega LLC (gary.morgan@viega.us)

Part I

2015 International Plumbing Code

Revise as follows:

605.4 Water distribution pipe. Water distribution pipe shall conform to NSF 61 and shall conform to one of the standards listed in Table 605.4. Hot and cold water distribution pipe and tubing shall have a pressure rating of not less than 100 psi (690 kPa) at 180ºF (82ºC).

Part II

2015 International Residential Code

Revise as follows:

P2906.5 Water-distribution pipe. Water-distribution piping within *dwelling units* shall conform to NSF 61 and shall conform to one of the standards indicated in Table P2906.5. ~~Hot-water-distribution~~Hot and cold water-distribution pipe and tubing shall have a pressure rating of not less than 100 psi at 180°F (689 kPa at 82°C).

Reason: This code proposal is really only an attempt to address a subtle technicality that has existed for a very long time. The addition of "and cold" to this sentence makes it 100% clear that even cold water distribution piping needs to be temperature/pressure rated at 180F. Another possible way to address the issue is to simply remove "hot" from the same sentence. All of the piping standards listed in Table 605.4 for water distribution piping already meet this mandatory elevated temperature/pressure rating. The existing code language stating specifically "hot water distribution pipe and tubing" implies that pipes used for cold water distribution piping may not need to carry elevated temperature/pressure rating.
Your support of this proposal would be most appreciated!

Cost Impact:

Part I: Will not increase the cost of construction
This proposal has absolutely no impact on the cost of construction and only attempts to address a technicality which has existed for many years.

Part II: Will not increase the cost of construction
This proposal has absolutely no impact on the cost of construction and only attempts to address a technicality which has existed for many years.

P 115-15 : 605.4-MORGAN5099

P 117-15

Part I:
605.17, 605.17.3 (New), 605.17.3.1 (New)
Part II:
P2906.9.1.5, P2906.9.1.5.3 (New), P2906.9.1.5.3.1 (New)

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

Proponent: Gary Morgan, Viega LLC, representing Viega LLC (gary.morgan@viega.us)

Part I

2015 International Plumbing Code

Revise as follows:

605.17 PEX plastic. Joints between cross-linked polyethylene plastic tubing and fittings shall comply with Sections 605.17.1 and 605.17.2. PEX tubing shall comply with Section 605.17.3.

Add new text as follows:

605.17.3 PEX tubing. The manufacturer of PEX tubing shall have marked the outside of the tubing with the thermoplastic material designation code in accordance with ASTM F876. The designation code shall consist of the abbreviation "PEX" followed by four digits. The first digit shall represent a chlorine resistance rating as established by testing in accordance with ASTM F876.

605.17.3.1 Chlorine resistance rating digits. The first digit of the designation code shall have the following meanings:

1. Digit "0" indicates that the tubing has not been tested for chlorine resistance or that tubing does not comply with the minimum requirements for chlorine resistance.

2. Digit "1" indicates that the tubing complies with the minimum requirements for chlorine resistance for the conditions of 25% of the time at 140°F (60°C) and 75% of the time at 73°F (23°C).

3. Digit "3" indicates that the tubing complies with the minimum requirements for chlorine resistance for the conditions of 50% of the time at 140°F (60°C) and 50% of the time at 73°F (23°C).

4. Digit "5" indicates that the tubing complies with the minimum requirements for chlorine resistance for the conditions of 100% of the time at 140°F (60°C).

Part II

2015 International Residential Code

Revise as follows:

P2906.9.1.5 Cross-linked polyethylene plastic (PEX). Joints between cross-linked polyethylene plastic tubing or fittings shall comply with Section P2906.9.1.5.1 or Section P2906.9.1.5.2. PEX tubing shall comply with Section P2906.9.1.5.3.

Add new text as follows:

P2906.9.1.5.3 PEX tubing. The manufacturer of PEX tubing shall have marked the outside of the tubing with the thermoplastic material designation code in accordance with ASTM F876. The designation code shall consist of the abbreviation "PEX" followed by four digits. The first digit shall represent a chlorine resistance rating as established by testing in accordance with ASTM F876.

P2906.9.1.5.3.1 Chlorine resistance rating digits. The first digit of the designation code shall have the following meanings:

1. Digit "0" indicates that the tubing has not been tested for chlorine resistance or that tubing does not comply with the minimum requirements for chlorine resistance.

2. Digit "1" indicates that the tubing complies with the minimum requirements for chlorine resistance for the conditions of 25% of the time at 140°F (60°C) and 75% of the time at 73°F (23°C).

3. Digit "3" indicates that the tubing complies with the minimum requirements for chlorine resistance for the conditions of 50% of the time at 140°F (60°C) and 50% of the time at 73°F (23°C).

4. Digit "5" indicates that the tubing complies with the minimum requirements for chlorine resistance for the conditions of 100% of the time at 140°F (60°C).

Reason: Disinfection of potable water using free chlorine as a disinfectant is the most common practice used today and has been over the last many decades. Not all plastic pipes have equal long-term performance when operating in a hot-chlorinated water enviroment therefore it is important for the user of this code to understand how plastic pipes are rated so pipes can be properly specified for their expected end use operating conditions.
The PEX standard ASTM F876 includes mandatory chlorine resistance designation code information needed by field personnel so that the PEX selected meets the expected end use conditions of the installation. This information is normally included on the print line of the tubing in accordance with the listing of that specific tubing. Building inspectors not having ready access to the ASTM standard need code guidance so they will know if the tubing is correctly applied for the end use and environmental conditions of the installation. If the tubing will be used for a hot water recirculation system, the inspector needs to know how to determine if properly rated PEX has been used. Also, if the tubing will be installed in an environment that normally exceeds 73°F (23°C) (such as an attic in very warm climates), the inspector needs to know what designation code is required.

This proposal would require that all PEX tubing be marked with its material designation code according to ASTM F876. Currently the other PEX standard listed in the table of water distribution pipe, CSA B137.5, does not currently mandate a PEX material designation code marking requirement therefore it would be impossible for the specifier, installer, or code inspector to know if the tubing is suitable for the expected end use conditions.

Chlorine testing of all ASTM F876 and CSA B137.5 PEX tubing materials are required today for certification and listing which attempts to replicate the end-use conditions (time at elevated temperature) under which the tubing can operate and still reach an extrapolated test lifetime of 50 years.

Cost Impact:

Part I: Will not increase the cost of construction

This proposal has absolutely no impact on the cost of construction and only seeks to clarify requirements within the code.

Part II: Will not increase the cost of construction
This proposal has absolutely no impact on the cost of construction and only seeks to clarify requirements within the code.

P 117-15 : 605.4-MORGAN6013

P 118-15

Table 605.4

Proponent: Pennie L Feehan, Copper Development Association, representing Copper Development Association (penniefeehan@me.com)

2015 International Plumbing Code

Revise as follows:

TABLE 605.4
WATER DISTRIBUTION PIPE

MATERIAL	STANDARD
~~Brass pipe~~	~~ASTM B 43~~
Copper or copper-alloy pipe	ASTM B 42; ASTM B 43; ASTM B 302

(Portions of table not shown remain unchanged)

Reason: There are many different copper and copper-alloy compositions. Copper alloy is the term used to identify materials manufactured where copper is the base metal and it includes brass and bronze.

Cost Impact: Will not increase the cost of construction
This proposal will not increast the cost of construction as this change is only to update the name of a material that is already in the code.

P 118-15 : T605.4-FEEHAN3792

P 119-15

Table 605.5, Chapter 14

Proponent: William Chapin, representing Professional Code Consulting, LLC (bill@profcc.us)

2015 International Plumbing Code

Revise table as follows:

TABLE 605.5
PIPE FITTINGS

MATERIAL	STANDARD
Fittings for polyethylene of raised temperature (PE-RT) plastic tubing	ASSE 1061; ASTM F 1807; ASTM F 2098; ASTM F 2159; ASTM F 2735; ASTM F 2769

(Portions of table not shown remain unchanged)

Add new standard(s) as follows:
ASSE 1061-2011 Peformance Requirements for Push-Fit Fittings (UPDATE of edition level only)

Reason: ASSE 1061-2011 added PE-RT to the list of tubings in this edition of the standard so that those fittings can be used for PE-RT tubing.

Cost Impact: Will not increase the cost of construction
This will not increase the cost of construction as it only adds another option for the installer.

Analysis: Successful action on this proposal will result in the update of Reference Standard ASSE 1061 to the 2011 edition level for only the change indicated in the table. A coordinating proposal for updating the standard for the entire code will be submitted to Group B for inclusion in the Reference Standards administrative update proposal.

P 119-15 : T605.5-CHAPIN5712

P 120-15

Table 605.5

Proponent: Larry Gill, representing IPEX USA LLC (larry.gill@ipexna.com)

2015 International Plumbing Code

Revise as follows:

TABLE 605.5
PIPE FITTINGS

MATERIAL	STANDARD
Fittings for polyethylene of raised temperature (PE-RT) plastic tubing	ASTM F 1807; ASTM F 2098; ASTM F 2159; ASTM F 2735; ASTM F 2769; ASTM D3261; CSA B137.18

(Portions of table not shown remain unchanged)

Add new standard(s) as follows:
CSA B137.18-13 Polyethylene of raised temperature resistance (PE-RT) tubing systems

Reason: CSA B137.18 - Polyethylene of raised temperature resistance (PE-RT) tubing systems for pressure applications is a new consensus system standard for tubing and fittings. ASTM D3261 is a consensus standard for PE fusion and is also applicable for PE-RT.

Cost Impact: Will not increase the cost of construction
Adding another pipe material standard as an option does not impact the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, CSA B137.18-13, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 120-15 : T605.5-GILL4432

P 121-15

605.5.1.1 (New)

Proponent: Donald Jones, Self, representing Self (donaldmjones@att.net)

2015 International Plumbing Code

Add new text as follows:

605.5.1.1 Pre-heat treatment. The area of a copper tube to be utilized for forming a tee outlet shall be annealed prior to forming the outlet where the run of the tee is greater than 2 inches (50.8 mm), the run and branch of the tee are the same size or required by the manufacturer of the tee outlet-forming equipment.

Reason: Full size outlets and large bore tubing must be annealed before they undergo extrusion. Annealing copper tubing prior to forming a tee outlet is standard procedure in the field, but like any good practice and requirement of the manufacturer, it is not always followed. Annealing the area of the tubing increases its ductility and formability. The process of annealing allows the tube to undergo deformation without fracture. The result is a sound joint.

Bibliography: http://www.copper.org/applications/plumbing/cth/extruded-outlets/cth_14mech_install.html

http://www.copper.org/publications/pub_list/pdf/copper_tube_handbook.pdf
See page 61

Cost Impact: Will not increase the cost of construction
Since annealing is already a manufacturer's requirement, it will not impact cost. By adding the language to the code, it will, however, help to ensure that the joints are properly made. Short cuts will be avoided.

P 121-15 : 605.5.1-JONES3390

P 122-15

605.6, 605.9

Proponent: Ronald George, self, representing self (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Revise as follows:

605.6 Flexible water connectors. Flexible water connectors exposed to continuous pressure shall conform to ASME A112.18.6/CSA B125.6. *Access* shall be provided to all flexible water connectors. Compression couplings shall not be used for flexible water connector joints.

605.9 Prohibited joints and connections. The following types of joints and connections shall be prohibited:

1. Cement or concrete joints.
2. Joints made with fittings not *approved* for the specific installation.
3. Solvent-cement joints between different types of plastic pipe.
4. Saddle-type fittings.
5. Compression joints on plastic water distribution piping or flexible connectors.

Reason: Plastic piping with compression couplings have failed on many occasions when there is a seasonal change in the water temperature or domestic hot water application that allows the plastic pipe to soften. During water hammer events from booster pumps cycling on, valves closing or well pumps cycling, the plastic piping can work loose and cause a flood. Plastic pipe and compressin couplings do not make a safe pipe joint.

Cost Impact: Will not increase the cost of construction
This is not a cost issue it is a material issue. Flexible water connectors and plastic piping should not be joined with compression couplings. I have served as an expert witness recently for a significnt number of compression joint failures especially on hot water piping systems.

P 122-15 : 605.6-GEORGE5606

P 123-15

Table 605.7, Chapter 14

Proponent: Julius Ballanco, representing Self (JBENGINEER@aol.com)

2015 International Plumbing Code

Revise as follows:

TABLE 605.7
VALVES

MATERIAL	STANDARD
Chlorinated polyvinyl chloride (CPVC) plastic	ASME A112.4.14; ASME A112.18.1/CSA B125.1; ASTM F 1970; CSA B125.3, IAPMO Z1157
Copper or copper alloy	ASME A112.4.14; ASME A112.18.1/CSA B125.1; ASME B16.34; CSA B125.3; MSS SP-67; MSS SP-80; MSS SP-110, IAPMO Z1157
Cross-linked polyethylene (PEX) plastic	ASME A112.4.14; ASME A112.18.1/CSA B125.1; CSA B125.3; NSF 359, IAPMO Z1157
Gray iron and ductile iron	AWWA C500; AWWA C504; AWWA C507; MSS SP-67; MSS SP-70; MSS SP-71; MSS SP-72; MSS SP-78, IAPMO Z1157
Polypropylene (PP) plastic	ASME A112.4.14; ASTM F 2389, IAPMO Z1157
Polyvinyl chloride (PVC) plastic	ASME A112.4.14; ASTM F 1970, IAPMO Z1157

Add new standard(s) as follows:
IAPMO/ANSI Z1157-2014 Ball Valves

Reason: This change will add the new national concensus standard for ball valves. The standard covers ball valves 1/8 through 4 NPS in size. It regulates both full port and reduced port ball valves.
This Standard was developed by the IAPMO Z1157 Technical Subcommittee and approved by the IAPMO Plumbing Standards Committee in accordance with the *ANSI Essential Requirements: Due process requirements for American National Standards and the IAPMO Policies and Procedures for Consensus Development of American National Standards*. This Standard was approved as an American National Standard on November 24, 2014.

Cost Impact: Will not increase the cost of construction
There is no cost impact since the use of ball valves meeting this standard is optional.

Analysis: A review of the standard proposed for inclusion in the code, IAPMO/ANSI Z1157-2014, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 123-15 : T605.7-BALLANCO3656

P 124-15

Part I:
605.7, Chapter 14
Part II:
Table P2903.9.4, Chapter 44

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

Proponent: Jeremy Brown, NSF International, representing NSF International

Part I

2015 International Plumbing Code

Revise as follows:

TABLE 605.7
VALVES

MATERIAL	STANDARD
Chlorinated polyvinyl chloride (CPVC) plastic	ASME A112.4.14; ASME A112.18.1/CSA B125.1; ASTM F 1970; CSA B125.3; MSS SP-122
Copper or copper alloy	ASME A112.4.14; ASME A112.18.1/CSA B125.1; ASME B16.34; CSA B125.3; MSS SP-67; MSS SP-80; MSS SP-110; MSS SP-139
Cross-linked polyethylene (PEX) plastic	ASME A112.4.14; ASME A112.18.1/CSA B125.1; CSA B125.3; NSF 359
Gray iron and ductile iron	AWWA C500; AWWA C504; AWWA C507; MSS SP-67; MSS SP-70; MSS SP-71; MSS SP-72; MSS SP-78
Polypropylene (PP) plastic	ASME A112.4.14; ASTM F 2389
Polyvinyl chloride (PVC) plastic	ASME A112.4.14; ASTM F 1970; MSS SP-122

Add new standard(s) as follows:

MSS SP-122-2012 Plastic Industrial Ball Valves

MSS SP-139-2014 Copper Alloy Gate, Globe, Angle, and Check Valves for Low Pressure/Low Temperature Plumbing Applications

Part II

2015 International Residential Code

Revise as follows:

TABLE P2903.9.4
VALVES

MATERIAL	STANDARD
Chlorinated polyvinyl chloride (CPVC) plastic	ASME A112.4.14, ASME A112.18.1/CSA B125.1,ASTM F 1970, CSA B125.3; MSS SP-122
Copper or copper alloy	ASME A112.4.14, ASME A112.18.1/CSA B125.1,ASME B16.34, CSA B125.3, MSS SP-67, MSS SP-80, MSS SP-110; MSS SP-139
Gray and ductile iron	ASTM A126, AWWA C500, AWWA C504, AWWA C507, MSS SP-42, MSS SP-67, MSS SP-70, MSS SP-71, MSS SP-72, MSS SP-78
Cross-linked polyethylene (PEX) plastic	ASME A112.4.14, ASME A112.18.1/CSA B125.1, CSA B125.3,NSF 359
Polypropylene (PP) plastic	ASME A112.4.14, ASTM F 2389
Polyvinyl chloride (PVC) plastic	ASME A112.4.14, ASTM F 1970; MSS SP-122

Add new standard(s) as follows:

MSS SP-122 - 2012 Plastic Industrial Ball Valves

MSS SP-139 - 2014 Copper Alloy Gate, Globe, Angle, and Check Valves for Low Pressure/Low Temperature Plumbing Applications

Cost Impact:

Part I: Will not increase the cost of construction
Adding additional options will not increase the cost of construction

Part II: Will not increase the cost of construction
Adding additional options will not increase the cost of construction

Analysis:

Part I: A review of the standard proposed for inclusion in the code, MSS SP-122 & MSS SP-139, with regard to the ICC criteria for referencedstandards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

Part II: A review of the standard proposed for inclusion in the code, MSS SP-122 - 2012 and MSS SP-139 - 2014 , with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 124-15 : T605.7-BROWN5426

P 125-15

Table 605.7, Chapter 14

Proponent: Jeremy Brown, NSF International, representing NSF International

2015 International Plumbing Code

Revise as follows:

TABLE 605.7
VALVES

MATERIAL	STANDARD
Chlorinated polyvinyl chloride (CPVC) plastic	ASME A112.4.14; ASME A112.18.1/CSA B125.1; ASTM F 1970; CSA B125.3; MSS SP-122
Copper or copper alloy	ASME A112.4.14; ASME A112.18.1/CSA B125.1; ASME B16.34; CSA B125.3; MSS SP-67; MSS SP-80; MSS SP-110;MSS SP-139
Cross-linked polyethylene (PEX) plastic	ASME A112.4.14; ASME A112.18.1/CSA B125.1; CSA B125.3; NSF 359
Gray iron and ductile iron	AWWA C500; AWWA C504; AWWA C507; MSS SP-67; MSS SP-70; MSS SP-71; MSS SP-72; MSS SP-78
Polypropylene (PP) plastic	ASME A112.4.14; ASTM F 2389
Polyvinyl chloride (PVC) plastic	ASME A112.4.14; ASTM F 1970;MSS SP-122

Add new standard(s) as follows:

MSS SP-122-2012 Plastic Industrial Ball Valves

MSS SP-139-2014 Copper Alloy Gate, Globe, Angle, and Check Valves for Low Pressure/Low Temperature Plumbing Applications

Reason: These are additional standards for valves that should be considered in the valve table.

Cost Impact: Will not increase the cost of construction
Adding additional options will not increase the cost of construction

Analysis: A review of the standard proposed for inclusion in the code, MSS SP-122 & MSS SP-139 , with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 125-15 : T605.7-BROWN5547

P 126-15

Table 605.8

Proponent: Pennie L Feehan, Copper Development Association, representing Copper Development Association (penniefeehan@me.com)

2015 International Plumbing Code

Revise as follows:

TABLE 605.8
MANUFACTURED PIPE NIPPLES

MATERIAL	STANDARD
~~Brass ,~~ Copper or copper alloy, and chromium-plated	ASTM B 687
Steel	ASTM A 733

Reason: This standard establishes the requirements for copper and copper alloy pipe nipples within a specified size range. Chromium-plated pipe are copper and copper alloys nipples used in decorative applications.

Cost Impact: Will not increase the cost of construction
This proposal will not increast the cost of construction as this change is only to update the name of a material that is already in the code.

P 126-15 : T605.8-FEEHAN3793

P 127-15

Table 608.1

Proponent: Michael Moss, representing American Backflow Prevention Association (msmoss@utah.gov)

2015 International Plumbing Code

Revise as follows:

TABLE 608.1
APPLICATION OF BACKFLOW PREVENTERS

DEVICE	DEGREE OF HAZARD[a]	APPLICATION[b]	APPLICABLE STANDARDS
Backflow prevention assemblies:			
Spill-resistant vacuum breaker assembly	High or low hazard	Backsiphonage only Sizes $^{1}/_{4}$ ″–2″	ASSE 1056, CSA B64.1.3

(Portions of table not shown remain unchanged)
For SI: 1 inch = 25.4 mm
a. Low hazard—See Pollution (Section 202).
High hazard—See Contamination (Section 202).
b. See Backpressure, low head (Section 202).
See Backsiphonage (Section 202).

Reason: The table did not contain the CSA standard reference for Spill-resistant vacuum breaker. The standard reference is already in Section 608.13.8. It simply needs to be added to the table for clarity and consistency.

Cost Impact: Will not increase the cost of construction
There is no cost impact with the existing cross reference standard between the section and the table.

P 127-15 : T608.1-MOSS5773

P 128-15

Part I:

605.10.2, 605.10.3, 605.19.1, 605.22.4, 608.13.2, 608.13.3, 608.16.3, 608.16.4.1, 703.3, 705.2.2, 705.2.3, 705.4.1, 705.8.1, 705.11.2, 705.11.3, 907.3

Part II:

P3003.3.2, P3003.3.3, P3003.4.1, P3003.9.3

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

Revise as follows:

605.10.2 Solvent cementing. Joint surfaces to be solvent cemented shall be clean and free from moisture. Solvent cement that conforms to ASTM D 2235 shall be applied to all joint surfaces. The joint shall be made while the cement is wet. Joints shall be made in accordance with ASTM D 2235. ~~Solvent-cement~~Solvent-cemented joints shall not be ~~permitted~~limited to only above ~~or below ground.~~ground applications.

605.10.3 Threaded joints. ~~Threads~~Threaded connections shall ~~conform to ASME B1.20.1.~~be made using Schedule 80 or ~~heavier~~greater wall thickness pipe. Pipe threads shall be ~~permitted to be threaded~~cut with dies specifically designed for plastic pipe. ~~*Approved* thread lubricant or tape~~Threads shall confom to ASME B1.20.1. Threaded connections shall be ~~applied on the~~assembled by first applying to male threads only, a thread lubricant that is chemically compatible with the pipe and fitting, or thread sealing tape.

605.19.1 Flared joints. ~~Flared~~The use of flared joints connections and the type of flared joint fittings shall be ~~permitted where so indicated~~as specified by the pipe manufacturer. Flared joints shall be made by a tool designed for that operation.

605.22.4 Threaded joints. ~~Threads~~The usable perssure rating of threeaded pipe shall ~~conform to ASME B1.20.1.~~be 50 percent of the manufacturer's pressure rating for unthreaded pipe. Threaded connections shall be made using Schedule 80 or ~~heavier~~greater wall thickness pipe. Pipe threads shall be ~~permitted to be threaded~~cut with dies specifically designed for plastic pipe~~, but the pressure rating~~. The use of ~~the pipe shall be reduced by 50 percent. Thread by socket~~thread-by-socket molded fittings shall be ~~permitted~~prohibited. ~~*Approved*~~ A thread lubricant ~~or tape shall be applied on~~that is chemically compatible with the ~~male threads only.~~pipe and fitting, or thread sealing tape.

608.13.2 Reduced pressure principle backflow prevention assemblies. Reduced pressure principle backflow prevention assemblies shall conform to ASSE 1013, AWWA C511, CSA B64.4 or CSA B64.4.1. Reduced pressure detector assembly backflow preventers shall conform to ASSE 1047. These devices shall be ~~permitted~~considered to be ~~installed where subject to~~capable of functioning under any downstream pressure condition whether continuous ~~pressure conditions~~or intermittent. The relief opening shall discharge by *air gap* and shall be prevented from being submerged.

608.13.3 Backflow preventer with intermediate atmospheric vent. Backflow preventers with intermediate atmospheric vents shall conform to ASSE 1012 or CSA B64.3. These devices shall be ~~permitted~~considered to be ~~installed where subject to~~capable of functioning under any downstream pressure condition whether continuous ~~pressure conditions~~or intermittent. The relief opening shall discharge by *air gap* and shall be prevented from being submerged.

608.16.3 Heat exchangers. Heat exchangers utilizing an essentially toxic transfer fluid shall be separated from the potable water by double-wall construction. An *air gap* open to the atmosphere shall be provided between the two walls. Heat exchangers utilizing an essentially nontoxic transfer fluid shall be ~~permitted to be~~ of single-wall or double wall construction.

608.16.4.1 Additives or nonpotable source. Where systems under continuous pressure contain chemical additives or antifreeze, or where systems are connected to a nonpotable secondary water supply, the potable water supply shall be protected against backflow by a reduced pressure principle backflow prevention assembly or a reduced pressure principle fire protection backflow prevention assembly. Where ~~chemical additives or antifreeze are added to~~ only a portion of an automatic fire sprinkler system or standpipe system will contain chemical additives or antifreeze, only that portion of the system shall be required to be served through a reduced pressure principle backflow prevention assembly or ~~the~~a reduced pressure principle fire protection backflow prevention assembly ~~shall be permitted to be located so as to isolate that portion of the system~~. Where these systems are not under continuous pressure, the potable water supply shall be protected against backflow by an air gap or an atmospheric vacuum breaker conforming to ASSE 1001 or CSA B64.1.1.

703.3 Sanitary drain piping and storm ~~sewers~~drain piping in the same trench. ~~Where separate systems of sanitary drainage~~Sanitary drain piping and storm ~~drainage are installed in the same property, the sanitary and storm building sewers or drains~~drain piping shall ~~be permitted to~~not be ~~laid~~prohibited from being installed side by side, without earth separation, in ~~one~~the the same trench.

705.2.2 Solvent cementing. Joint surfaces shall be clean and free from moisture. Solvent cement that conforms to ASTM D 2235 or CSA B181.1 shall be applied to all joint surfaces. The joint shall be made while the cement is wet. Joints shall be made in accordance with ASTM D 2235, ASTM D 2661, ASTM F 628 or CSA B181.1. ~~Solventcement~~Solvent cemented joints shall not be ~~permitted~~limited to only above ~~or below ground.~~ground applications.

705.2.3 Threaded joints. ~~Threads~~Threaded connections shall ~~conform to ASME B1.20.1.~~be made using Schedule 80 or ~~heavier~~greater wall thickness pipe. Pipe thread shall be ~~permitted to be threaded~~cut with dies specifically designed for plastic pipe. ~~*Approved* thread lubricant or tape~~Threads shall conform to ASME B1.20.1. Threaded connections shall be ~~applied on the~~assembled by first applying to male threads only. A thread lubricant chemically compatible with the pipe and fitting, or thread sealing tape.

705.4.1 Caulked joints. Joints for hub and spigot pipe shall be firmly packed with oakum, hemp or ~~hemp~~acid-resistant rope. Molten lead shall be poured into the joint in one operation and to a depth of not less than 1 inch (25 mm). The lead shall not recede more than $^1/_8$ inch (3.2 mm) below the rim of the hub and shall be caulked tight. ~~Paint~~The application of paint, varnish or other coatings ~~shall not be permitted~~ on the jointing material shall be prohibited until after the joint has been tested and *approved*. ~~Lead~~

Exception: The use of lead shall ~~be run in one pouring and shall~~not be ~~caulked tight. Acid-resistant rope and acidproof~~required where the use of acid-proof cement ~~shall be permitted.~~is required by the piping manufacturer.

705.8.1 Caulked joints. ~~Lead-caulked joints~~Joints for hub and spigot soil pipe shall be firmly packed with oakum, hemp or ~~hemp~~acid-resistant rope. Molten lead shall be poued into the joint in one operation and ~~filled with molten lead~~to a depth of not less than 1 inch (25 mm)~~ in depth and~~. The lead shall not to recede more than $^1/_8$ inch (3.2 mm) below the rim of the hub and shall be caulked tight. ~~Paint~~The application of paint, varnish or other coatings ~~shall not be permitted~~ on the jointing material shall be prohibited until after the joint has been tested and *approved*. ~~Lead~~

Exception: The use of lead shall ~~be run in one pouring and shall~~not be ~~caulked tight. Acid-resistant rope and acidproof~~required where the use of acid-proof cement ~~shall be permitted.~~is required by the piping manufacturer.

705.11.2 Solvent cementing. Joint surfaces shall be clean and free from moisture. A purple primer that conforms to ASTM F 656 shall be applied. Solvent cement not purple in color and conforming to ASTM D 2564, CSA B137.3, CSA B181.2 or CSA B182.1 shall be applied to all joint surfaces. The joint shall be made while the cement is wet and shall be in accordance with ASTM D 2855. ~~Solventcement~~Solvent cemented joints shall not be ~~permitted~~limited to only above ~~or below ground.~~ground applications.

Exception: A primer ~~is~~shall not be required where both of the following conditions apply:

1. The solvent cement used is third-party certified as conforming to ASTM D 2564.
2. The solvent cement is used only for joining PVC drain, waste and vent pipe and fittings in nonpressure applications in sizes up to and including 4 inches (102 mm) in diameter.

705.11.3 Threaded joints. ~~Threads~~Threaded connections shall ~~conform to ASME B1.20.1~~be made using. Schedule 80 or ~~heavier~~greater wall thickness pipe. Pipe threads shall be ~~permitted to be threaded~~cut with dies specifically designed for plastic pipe. ~~*Approved* thread lubricant or tape~~Threads shall conform to ASME B1.20.1. Threaded connections shall be ~~applied on the~~assembled by first applying to male threads only, A thread lubricant chemically compatible with the pipe and fitting, or thread sealing tape.

907.3 Lower section. The lower section of the drainage *stack*shall be vented by a yoke vent~~ connecting~~. The yoke vent connection shall be between the offset and the next lower horizontal *branch*~~. The~~ or the yoke vent connection shall~~ be permitted to~~ be a vertical extension of the lower section of drainage *stack*. The size of the yoke vent and connection shall be ~~a minimum of~~not less than the size required for the vent *stack* of the drainage *stack.*

Part II

2015 International Residential Code

Revise as follows:

P3003.3.2 Solvent cementing. Joint surfaces to be solvent cemented shall be clean and free from moisture. Solvent cement that conforms to ASTM D 2235 or CSA B181.1 shall be applied to all joint surfaces. The joint shall be made while the cement is wet. Joints shall be made in accordance with ASTM D 2235, ASTM D 2661, ASTM F 628 or CSA B181.1. ~~Solvent-cement~~Solvent-cemented joints shall not be ~~permitted~~limited to only above ~~or below ground.~~ground applications.

P3003.3.3 Threaded joints. ~~Threads~~Threaded connections shall ~~conform to ASME B1.20.1~~be made using. Schedule 80 or ~~heavier~~greater wall thickness pipe. Pipe threads shall be ~~permitted to be threaded~~cut with dies specifically designed for plastic pipe. ~~*Approved* thread lubricant or tape~~Threads shall conform to ASME B1.20.1. Threaded connections shall be ~~applied on the~~assembled by first applying to male threads only, a thread lubricant that is chemically compatible with the pipe and fitting, or thread sealing tape.

P3003.4.1 Caulked joints. Joints for hub and spigot pipe shall be firmly packed with oakum or hemp. Molten lead shall be poured into the joint in one operation and to a depth of not less than 1 inch (25 mm). The lead shall not recede more than $^{1}/_{8}$ inch (~~3~~3.2 mm) below the rim of the hub and shall be caulked tight. ~~Paint~~The application of paint, varnish or other coatings ~~shall not be permitted~~ on the jointing material shall not be prohibited until after the joint has been tested and *approved*.~~ Lead shall be run in one pouring and shall be caulked tight.~~

P3003.9.3 Threaded joints. ~~Threads~~Threaded connections shall ~~conform to ASME B1.20.1~~be made using. Schedule 80 or ~~heavier~~greater wall thickness pipe. Pipe threads shall be ~~permitted to be threaded~~cut with dies specifically designed for plastic ~~pipe~~pipe.Threads shall conform to ASME B1.20.1. ~~*Approved* thread lubricant or tape~~Threaded connections shall be ~~applied on the~~assembled by first applying to male threads only, a thread lubricant that is chemically compatible with the pipe and fitting, or thread sealing tape.

Reason: The primary purpose of this proposal is to resolve a multitude of language issues that have gone unchecked over many code cycles. Although the ICC Secretariats and ICC Publication editors can solve minor editorial language issues prior to the publication of the codes, more extensive language rework needs to be placed in front of the ICC membership for their approval. The PMGCAC is pleased to take on this task as this is a simple thing to do to improve the codes for everyone's benefit. And that is part of the reason for the formation of the CAC's: to improve the codes.

Eliminating the phrase "shall be permitted" (and "is permitted") , wherever possible:

The phrase "shall be permitted" is often incorrectly applied in code language. The incorrect phrase application is believed to come from the belief that one always has to ask for permission to do anything. Certainly, where the code does regulate something by indicating, such as, what materials to use or what dimension to not exceed, permission does need to be granted to use a different material or to exceed the dimension. However, where the code does not speak of anything regarding the materials to be used or the dimensions not to be exceeded, then the code is silent. Permission does not have to be granted for something that the code does not regulate.

For example, consider an appliance such as an icemaker. The code does not regulate the location of icemakers. Therefore, to put a statement in the code that says, "Icemakers shall be permitted to be 18 inches away from any wall." is an assumption that permission had to be granted for the location of the icemaker. But the code does not regulate icemaker location nor does it specify a dimension in the first place in order for that permission to be granted. Essentially, the "shall be permitted" statement is nonsensical because by the code's silence, icemakers can be located anywhere.

What the proponent meant to say is "Icemakers shall be located not closer than 18 inches to a wall." Now the code is making a mandatory statement about what is required. Any dimension 18 inches and greater is acceptable. No permission is necessary for 18 inches or greater. "Permission" (in accordance with Section 105.2) would have to be requested for less than 18 inches.

The use of "shall be permitted" is an unfortunate habit that tends to spiral out of control in code language because somehow, proponents think that the use of "shall be permitted" is always mandatory language. Perhaps it is the "legalese sound" of such a phrase that makes people think that a requirement is being stated. However, the words do not state a requirement, but in the example given, only a permission for something that was not regulated at all.

There is a certain type of situation where the use of "shall be permitted" is not as problematic. For example, consider the code requirement for a water closet to be set not closer than 15 inches from its center to an obstruction at the side of the water closet. A proponent wants to allow that dimension to be 12 inches under certain conditions. Essentially, the proponent is wanting to write an exception to the code limitation of 15 inches. His exception states:

Exception: A water closet shall be permitted closer than 12 inches from its center to an obstruction at its side provided that the obstruction is a bathtub having an apron height of not greater than 15 inches above the finished floor and the bathtub is not equipped with a shower door system.

Now the use of "shall be permitted" is tolerable, although still unnecessary, because the code already stated a requirement in the main section and an exception (a grant of permission) is provided where certain conditions exist. "Where certain conditions exist" is a key element in the proper use of "shall be permitted". Typically, the conditions follow the phrase "provided that". Where the code had regulations about something, then permission needs to be granted to do something different than what the code required. And that permission needs to spell out the conditions for the code official (and the user) in order to be in compliance with the code. The following is better in that it avoids the use of "shall be permitted".

Exception: A water closet shall be not closer than 12 inches from its center to an obstruction at its side provided that the obstruction is a bathtub having an apron height of not greater than 15 inches above the finished floor and the bathtub is not equipped with a shower door system.

An obscure interpretation twist in the use of "shall be permitted" is where the code official believes that whatever follows the phrase is within his or her authority to grant or reject. Using the previous example: "Icemakers shall be permitted to be 18 inches away from any wall." Mr. Code Official says on one project, "No, I am not going to give you permission to do that." But on another project, he grants the permission. The conditions for granting permission are missing, well at least they are missing in the code language.

Some uses of "shall be permitted" might seem harmless. And some uses of "shall be permitted" are appropriate where conditions are provided for an exception to what the code already regulates. It is best to not use the phrase at all but sometimes it is very difficult where statements have been put in the code that essentially say "It's OK to do this or use that." Some of these "regulations" came to be because a contractor was not allowed to do something because of a judgment call a code official had to make because the code was not clear or the manufacturer's instructions deferred to the code official. A proposal was made to the code to add text to "allow something". This type of language is very difficult to accommodate within a code that is written in a format of "do this" and "don't do that". In reviewing the proposing changes, the reader will see how some of these more difficult situations are handled so that the code language maintains a mandatory format.

Most of the sections in this proposal involve the elimination of "shall be permitted" and "permitted". It should be readily obvious which ones those are.

These sections are not the only locations in the code where "shall be permitted" and "permitted" are used "inappropriately" in the code. These are only the easy ones to correct without involving potentially significant technical changes.

Eliminating the use of the word "approved", where appropriate:

Certainly there are situations where approval by the code official is needed. The I-codes are loaded with "and approved". However, some uses of "approved" were inadvertently placed in code language or place the code official in an unnecessary (and perhaps difficult) position for making approvals.

In the proposed revised code sections, a statement similar to "An approved thread lubricant shall be used." In this case, it could be that a pipe and fitting manufacturer unknowing used the term "approved" to mean "make sure you use something that the manufacturer approves". Or, it could really mean that the code official has to approve the thread lubricant. It is uncertain, but because the term "approved" is ubiquitous in the codes, the default interpretation is always approved by the code official. If the code official is supposed to approve the thread lubricant, then on what basis does he or she grant the approval? The code provides nothing to go on.

In the revised code sections, approved was removed for the thread lubricant and a requirement for "chemical compatibility" inserted. It is believed that the code official does not want to be involved with approval of thread lubricants. The installer is already required to comply with the (pipe and fitting) manufacturers' instructions (see Section 303.2). It doesn't hurt to put the requirement for chemical compatibility in this section to remind the installer to pay attention to this. And, if the code official spots an obvious mistake in thread lubricant use (typically, a petroleum-based metal piping thread lubricant being used on plastic piping is a common violation), he or she has code language to fall back to and doesn't have to dig deeper into the pipe and fitting manufacturer's instructions.

In the same light is a statement similar to "An approved…. tape shall be used." It is uncertain whether the modifier "approved" in the sections to be revised is actually meant to apply to the term "tape". What kind of tape? Most everybody in the plumbing trade knows that the intended tape is thread sealing tape. Is it necessary to be that explicit? Probably not but someone could apply electrical tape on the threads and be in compliance. Therefore, maybe "approved" was intended to modify "tape". Again, it is believed that the code official does not want to be involved with approval of thread sealing tape. This material has such widespread availability and use that it would be difficult to misunderstand what was intended which is the thin PTFE tape provided in rolls labeled "thread seal(ing) tape". The code has not seen a need to specify a minimum thickness, a reference standard or color types so why would a code official need to approve this material? It is not necessary.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 195.

Cost Impact:

Part I: Will increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

Part II: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 128-15 : 605.10.2-SNYDER3965

P 129-15

605.11, 605.11.1, 605.11.2, 605.11.3, 605.11.4

Proponent: Pennie L Feehan, Copper Development Association, representing Copper Development Association (penniefeehan@me.com)

2015 International Plumbing Code

Delete without substitution:

~~**605.11 Brass.** Joints between brass pipe and fittings shall comply with Sections 605.11.1 through 605.11.4.~~

~~**605.11.1 Brazed joints.** All joint surfaces shall be cleaned. An *approved* flux shall be applied where required. The joint shall be brazed with a filler metal conforming to AWS A5.8.~~

~~**605.11.2 Mechanical joints.** Mechanical joints shall be installed in accordance with the manufacturer's instructions.~~

~~**605.11.3 Threaded joints.** Threads shall conform to ASME B1.20.1. Pipe-joint compound or tape shall be applied on the male threads only.~~

~~**605.11.4 Welded joints.** All joint surfaces shall be cleaned. The joint shall be welded with an *approved* filler metal.~~

Reason: The proposal removes brass because brass is a copper alloy and is covered in Section 605.13.

Cost Impact: Will not increase the cost of construction
This proposal will not increast the cost of construction as this change is only to update the name of a material that is already in the code.

P 129-15 : 605.11-FEEHAN3794

P 130-15

605.14.3, 605.18.3, 605.22.2, 605.23.3

Proponent: John Stempo, Victaulic Company, representing Victaulic Company

2015 International Plumbing Code

Add new text as follows:

605.14.3 Grooved and shouldered mechanical joints. Grooved and shouldered mechanical joints shall comply with ASTM F 1476, shall be made with an *approved* elastomeric seal and other internal components, if applicable, and shall be installed in accordance with the manufacturer's instructions. Such joints shall be exposed or concealed.

605.18.3 Grooved and shouldered mechanical joints. Grooved and shouldered mechanical joints shall comply with ASTM F 1476, shall be made with an *approved* elastomeric seal and other internal components, if applicable, and shall be installed in accordance with the manufacturer's instructions. Such joints shall be exposed or concealed.

605.22.2 Grooved and shouldered mechanical joints. Grooved and shouldered mechanical joints shall comply with ASTM F 1476, shall be made with an *approved* elastomeric seal and other internal components, if applicable, and shall be installed in accordance with the manufacturer's instructions. Such joints shall be exposed or concealed.

605.23.3 Grooved and shouldered mechanical joints. Grooved and shouldered mechanical joints shall comply with ASTM F 1476, shall be made with an *approved* elastomeric seal and other internal components, if applicable, and shall be installed in accordance with the manufacturer's instructions. Such joints shall be exposed or concealed.

Reason: There are some types of grooved mechanical joints that utilize internal components other than elastomeric seals. These proposed changes are intended to clarify language in the code to specifically address the use and acceptance of these additional components within a grooved mechanical joint design, if they are *approved*.

Cost Impact: Will not increase the cost of construction
A clarification of what components could be used for sealing in this type of joint will not increase the cost of construction.

P 130-15 : 605.14.3-STEMPO3966

P 131-15

Part I:
605.14.6
Part II:
P2906.14

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

Proponent: Tim Earl, GBH International, representing The Oatey Company (tearl@gbhinternational.com)

Part I

2015 International Plumbing Code

Revise as follows:

605.14.6 Solder joints. Solder joints shall be made in accordance with the methods of ASTM B 828. All cut tube ends shall be reamed to the full inside diameter of the tube end. All joint surfaces shall be cleaned. A flux conforming to ASTM B 813 shall be applied. The base material for tinning fluxes, excluding the tinning powder, shall meet the criteria of ASTM B813. The joint shall be soldered with a solder conforming to ASTM B 32. The joining of water supply piping shall be made with *lead-free solders and fluxes*. "Lead free" shall mean a chemical composition equal to or less than 0.2-percent lead.

Part II

2015 International Residential Code

Revise as follows:

P2906.14 Soldered and brazed joints. Soldered joints in copper and copper alloy tubing shall be made with fittings approved for water piping and shall conform to ASTM B 828. Surfaces to be soldered shall be cleaned bright. Fluxes for soldering shall be in accordance with ASTM B813. The base material for tinning fluxes, excluding the tinning powder, shall meet the criteria of ASTM B813. Brazing fluxes shall be in accordance with AWS A5.31M/A5.31. Solders and fluxes used in potable water-supply systems shall have a lead content of not greater than 0.2 percent.

Reason: Tinning fluxes have been shown in several studies to create a stronger and more consistently water-tight connection when using low-lead fittings. This means less rework on the job site and less likelihood of joint failure. With the federal mandate of low-lead in 2014, this has become a significant issue and the codes need to reflect this need. We are pursuing changes to the referenced ASTM standard as well, however these will not be completed in time for this code cycle and we feel that it is important to make this change as it has the potential to save money related to rework and repair. Once the standard is altered, we would support removing the language being proposed.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal will not affect cost as it simply adds another solder flux option.

Part II: Will not increase the cost of construction
This proposal will not affect cost as it simply adds another solder flux option.

P 131-15 : 605.14.6-EARL4594

P 132-15

Part I:

605.14.7 (New), 605.15.4 (New), 605.17.3 (New)

Part II:

P2906.20 (New)

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

Add new text as follows:

605.14.7 Push-fit joints Push-fit joints shall conform to ASSE 1061 and shall be installed in accordance with the manufacturer's instructions.

605.15.4 Push-fit joints. Push-fit joints shall conform to ASSE 1061 and shall be installed in accordance with the manufacturer's instructions.

605.17.3 Push-fit joints. Push-fit joints shall conform to ASSE 1061 and shall be installed in accordance with the manufacturer's instructions.

Part II

2015 International Residential Code

Add new text as follows:

P2906.20 Push-fit joints. Push-fit joints shall be used only on copper-tube-size outside diameter dimensioned CPVC, PEX and copper tubing. Push-fit joints shall conform to ASSE 1061 and shall be installed in accordance with the manufacturer's instructions.

Reason: Push-fit fittings utilize a *type* of joining method (a connection) that is different than solvent cemented, soldered, brazed connections. And technically, this type of fitting doesn't strictly fit the Chapter 2 definition of a MECHANICAL JOINT. The use of these fittings has become very popular in recent years. These fittings are marketed with names that include such terms as "bite" or "grip" or "speed".
The standard for push-fit fittings is ASSE 1061. This standard was approved for the IPC several cycles ago for inclusion into the water pipe fitting table of the code. However, most readers of the code do not realize what this standard covers and where it is referenced in the code. Because these joints are a different connection method, they need to be indicated in the appropriate sections of the MATERIALS JOINTS AND CONNECTIONS section of the code.

This proposal is not adding this standard to the code but is only adding sections that should have been added several cycles ago when ASSE 1061 was added.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 32.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

Part II: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 132-15 : 605.14.7 (New)-SNYDER3961

P 133-15

Part I:
605.16.2
Part II:
P2906.9.1.3

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

Proponent: Tim Earl, GBH International, representing The Oatey Company (tearl@gbhinternational.com)

Part I

2015 International Plumbing Code

Revise as follows:

605.16.2 Solvent cementing. Joint surfaces shall be clean and free from moisture, and an approved primer shall be applied. Solvent cement, orange in color and conforming to ASTM F 493, shall be applied to joint surfaces. The joint shall be made while the cement is wet, and in accordance with ASTM D 2846 or ASTM F 493. Solvent cement joints shall be permitted above or below ground.

~~**Exception**~~**Exceptions:**

1. A primer is not required where all of the following conditions apply:
   - 1.1 The solvent cement used is third-party certified as conforming to ASTM F 493.
   - 1.2 The solvent cement used is yellow in color.
   - 1.3 The solvent cement is used only for joining $^1/_2$ inch (12.7 mm) through 2-inch-diameter (51 mm) CPVC/AL/CPVC pipe and CPVC fittings.
   - 1.4 The CPVC fittings are manufactured in accordance with ASTM D 2846.
2. A primer is not required where the manufacturer's instructions for the solvent cement do not require the application of a primer.

Part II

2015 International Residential Code

Revise as follows:

P2906.9.1.3 CPVC/AL/CPVC pipe. Joint surfaces shall be clean and free from moisture, and an approved primer shall be applied. Solvent cement, orange in color and conforming to ASTM F493, shall be applied to all joint surfaces. The joint shall be made while the cement is wet, and in accordance with ASTM D2846 or ASTM F493. Solvent-cement joints shall be installed above or below ground.

~~**Exception**~~**Exceptions:**

1. A primer is not required where all of the following conditions apply:
   - 1.1 The solvent cement used is third-party certified as conforming to ASTM F 493.
   - 1.2 The solvent cement used is yellow in color.
   - 1.3 The solvent cement is used only for joining $^1/_2$ inch (12.7 mm) through 2-inch-diameter (51 mm) CPVC/AL/CPVC pipe and CPVC fittings.
   - 1.4 The CPVC fittings are manufactured in accordance with ASTM D 2846.
2. A primer is not required where the manufacturer's instructions for the solvent cement do not require the application of a primer.

Reason: The market place has already begun using these fast setting orange CPVC cements as a one-step application where local inspectors allow. This simply meets a market condition and gives broader authority for these applications to occur. A work item is being created in ASTM to create a standard practice for this, but is at least this code cycle away from being completed. Once that is complete we would support removing this from the code should it be allowed. However, in the interim we again ask that the practice be allowed to help meet market demand. This would also be consistent with language in the IRC (P2906.9.1.2) and a similar proposal as this in the IMC.

Cost Impact:

Part I: Will not increase the cost of construction
Cost will not increase as this proposal would simply allow for another option for CPVC cement.

Part II: Will not increase the cost of construction
Cost will not increase as this proposal would simply allow for another option for CPVC cement.

P 133-15 : 605.16.2-EARL4555

P 134-15

605.24.1

Proponent: Pennie L Feehan, Copper Development Association, representing Copper Development Association (penniefeehan@me.com)

2015 International Plumbing Code

Revise as follows:

605.24.1 Copper pipe or ~~copper-alloy~~ tubing to galvanized steel pipe. Joints between copper pipe or ~~copper-alloy~~ tubing and galvanized steel pipe shall be made with a ~~brass fitting~~copper-alloy or dielectric fitting or a dielectric union conforming to ASSE 1079. The copper tubing shall be soldered to the fitting in an *approved* manner, and the fitting shall be screwed to the threaded pipe.

Reason: Because brass is a copper-alloy the sentence does not make sense. It's telling you to use a brass nipple when you are already using a brass nipple.

Cost Impact: Will not increase the cost of construction
This proposal will not increast the cost of construction as this change is only to update the name of a material that is already in the code.

P 134-15 : 605.24.1-FEEHAN3795

P 135-15

Part I:

605.24.3 (New), 605.9

Part II:

P2906.17.2 (New)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC PLUMBING COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Mike Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservnet.com)

Part I

2015 International Plumbing Code

Add new text as follows:

605.24.3 Joint between PVC water service and CPVC water distribution. Where a PVC water service pipe connects to a CPVC pipe at the beginning of a water distribution system, the transition shall be by a mechanical fitting, an approved adapter fitting, a transition fitting or by a single solvent-cemented transition joint. A single, solvent cement transition joint shall be in compliance with ASTM F493 and the pipe, fitting, and solvent cement manufacturers' instructions. Solvent cement joint surfaces shall be clean, free from moisture and prepared with an approved primer. Solvent cement conforming to ASTM F493 shall be applied to the joint surfaces and the joint assembled while the cement is wet.

Revise as follows:

605.9 Prohibited joints and connections. The following types of joints and connections shall be prohibited:

1. Cement or concrete joints.
2. Joints made with fittings not *approved* for the specific installation.
3. Solvent-cement joints between different types of plastic pipe except as provided for in Section 605.24.3.
4. Saddle-type fittings.

Part II

2015 International Residential Code

Add new text as follows:

P2906.17.2 Joint between PVC water service and CPVC water distribution Where a PVC water service pipe connects to a CPVC pipe at the beginning of a water distribution system, the transition shall be by a mechanical fitting, an *approved* adapter fitting, a transition fitting or by a single solvent-cemented transition joint. A single, solvent cement transition joint shall be in compliance with ASTM F493 and the pipe, fitting, and solvent cement manufacturers' instructions. Solvent cement joint surfaces shall be clean, free from moisture and prepared with an approved primer. Solvent cement conforming to ASTM F493 shall be applied to the joint surfaces and the joint assembled while the cement is wet.

Reason: Transitions being made from PVC service to CPVC water distribution systems is common, and solvent cementing for this single transition application should be an option.

Cost Impact:

Part I: Will not increase the cost of construction
None.

Part II: Will not increase the cost of construction
This proposal allows for an optional method of joining not in this code. The option is not requiring that this method be chosen. Thus the code with this proposal added will not cause the cost of construction to increase.

P 135-15 : 605.24.3 (New)-CUDAHY4669

P 136-15

604.1, Chapter 14

Proponent: Ronald George, Self; Plumb-Tech Design & Consulting Service LLC; www.Plumb-TechLLC.com; www.LegionellaPrevention.org, representing Self; Plumb-Tech Design & consulting Services LLC (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Revise as follows:

604.1 General. The design of the water distribution system shall be in accordance with ASHRAE 188 and shall conform to *accepted engineering practice*. Methods utilized to determine pipe sizes shall be *approved*.

Add new standard(s) as follows:
ASHRAE 188 - DRAFT_4th Public Review_09262014 Legionellosis: Risk Management for Building Water Systems

Reason: There are many design considerations in the ASHRAE standard that will help minimize Legionella bacteria growth in building water systems which can lead to Legionnaires Disease when water droplets are aerosolized from shower heads, and other building water systems and fixtures that aerosolize water droplets. Following the ASHRAE Standard will minimize the risk og a Person contracting Legionnaires' disease.

Bibliography: www.LegionellaPrevention.org
www.Plumb-TechLLC.com

Cost Impact: Will increase the cost of construction
The cost of construction of the plumbing system to eliminate dead legs and provide other design concepts to address temperature and stagnation is estimated to be about 10 - 15 percent more to comply with this standard, however it will provide for hygienic system designs that will minimize legionella bacteria growth and help prevent Leginnaires Disease. See www.LegionellaPrevention.org.

Analysis: A review of the standard proposed for inclusion in the code, ASHRAE 188, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 136-15 : 606.8 (New)-GEORGE5211

P 137-15

607.6 (New)

Proponent: Ronald George, Plumb-Tech Design & Consulting Services LLC, representing Self (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Add new text as follows:

607.6 Separation of underground hot and cold piping. Underground hot water distribution piping required to be insulated in accordance with Section 607.5 shall be separated from underground cold water distribution piping by not less than 12 inches (304 mm).

Reason: I have investigated underground piping installations where the hot and cold water pipes were bundled together. The heat will transfer from one system to the other and cause operational problems and make it difficult to get hot or cold water. This code change is intended to address this issue.

Cost Impact: Will not increase the cost of construction
Currently, the piping must be installed this way in order to work properly. This language just codifies it so the inspector can assure this is done before the concrete is poured.

P 137-15 : 606.8 (New)-GEORGE5842

P 138-15

607.2.1.1

Proponent: Ronald George, Self, representing Self (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Delete without substitution:

~~**607.2.1.1 Pump controls for hot water storage systems.** The controls on pumps that circulate water between a water heater and a storage tank for heated water shall limit operation of the pump from heating cycle startup to not greater than 5 minutes after the end of the cycle.~~

Reason: The piping between the tank and the heater is part of the storage tank. allowing it to cycle on and offf would allow the temperature to drop to a temperature that is ideal for Legionella Bacteria growth. The pipes should be heaavily insulated, the energy savings is negligible, the wear and tear on starting and stopping a circulating pump would be signifcant. This code language is not needed.

Cost Impact: Will not increase the cost of construction
This will reduce the controls required to cycle the pump on and off.

P 138-15 : 607.2.1.1-GEORGE5571

P 139-15

607.2.1.2

Proponent: Ronald George, Self; Plumb-Tech Design & Consulting Services LLC, representing Self; Plumb-Tech Design & Consulting Services LLC. (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Delete without substitution:

~~**607.2.1.2 Demand recirculation controls for distribution systems.** A water distribution system having one or more recirculation pumps that pump water from a heated water supply pipe back to the heated water source through a cold water supply pipe shall be a demand recirculation water system. Pumps shall have controls that comply with both of the following:~~

1. ~~The control shall start the pump upon receiving a signal from the action of a user of a fixture or appliance, sensing the presence of a user of a fixture, or sensing the flow of hot or tempered water to a fixture fitting or appliance.~~
2. ~~The control shall limit the temperature of the water entering the cold water piping to 104°F (40°C).~~

Reason: Demand recirculation systems create a cross nonnection between hot water and cold water systems.

Cost Impact: Will not increase the cost of construction
This code change will not add cost to construction.

P 139-15 : 607.2.1.2-GEORGE5210

P 140-15

607.2.1.2

Proponent: Ronald George, representing Self (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Delete without substitution:

~~**607.2.1.2 Demand recirculation controls for distribution systems.** A water distribution system having one or more recirculation pumps that pump water from a heated water supply pipe back to the heated water source through a cold water supply pipe shall be a demand recirculation water system. Pumps shall have controls that comply with both of the following:~~

1. ~~The control shall start the pump upon receiving a signal from the action of a user of a fixture or appliance, sensing the presence of a user of a fixture, or sensing the flow of hot or tempered water to a fixture fitting or appliance.~~
2. ~~The control shall limit the temperature of the water entering the cold water piping to 104°F (40°C).~~

Reason: Demand Recirculation Systems work based on piping hot water thrrouggh the cold water piping. This is creating a cross connection. Other fixtures on the cold water branch and main piping will be fed tempered or hot water as a result of this code language. This is an intentional code violation for a lazy mans hot water recirculation system. The proper way to design and instal a hot water system is with a dedicated hot water return piping system with balancing valves and chack valves where needed. The plumbing code should not endorse a cross connection.
this sytem is available for homeowner to use in after market applications. It should not be part of an original design. A dedicated hot water return line should be used in new construction.

Cost Impact: Will not increase the cost of construction
This is not a cost issue, it is a health and safety issue. There is no cost associated with this system change. Hot or tempered water should not be intentionally piped through the cold water pipes.

P 140-15 : 607.2.1.2-GEORGE5574

P 141-15

607.3

Proponent: Gary Kozan, CPD, Ridgeway Plumbing, representing Florida Association of Plumbing Heating Cooling Contractors (garyk@ridgewayplumbing.com)

2015 International Plumbing Code

Revise as follows:

607.3 Thermal expansion control. Where a storage water heater is supplied with cold water that passes through a check valve, pressure reducing valve or backflow preventer, a thermal expansion ~~tank~~control device shall be connected to the water heater cold water supply pipe at a point that is downstream of all check valves, pressure reducing valves and backflow preventers. Thermal expansion ~~tanks~~control devices shall be sized in accordance with the~~ tank~~ manufacturer's instructions and shall be sized such that the pressure in the water distribution system shall not exceed that required by Section 604.8.

Reason: There are many different products on the market today that provide effective solutions to thermal expansion control, including pressure relief valves and special-purpose ballcocks. The IPC should recognize all proven technologies and should not limit designers and contractors solely to thermal expansion tanks. This change is consistent with the IRC, and with all prior editions of the IPC.

Bibliography:

2015 International Residential Code:

P2903.4 Thermal expansion control. A means for controlling increased pressure (emphasis added) caused by thermal expansion shall be installed where required in accordance with Sections P2903.4.1 and P2903.4.2.

P2903.4.1 Pressure-reducing valve. For water services up to and including 2 inches (51 MM), **a device for controlling thermal expansion** (emphasis added) shall be installed where, because of thermal expansion, the pressure on the downstreram side of a pressure-reducing valve exceeds the pressure-reducting valve setting.

P2903.4.2 Backflow prevention device or check valve. Where a backflow prevention device, check valve or other device is installed on a water supply system using storage water heating equipment such that thermal expansion causes an increase in pressure, **a device for controlling pressure** (emphasis added) shall be installed.

Cost Impact: Will not increase the cost of construction
By providing additional choices, the designer can select the most appropriate, cost effective solution depending on the situation.

P 141-15 : 607.3-KOZAN3470

P 142-15

607.3.1 (New)

Proponent: Robert Phillippi, Jr, City of Altamonte Springs, representing City of Altamonte Springs (rgphillippi@altamonte.org)

2015 International Plumbing Code

Add new text as follows:

607.3.1 **Thermal expansion device location.** Where a thermal expansion device is installed as an *approved* alternative method for a thermal expansion tank, the thermal expansion device shall be installed on the cold water inlet piping between the water heater and shut off valve for the water heater.

Reason: This additional code section provided here within is intended to clarify where the thermal expansion device shall be installed. The code currently does not specify where thermal expansion devices shall be installed within the system. This leaves room for error and cause for a possible hazardous situation.
Many municipalities require check valves at the water supply source before it enters the structure creating a closed system. With a closed system, expanded water from the water heater has nowhere to go & will strain the system, thus is why we install expansion devises. Furthermore, if the shut off valve at the water heater was left in the closed position, the increased water pressure could reach dangerous levels. The expansion devise will not be as effective if it has been installed anywhere besides at the water heater, specifically on the cold water supply side between the water heater and the shut off valve.

Bibliography: [Internet] [Watts Installation Instructions] [Watts] [2013] [Page 1]
[media.wattswater.com/1910868.pdf]

Cost Impact: Will not increase the cost of construction
Thermal expansion tanks or devices are required to be installed on plumbing systems which have a water heater. The purposed code addition will not create any additional cost, but will just simply address the location of such devices.

P 142-15 : 607.3.1 (New)-PHILLIPPI3864

P 143-15

607.6 (New)

Proponent: Ronald George, Self; Plumb-Tech Design & Consulting Services LLC; www.Plumb-TechLLC.com; www.LegionellaPrevention.org, representing Self; Plumb-Tech Design & Consulting Services LLC (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Add new text as follows:

607.6 Minimum hot water temperature to control Legionnella bacteria growth. The water temperature throughout the hot water distribution system including hot water circulation system returns to the water heater shall be not less than 124°F (51.1 °C). The temperature shall be measured in the hot water return piping within 6 feet (1829 mm) of the connection of the hot water return piping to the water heater. To facilitate the measurement of water temperature at that location, a temperature gauge, thermometer or thermowell shall be installed in the hot water return piping.

Reason: Legionella Bacteria has a growth range between 68 degrees F and 122 Degrees F. Industry standards and guidelines have reccomended storing and distributing hot water at temperatures that are outside of the LEgionella growth temperature range. By storing at 124 F any Legionella bacteria that makes its way into the water distribution piping system will be kept in check and will not grow to large numbers in a stagnant water heater or low temperature hot water return piping. Scalding can be prevented by adjusting the limit stops on all code compliant shower and bathtub controls by supplying a temperature of hot water that will not promote bacteri growth and adjusting the limit-stop at each fixture to supply a safe temperature free of scalding hazards.

Legionella pneumophila bacteria are widely distributed in water systems. They tend to grow in biofilms or slime on the surfaces of lakes, rivers and streams, and they are not completely eradicated by the chlorination levels commonly used to disinfect domestic water systems especially in systems that are stagnant where Chlorine is allowed to dissipate. Low and even nondetectable levels of the organism can colonize a water source and grow to high concentrations under the right conditions.

Conditions that promote growth of the organism include heat, sediment, scale, and supporting (commensal) microflora in water. Common water organisms including algae, amoebae, and other bacteria appear to amplify Legionella growth by providing nutrients or harboring the organism. Because of its ability to remain viable in domestic water systems, it is capable of rapid multiplication under the proper conditions.

According to OSHA Water conditions that tend to promote the growth of Legionella include:

1. stagnation;
2. temperatures between 20° and 50°C (68° - 122°F) (The optimal growth range is 35° - 46°C [95° - 115°F]);
3. pH between 5.0 and 8.5;
4. sediment that tends to promote growth of commensal microflora; and
5. micro-organisms including algae, flavobacteria, and Pseudomonas, which supply essential nutrients for growth of Legionella or harbor the organism (amoebae, protozoa).

Common Sources of Contaminated Water

Water sources that frequently provide optimal conditions for growth of the organisms include:

1. cooling towers, evaporative condensers, and fluid coolers that use evaporation to reject heat. These include many industrial processes that use water to remove excess heat;
2. domestic hot-water systems with water heaters that operate below 60°C (140°F) and deliver water to taps below 50°C (122°F);
3. humidifiers and decorative fountains that create a water spray and use water at temperatures favorable to growth;
4. spas and whirlpools;
5. dental water lines, which are frequently maintained at temperature above 20°C (68°F) and sometimes as warm as 37°C (98.6°F) for patient comfort; and
6. other sources including stagnant water in fire sprinkler systems and warm water for eye washes and safety showers.
7. Water stored below 20°C (68°F) is generally not a source for amplified L. pneumophila levels. However, high levels of bacteria have been measured in the water supplying ice machines. The source of amplification in this case was thought to be heat from the condenser coil of the ice maker transferring heat to the cold water supply pipes behind the ice machines in poorly ventillated spaces.

Bibliography: www.LegionellaPrevention.org
ASHRAE 188 - Legionellosis: Risk Management for Building Water Systems

ASHRAE Guideline 12 - Minimizing the Risk of. Legionellosis Associated with Building Water. Systems

Cost Impact: Will increase the cost of construction
The additional cost will be minimal. This code change only requires one temperature gauge or thermometer for an entire building located at the coolest spot in the domestic how water system.

P 143-15 : 607.6 (New)-GEORGE5324

P 144-15

607.6 (New)

Proponent: Ronald George, Self; www.ScaldPrevention.org; www.LegionellaPrevention.org, representing Self (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Add new text as follows:

607.6 Master Temperature Actuated Mixing Valve. All commercial water heaters shall have the ability to heat water to a temperature of not less than 180°F (82.2°C). The water heaters shall be designed to be operated to provide for a stored water temperature of not less than 140°F (60°C) to minimize Legionella bacteria growth. A master temperature actuated mixing valve conforming to ASSE 1017 shall be installed on the hot water discharge pipe of a water heater to stabilize the hot water distribution system delivery temperature at the temperature required for hot water return temperature of not less than 124°F (51.1°C) to minimize Legionella bacteria growth.

Reason: This code change is to provide hot water system controls to minimize scalding and control Legionella bacteria growth.

A Hot Water System Balancing Act – Scald Prevention vs Legionella Prevention
By: Ron George, CPD, President, Plumb-Tech Design & Cons. Services LLC.
Web site: www.Plumb-TechLLC.com
Plumbing Engineer Magazine, Mar. 2013

Plumbing design professionals and contractors are faced with many challenges when designing, installing or maintaining domestic hot water systems. Two of the more important challenges of a domestic hot water system are providing hot water for bathing and washing that will not cause scald injuries and hot water that is at a temperature high enough to prevent Legionella bacteria growth. I call it the *hot water system balancing act*. Scalding and Legionella account for a significant percentage of the litigation cases associated with plumbing systems.

Many plumbing industry groups have addressed the scalding issue and it is documented in the plumbing codes that the maximum hot water temperature to prevent scalding is 120 degrees Fahrenheit (F). The minimum temperature to prevent Legionella bacteria growth at any point in the domestic hot water supply or return piping system should be 124 degrees F according to ASHRAE. The 124 degree temperature comes from the new ASHRAE Guideline 12 which is nearing completion for publication. (See Figure 2) These two temperatures seem conflict with each other, but they can actually work together. The plumbing system can be designed to store and distribute hot water at higher temperatures and deliver the hot water from the showers and bathtub/shower fixtures at safe temperatures of 120 F or less by simply adjusting the limit stops on the tub/shower valves to limit the hot water to 120 F or less. Many design professionals, contractors, maintenance personnel, tenants and building owners may not be aware of the temperature limit stop feature on all code compliant shower valves. The manufacturers publish information on how to set the limit stop for shower valves. If the shower valve is an older shower valve without limit stops, it should be replaced or a thermostatic mixing valve conforming to ASSE 1070 should be installed on the hot water supply branch to temper the water to a maximum of 120 F or an ASSE 1062 device could be used to prevent scalding. Code compliant shower valves conform to ASSE 1016 or CSA B125.1 which were recently harmonized with ASME in the standard titled: *ASSE 1016/ASME A112.1016/CSA B125.16, Performance requirements for automatic compensating valves for individual showers and tub/shower combinations*. The temperature flowing to the shower valves can be as high as 140 degrees F and the shower valves should have the maximum temperature limit stops adjusted to limit the temperature leaving the shower valve to a maximum of 120 F. In addition the valves must be seasonally adjusted to account for the changes in the incoming cold water temperature which can affect the mixed water temperature.

Maximum Hot Water Temperature to Prevent Scalding
I have served on many industry committees dealing with hot water system code requirements, hot water system design standards and product standards related to domestic hot water systems devices for temperature control and scald prevention. There has been consensus in all of these committees that the maximum safe hot water delivery temperature for a shower or bathtub is 120 degrees Fahrenheit to prevent scalding with a few exceptions for lower temperatures for bidets and emergency eye wash fixtures. (See Figure 1 - Hot Water Scald Burns – Time vs Temperature Relationship for Second and Third Degree Burns for Adults and Children)
There were discussions in a plumbing code ad-hoc committee on temperature limits for the hot water system where everyone agreed the maximum safe temperature was 120 F. The ASPE Hot water committee dealing with a proposed standard for temperature limits in hot water systems also agreed the maximum safe hot water temperature to prevent scalding is

120 Fahrenheit. Several ASSE working groups that I have served on dealing with hot water temperature controls have all have discussed the reaction time of bathers and they have taken into consideration that children, the elderly and people with disabilities usually take longer to get out of harm's way if the water suddenly gets hot and they agreed 120 Fahrenheit is the maximum safe hot water temperature that a valve should deliver. At 120 F it takes about 80 seconds to develop a second degree burn in a child and it takes about 8 minutes to develop a second degree burn in an adult. (See Figure 1) The 120 Degree F temperature limit gives bathers or users an adequate amount of time to get out of harm's way before an irreversible scald burn injury can occur. Each of these committees looked back to the data that was the result of burn studies done by Dr. Moritz and Dr. Henrique's at Harvard Medical College in the 1940s. The burn studies were done using baby pigs that had skin thicknesses similar to that of adult males. The studies exposed the pig's skin to various temperatures of hot water for various periods of time and the severity of the burns were studied and recorded. These were the studies used to develop the time and temperature exposure charts. There have been numerous white papers, seminars, and reports since then discussing the fact that burns can occur quicker than those recorded in the Moritz & Henrique's studies for adult males. The skin is thinner for children and the elderly and the amount of time to receive an irreversible 2nd degree burn injury is less because their skin is thinner. Many of the white papers use the Moritz and Dr. Henrique's original burn studies and they use a ratio of the skin thickness to come up with burn times for thinner skin of children and the elderly. Children, the elderly and handicapped are also slower to react because it takes them more time to realize what is happening and try to react to get out of harm's way. Someone once told me an apartment complex was not intended for children or the elderly. I said everyone grows old and children often come visit so we need to consider prevention of scalds to children, the elderly and people with disabilities more so than burns to adults because burns can occur quicker for those groups.

The PIEV Theory for Reaction Time
There is a PIEV theory relates to reaction time. The PIEV theory is most commonly used to address braking distance in automobile accidents. It addresses the amount of time it takes a driver to sense a problem and decide to react, then the reaction time is added to the braking time for the total distance that a car travels before stopping. The PIEV theory can also apply to reaction times for a bather with respect to hot water scalds.
PIEV relates to the amount of time it takes a person to react to a hazard. **PIEV** means - ***Perception***, ***Intellection***, ***Emotion*** and ***Volition***. It is usually referred to as the PIEV theory. Before we recognize and react to a hazard, four specific areas of activity need to be processed by the brain for the muscles to react. Those processes are:

1. **Perception** - We need to perceive or gain a *Perception* of a hazard. There can be delays in the perception with limitation in sight, sound, feeling, or any other of our senses.

2. **Intellection** - We go through a period called, *Intellection* or the act or process of using the intellect by thinking or reasoning. The bather must determine if the hazard is legitimate and deciding either move out of the way of the hazard or eliminate the hazard by adjusting the controls or in some cases where the bather may be sitting out of the reach of the controls the bather may choose to pull the shower curtain in front of them. If the adjustment of the controls is the choice one must decide which control to turn and try to remember which way to turn each control to adjust the temperature or turn the water off in order to eliminate the hazard. If a wrong choice is made during this process it could compound the situation by making the water even hotter. I travel a lot and I often find that shower controls can be very confusing with respect to how to adjust the controls. I still find two handle shower controls that do not meet code requirements. This is critically important when there is no temperature

limit on the shower controls. For example if the shower has a two-handle shower valve and 160 degree hot water is supplied to the system, then turning of the cold water first could lead to instant scalding injuries. Turning down the hot water to 120 F or below creates a system where it could incubate Legionella Bacteria to very high levels.

3. ***Emotion*** - There is an *Emotion* or evaluation factor which is defined as a conscious mental reaction (as anger or fear) subjectively experienced as strong feeling usually directed toward a specific object and typically accompanied by physiological and behavioral changes in the body with respect to deciding or assessing how we want to react. A person with reduced mental capacity or someone that is just very old will take longer to process this information and ultimately decide to react.

4. **Volition** - There is the physical *Volition* or deciding/choosing to act and acting. In the case of braking distance it is when the choice is made to move the foot from the gas pedal to the brake pedal and pressing on the brake pedal. This can be related to the time the bather chooses to adjust the control, and they move their hand to the shower control valve, plus the time to rotate or re-adjust the shower valve plus the time from the adjustment until the water temperature changes coming out of the shower head. Often it can take as much as 3-5 seconds to re-adjust the shower head and another few seconds until the water temperature changes coming out of the shower head. For ultra-low-flow (ULF) showers the delay from the time of the adjustment of the shower valve until the water temperature changes coming out of the shower head can be even longer. So burns can become more severe with ULF shower heads. This is one more area where water conservations measures can unintentionally make plumbing systems less safe.

As the temperature of the water increases this PIEV reaction time becomes more important. Using a bathtub/shower controller with a single handle would reduce the mental processing time and reduce the possibility of making an error when turning off the water. As Figure 1 shows the higher the temperatures get, the quicker the burns can occur. within seconds or less and the degree and severity of the burn can be affected by this reaction time.

As you can see by the chart in Figure 1, if the water is at 140 F it will take about 0.8 seconds for a child to receive a 2nd degree irreversible burn injury and it will take about 5.6 seconds for an adult male to receive an irreversible burn injury at 140 degrees F. Everyone else will fall somewhere in between. An adult will often find it very difficult to react to a sudden change in temperature within five (5) seconds. If the shower head is an Ultra-Low-Flow (ULF) shower head the delay can be several seconds longer before the water temperature is reduced because the mixed water temperature must evacuate or flush out the hot water in the pipe riser from the shower valve to the shower head. There is basically very little or no time to react at higher temperatures. For a typical adult that is alert and aware the PIEV theory shows it can take well over five (5) seconds to react to a sudden burst of hot water in a shower. For an elderly person or a small child that is confused it could take several minutes or more before they are able to react and adjust the controls or get out of harm's way. There has been a lot of information that suggests reducing the domestic hot water temperature to 120 F or less as it flows from the fixtures will minimize scalding and allow most people to react or get out of harm's way before a scald injury occurs.

Reducing the water temperature flowing from the fixture can be done in several ways by:

1. Reducing the hot water temperature at the fixture by adjusting the maximum temperature limit-stop on the shower valve. (The best way)

2. Using local mixing valves conforming to ASSE 1070 to reduce the hot water temperature flowing from a faucet.
3. Reducing the temperature at the source (Water Heater) with the use of a master mixing valve or temperature actuated mixing valve conforming to ASSE 1017.
4. For existing non code compliant shower or tub/shower installations, Two handle tub/shower valves without a maximum temperature limit adjustment) an ASSE 1062 valve could be used. An ASSE 1062 valve is a Temperature Actuated Flow Reduction (TAFR) valve. It looks like a chrome pipe coupling and it screws on between the shower head and the shower arm. Other models screw into a tub spout or onto a sink faucet in place of the aerator. If the water flowing from fixture exceeds about 117-120 degrees Fahrenheit the TAFR valve will shut the flow of water down to just a trickle so that scalding hot water does not spray onto the bather. It can be reset by adjusting the fixture control valve to a cold water setting and when the cold water reaches the valve it will reset and begin flowing again. This can be a bit of a nuisance in buildings where the hot water temperature is erratic, but it is an inexpensive way to provide protection against scald injuries in older buildings without code compliant shower valves.

Minimum Water Temperature to Prevent Legionella Bacteria Growth
Recently the members of the ASHRAE committee for *ASHRAE Guideline 12 - Prevention of Legionellosis Associated with Building Water Systems* recommended a change to the next edition of the guideline to require a minimum hot water temperature of 124 degrees Fahrenheit in the Hot Water Return (HWR) piping and a minimum hot water storage temperature of 130 F in circulated water heaters and a minimum of 140 F in uncirculated water heaters. This is because they have realized hot water temperatures in the ideal growth range have a lot to do with the Legionella bacteria levels on hot water systems. The new ASHRAE Guideline 12 will bring hot water system designs into alignment with what the ASPE Research Foundation's recommendations were in a white paper published in 1988. Many plumbing engineers have been following those recommendations for years. The ASPE research paper called for storing hot water at 135 to 140 degrees Fahrenheit and delivering it from the fixtures at no more than 120 degrees Fahrenheit. In the near future the ASHRAE standard titled ASHRAE 188 - *Prevention of Legionellosis Associated with Building Water Systems* which references the ASHRAE Guideline 12 will be published as an industry standard and it may even be adopted in the codes. In either case it set the industry standard for hot water system design and it will change how some hot water systems have been designed over the years. Hot water systems will now require storage temperatures high enough to prevent Legionella Bacteria Growth. So simply setting the thermostat to 120 F to prevent scalding will not be possible. (See: Figure 2 - Effects of Water Temperature on Legionella Bacteria and see: Legionella articles in December 2012 and Jan 2013 issues of Plumbing Engineer Magazine for more information and facts about Legionnaires Disease)

If you follow the new ASHRAE Standard 188 and the soon to be published guideline 12, you will find you should not use the thermostat on a water heater to simply adjust it to 120 degrees Fahrenheit to prevent scalding. This is already not allowed in the two model plumbing codes, however there are some local codes such as the State of North Carolina plumbing code that, as this writing, allow this dangerous practice. The minimum storage temperature required in a water heater will soon be 130 F for circulated heaters and 140 F for uncirculated heaters.

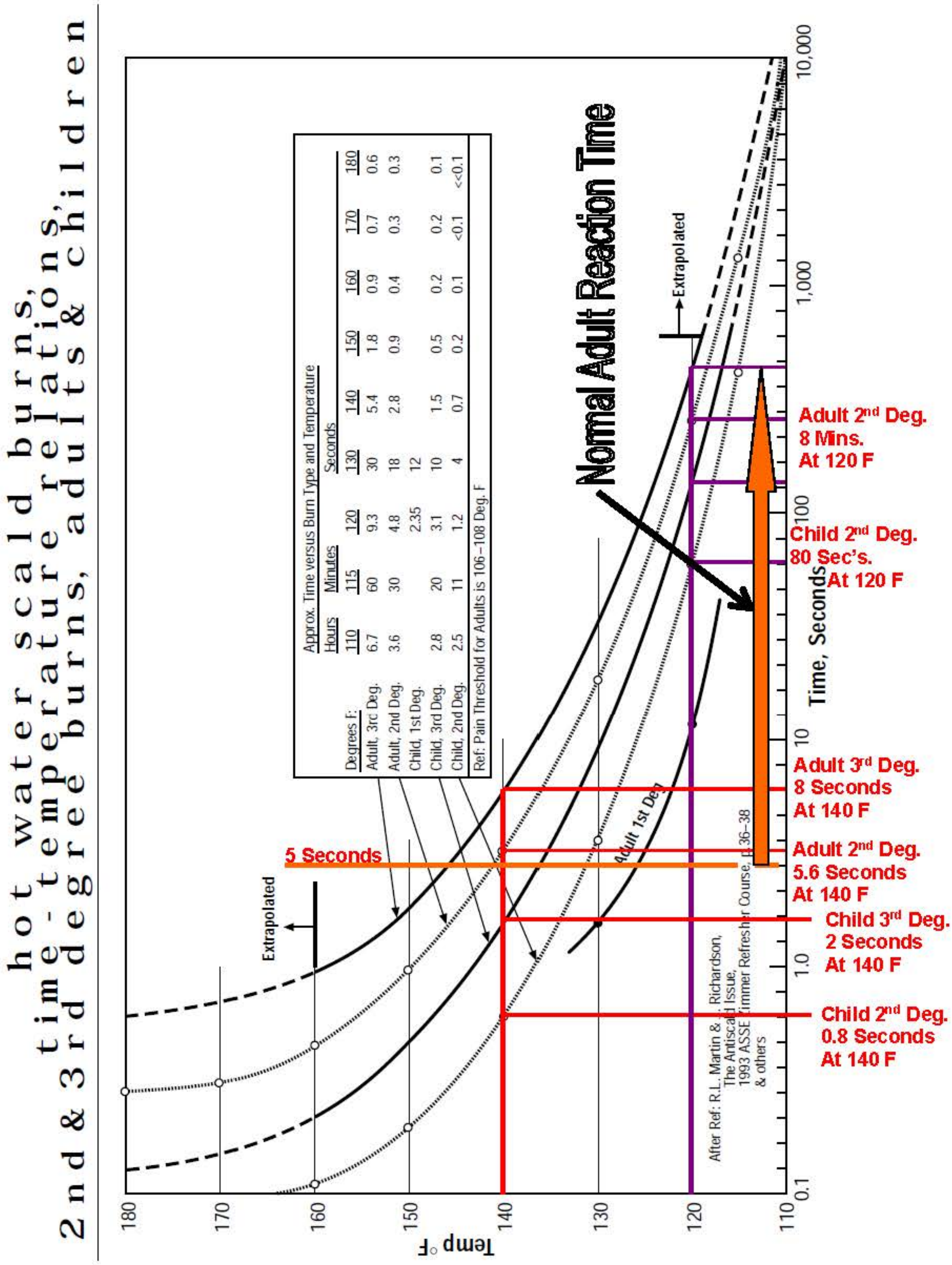
Water Heater Thermostats

The water temperature flowing from the fixtures should not be reduced to 120 degrees Fahrenheit by adjusting the water heater thermostat for scald prevention. The water heater thermostat should never be used to try and control the hot water system delivery temperature. The thermostat is located in the bottom of the water heater and is intended to only sense the incoming cold water and anticipate the need for hot water by turning the burner "ON" and "OFF". There are too many variables that can allow the hot water to exceed the water heater thermostat setting. Intermittent, short usage of hot water can cause the water heater burner to cycle on even when the hot water at the top of the water heater is hotter than the thermostat setting. This causes the water heater to overheat the hot water at the top of the water heater. In some cases the hot water can be as much as 30 degrees or more, higher than the thermostat setting on the water heater. This is why the thermostat on the water heater should not be used as a system temperature controller for scald prevention.

Energy Conservation and Bacteria Growth on Hot Water Systems.
There have been numerous web sites, radio spots, print materials and other well intentioned people that suggest turning the water heater down to 120 degrees Fahrenheit to save energy and they usually discuss the added side effect of minimizing scalding. These suggestions are wrong for many reasons because the thermostat on the water heater cannot accurately control the outlet temperature of the water heater, Low storage temperatures also create a shortage of hot water, low storage temperatures can allow condensing conditions in heaters that are not designed for condensing which can lead to heat exchanger corrosion and it creates storage temperatures that are ideal for legionella bacteria growth. This is another example of energy conservation practices making a hot water system less safe. Safety should trump efficiency! There are other ways to prevent scalding without turning down the water heater thermostat. I have also heard of many healthcare facilities eliminating hot water tanks and installing instantaneous water heaters in a misguided effort to minimize Legionella bacteria growth in hot water tanks. It's not the tank it's the storage temperature. This is reaction to a problem that often creates other problems. (See Figure 2)

Master Thermostatic Mixing Valves
The ASHRAE Guideline 12 recommendations do not mandate a master thermostatic mixing valve for a hot water system. Although one could be installed to allow water temperatures to be stored at slightly higher temperatures and the hot water could be distributed at a stable temperature that assures a minimum of 124 degrees F on the hot water return prior to the hot water tank connection. These new temperature requirements will undoubtedly mean we need to have a temperature gauge on the hot water return piping, the hot water supply piping leaving the water heater and on the piping leaving a mixing valve if one is installed. By providing the temperature gauges the maintenance personnel can monitor the entire hot water distribution system so that it can be hot enough to prevent legionella bacteria growth.

It's is a balancing act to try and keep from scalding someone or giving them Legionellosis. If the hot water system temperatures are maintained at a minimum of 124 F in the hot water return, no less than 130 F in a circulated storage tank and no less than 140 F in an uncirculated storage tank Legionella growth will be minimized. If temperature limit stops are utilized to keep shower and tub/shower water from exceeding 120 F the system will not present a scald hazard. Make sure your plumbing designs include the *hot water system balancing act.*



Approx. Time versus Burn Type and Temperature

	Hours	Minutes		Seconds					
Degrees F:	110	115	120	130	140	150	160	170	180
Adult, 3rd Deg.	6.7	60	9.3	30	5.4	1.8	0.9	0.7	0.6
Adult, 2nd Deg.	3.6	30	4.8	18	2.8	0.9	0.4	0.3	0.3
Child, 1st Deg.			2.35	12					
Child, 3rd Deg.	2.8	20	3.1	10	1.5	0.5	0.2	0.2	0.1
Child, 2nd Deg.	2.5	11	1.2	4	0.7	0.2	0.1	<0.1	<<0.1

Ref: Pain Threshold for Adults is 106–108 Deg. F

A Seminar and Technical Paper for the 25-28 Oct. 98 Annual ASPE Meeting at the Indianapolis Convention Center in Indianapolis, Indiana. Reprinted by Watts Regulator Company with permission of Dr. D. Bynum Jr.

Figure 1 – Hot Water Scald Burns – Time vs Temperature Relationship for Second and Third Degree Burns for Adults and Children.
(Notes By: Ron George, CPD, See: www.ScaldPrevention.org)

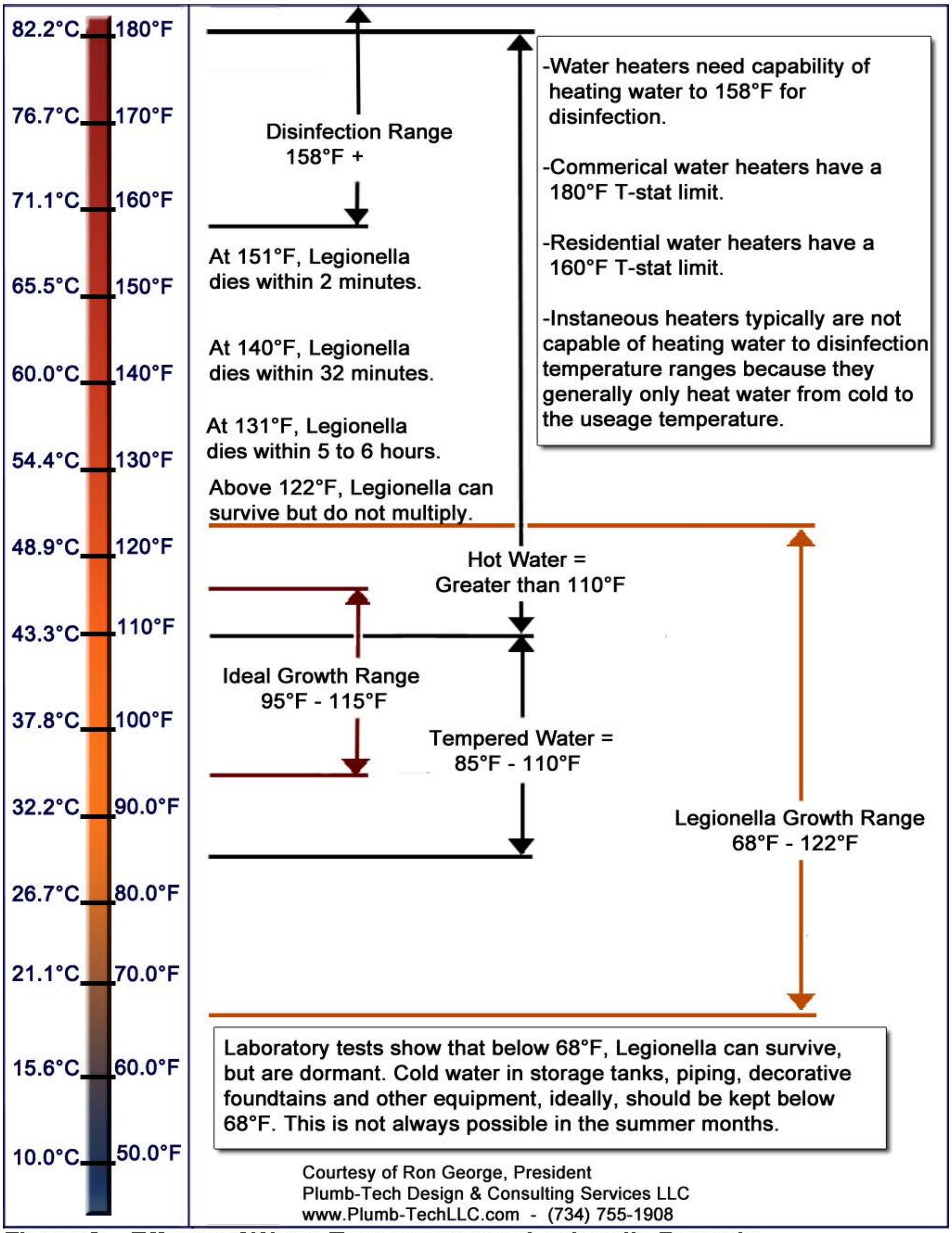


Figure 2 – Effects of Water Temperature on Legionella Bacteria
(Source: www.LegionellaPrevention.org)

Bibliography: www.ScaldPrevention.org
www.LegionellaPrevention.org

Cost Impact: Will increase the cost of construction
This will slightly increase the cost of construction, but it will frovide significant health and safety benifits of controlling Legionella and minimizing scalding by stabilizing system temperatures with a mixing valve.

P 144-15 : 607.6 (New)-GEORGE5588

P 145-15

607.6 (New), 607.7 (New)

Proponent: Ronald George, Self, www.scaldprevention.org; www.Plumb-TechLLC.com, representing Self (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Add new text as follows:

607.6 Balancing of multi-branch hot water circulating systems Where there is more than one hot water return branch in a hot water circulating system having one circulating pump, the circulating pump shall be sized to deliver the required flow and head for all branches. The required flow in gallons per minute (liters per second) to maintain the desired hot water temperature for each branch shall be calculated. Each branch shall have a balancing valve that is field-adjusted and set to the required calculated flow. A check valve shall be located downstream of each balancing valve to prevent crossflow between branches.

607.7 Maximum velocities for hot water return piping The water velocity in hot water return piping sytems shall be limited to prevent water hammer and errosion of piping. Where the water temperature is 140°F (60°C) or less, the water velocity shall not exceed 5 feet per second (3 meters per second). Where the water temperature exceeds 140°F (60°C), the water velocity shall not exceed 2.5 feet per second (1.5 meters per second).

Reason: No balancing requirement is in the plumbing code. Many larger buildings are experiencing problems because balancing is not required.
When balancing is not done properly the velocity in some sections of pipe can become excessive. Balancing valves have a flow adjustment that allows you to read or set the flow at each balancing valve. If the flow in GPM is known based on the balancing valve setting or the flow rate of the circulating pump can be used in smaller systems. Where the flow in GPM is known and the pipe size is known, the velocity in feet per second can easily be determined by looking at any pipe sizing chart or table.

Bibliography: http://www.copper.org/publications/pub_list/pdf/copper_tube_handbook.pdf
See Page 11 of the Copper Tube Handbook for velocity limitations. These velocity limitations should apply to PEX piping sytems with brass fittings also.

http://www.pdionline.org/storage/publications/PDI-WH-201.pdf

See the water pipe sizing chart on page 31 of the PDI WH 201 standard that is free to download. It lists the Pipe size, flow in GPM and flow Velocity in Feet Per Second.

Cost Impact: Will increase the cost of construction
balancing has always been required for the system to operate properly, but it has never been required in the code. There will be a slight cost to balance the HW system, but now they will perform better because there never has been a requirement for balancing.

P 145-15 : 607.6 (New)-GEORGE5595

P 146-15

607.6 (New)

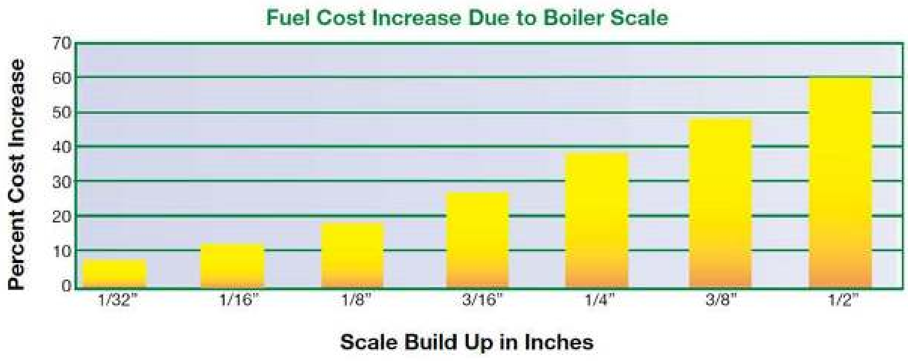
Proponent: Ronald George, Self, representing Self (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Add new text as follows:

607.6 Flushing and de-liming tees The connecting piping for each water heater shall have tees installed for the purposes of flushing and de-liming of the heater at manufacturer's recommended maintenance intervals. The tees shall be installed in the hot and cold water piping between the water heater and the water heater isolation valves The tees shall have a 3/4 inch (19.1 mm) valve with a 3/4 inch (19.1 mm) hose thread for connection of flushing and de-liming equipment.

Reason: Delimiting tees are needed for proper maintenace of water heaters.



Cost Impact: Will increase the cost of construction
The cost of the tees and hose valves is minimal and it allows the scale to be removed from the water heater with a small pump and hose connections with a mild vinegar acidic solution. Removing scale will save millions of dollars worth of fuel that is wasted fuel each year. 1/16 inch of scale on a heating surface causes us to use 12 percent more fuel to heat a given amount of water. 1/4 inch of scale will cause about 38 percent additional fuel to be consumed to heat a given amount of water. 1/2 inch of scale on the heating surface will cause us to use 60 percent more fuel to heat a given amount of water. if your monthly heating bill is $360, then you will be spending another $216 a month to heat the same amount for a total fuel consumption of $576/month. A simple calculation shows over $2,000 dollars in fuel saving per year by maintaining a clean heating surface.

P 146-15 : 607.6 (New)-GEORGE5598

P 147-15

608.1.1 (New)

Proponent: Michael Moss, American Backflow Prevention Association, representing American Backflow Prevention Association (msmoss@utah.gov)

2015 International Plumbing Code

Add new text as follows:

608.1.1 Equipment location and installation planning. Backflow prevention assemblies in accordance with Sections 608.13.2, 608.13.3, 608.13.5, 608.13.7 and 608.13.8 shall be located with the center of the assembly not greater than 5 feet (1524 mm) above a floor or a permanent equipment platform. Where an assembly or portions of an assembly must be located at a greater dimension above a floor or platform, a permanent equipment platform shall be provided to access the assembly, or portion thereof, that is greater than 5 feet (1524 mm) above the floor or platform. The structural design of equipment platforms shall comply with Chapter 16 of the *International Building Code.*

Reason: To ensure safe access to backflow prevention assemblies for testing, repair and maintenance, an equipment platform is required where the assembly is located higher than 5 feet off the floor. It is very difficult to work off of a ladder when attempt to test or repair a backflow prevention assembly. Having to work off a ladder is just an another obstacle that might cause someone to not do the required testing   Where access is readily and safely provided,assemblies will be tested as they need to be.
This new section is placed at the beginning of Section 608 to alert mechanical systems designers to put some thought into where to locate these backflow prevention assemblies in the first place, rather than to have their location be an after thought such that equipment platformss are needed. No one wants to work off platform so prior planning to avoid platforms is smart design.

Cost Impact: Will not increase the cost of construction
Proper planned installation will not increase costs and will enhance safety.

P 147-15 : 608.1.1 (New)-MOSS5765

P 148-15

608.1.2 (New), 608.1.2.1 (New), 608.1.2.2 (New), 608.1.2.3 (New)

Proponent: Michael Moss, representing American Backflow Prevention Association (msmoss@utah.gov)

2015 International Plumbing Code

Add new text as follows:

608.1.2 Specific installation criteria. Backflow prevention assemblies shall be installed in accordance with Sections 608.1.2.1 through 608.1.2.3, as applicable.

608.1.2.1 Reduced pressure principle backflow prevention assembly The reduced pressure principle backflow prevention assembly shall be installed as follows:

1. Assemblies shall not be installed in a pit.
2. The relief valve shall not be directly connected to any waste disposal line, including sanitary sewer, storm drains or vents.
3. Assemblies shall be in a horizontal position only unless listed or approved for vertical installation in accordance with Section 303.4.
4. The bottom of each assembly shall be installed not less than 12 inches above the floor or ground.
5. The body of each assembly shall be not less than 12 inches from any walls, ceiling, or obstacle and shall be be provided with access for testing, repair and maintenance.

608.1.2.2 Double check backflow prevention assembly. Double check backflow prevention assembly shall be installed as follows:

1. Assemblies shall be in the horizontal position except where listed or *approved* for vertical installation in accordance with Section 303.4.
2. The bottom of the assembly shall be not less than 12 inches above the floor or ground.
3. The body of each assembly shall be not less than 12 inches from any walls, ceilings or obstacle and shall be accessible for testing, repair and maintenance.
4. Where installed in a pit or vault, the body shall be not less than 12 inches from all sides, including the floor, roof or ceiling and shall be provided with access for testing, repair and maintenance.

608.1.2.3 Pressure and spill-resistant vacuum breaker assemblies. Pressure and spill-resistant vacuum breaker assemblies shall be installed as follows:

1. Not subject to a backpressure condition from downstream piping.
2. Not less than 12 inches above all downstream piping and outlets.
3. Not less than12 inches from any wall, ceiling or obstacle and shall be be provided with access for testing, repair and maintenance.
4. Not below ground, in a vault or pit.
5. In a vertical position only.

Reason: There is no adequate minimum installation criteria for the assemblies in Table 608.1 and inadequate guidance within the individual sections for the specific assemblies. For clarity and consistency this information is provided in these sections to assist in proper installation and inspection.

Cost Impact: Will not increase the cost of construction
There is no cost impact with the added criteria of proper installation.

P 148-15 : 608.1.2 (New)-MOSS5671

P 149-15

608.3, 608.4 (New)

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

608.3 Devices, appurtenances, appliances and apparatus. Devices, appurtenances, appliances and apparatus intended to serve some special function, such as sterilization, distillation, processing, cooling, or storage of ice or foods, and that connect to the water supply system, shall be provided with protection against backflow and contamination of the water supply system. ~~Water pumps, filters, softeners, tanks and other appliances and devices that handle or treat potable water shall be protected against contamination.~~

Add new text as follows:

608.4 Potable water handling and treatment equipment. Water pumps, filters, softeners, tanks and other appliances and devices that handle or treat potable water to be supplied to the potable water distribution system shall be located to prevent contamination from entering the appliances and devices. Overflow, relief valve and waste discharge pipes from such appliances and devices shall terminate in accordance with the appliance or device manufacturer's installation instructions. Where such instructions do not specify the termination arrangement, the termination shall be to an air gap.

Reason: One interpretation of the existing Section 608.3 is that the potable water supply line to a water softener is required to have a backflow preventer, supposedly to protect the water in the water service line from contamination. However, the phrase "water softener" is in a group along with filters, pumps, tanks and appliances that handle or treat potable water. If water softeners are required to have a backflow preventer upstream, does this mean that pumps and filters are also required to have backflow preventers upstream? Those items are in the same sentence.

This doesn't seem to make sense because a water softener provides potable water to the building's potable water distribution system. It is understood that most water softeners have a brine tank where salt is placed and periodically replenished. If the chemical (salt) is safe enough to treat the resin bed of the softener (through which the potable water to the building flows), then is there really a problem?

Millions and millions of water softeners across this country have been installed without a backflow preventer upstream of the softener. The EPA's Cross Connection Manual and the USC Manual for Cross Connection Control do not specifically mention the presence of a water softener as needing a backflow preventer. Connection diagrams for (NSF 44) water softeners do not indicate a need for backflow protection or even mention checking with the local code official to be told that backflow protection is required.

It is believed that the existing language requirement was to make sure that that these devices were not installed in pits and the overflows and relief pipes and discharge pipes from these devices passed through an air gap to the point of discharge. Nothing more. If the code intended for these devices to have a backflow preventer upstream, the device would have had language in Section 608.13. The revised code language clarifies the original intent.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 193.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 149-15 : 608.3-SNYDER3963

P 150-15

Part I:
608.7
Part II:
P2903.9.5

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

Revise as follows:

608.7 Valves and outlets prohibited below grade. Potable water outlets and combination stop-and-waste valves shall not be installed underground or below grade. ~~Freezeproof~~A freezeproof yard ~~hydrants~~hydrant that ~~drain~~drains the riser into the ground ~~are~~shall be considered ~~to be~~as having a stop-and-waste ~~valves~~valve below grade.

> **Exception:** Freezeproof yard hydrants that drain the riser into the ground shall be permitted to be installed~~,~~ provided that the potable water supply to such hydrants is protected ~~upstream of~~in accordance with Section 608.13.2 or 608.13.5 and the hydrants and the piping from the backflow preventer to the hydrant are identified in accordance with Section ~~608 and the hydrants are permanently identified as nonpotable outlets by *approved* signage that reads as follows: "Caution, Nonpotable Water~~608.8.~~ Do Not Drink."~~

Part II

2015 International Residential Code

Revise as follows:

P2903.9.5 Valves and outlets prohibited below grade. Potable water outlets and combination stop-and-waste valves shall not be installed underground or below grade. ~~Freezeproof~~A freezeproof yard ~~hydrants~~hydrant that ~~drain~~drains the riser into the ground ~~are~~shall be considered ~~to be~~as having a stop-and-waste ~~valves~~valve below grade.

> **Exception:**~~Installation of freezeproof~~Freezeproof yard hydrants that drain the riser into the ground shall be permitted ~~if~~to be installed provided that the potable water supply to such hydrants is protected ~~upstream of~~in accordance with Section P2902.3.5 or P2902.3.4 and the hydrants and the piping from the backflow preventer to the hydrants are identified in accordance with Section ~~P2902 and the hydrants are permanently identified as nonpotable outlets by *approved* signage that reads as follows: "Caution, Nonpotable Water~~P2901.2.~~ Do Not Drink."~~

Reason: There is no way to know what type of health hazard the stop and waste opening of a yard hydrant will be exposed to. The contaminants could include lawn fertilizer, animal wastes, garden fertilizer or septic tank effluent. This application is not any different than an irrigation system having at/below grade sprinkler heads. See Section 608.16.5 (IRC Section P2902.5.3). The code requires either a pressure vacuum breaker assembly or a backflow prevention assembly for that application. (For a valve downstream of the backflow preventer, an atmospheric vacuum breaker will not work). But the code currently lacks coverage for what type of backflow protection is necessary for yard hydrant applications. For the code officials who do give this yard hydrant application some thought, many simply choose a dual check valve which is only suitable for low hazard conditions. And there is no way to field verify that this type of backflow device is operational. This is a high hazard application just like an irrigation system and the potable water supply of the building should be protected accordingly. Improper backflow protection for connection of these frost proof yard hydrants to the building water distribution system is an accident waiting to happen.

Keep in mind that where a yard hydrant is needed, a sanitary type yard hydrant (one that does not drain the riser into the ground) can be provided, probably at a lower cost than requiring a backflow prevention assembly for the more inexpensive, riser drain-to-the-ground type yard hydrant. Where only one yard hydrant is installed, a sanitary yard hydrant will probably be an easier selection. Where multiple yard hydrants are on a lot, a dedicated yard hydrant line for all yard hydrants with one backflow prevention assembly to serve all hydrant might be easier.

The signage and marking requirements were removed as the indicated section was updated in the last code cycle to more adequately cover the topic. There is no need to duplicate requirements in the code.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 148.

Cost Impact:

Part I: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, where code officials were not requiring the correct backflow preventer for these applications, there will be a higher cost for the correct backflow preventer plus added labor and materials for either placing the required backflow prevention assembly in a place where leakage (when failure of the device occurs) or for providing a drain for the assembly for when leakage happens (when failure of the device occurs).

Part II: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, where code officials were not requiring the correct backflow preventer for these applications, there will be a higher cost for the correct backflow preventer plus added labor and materials for either placing the required backflow prevention assembly in a place where leakage (when failure of the device occurs) or for providing a drain for the assembly for when leakage happens (when failure of the device occurs).

P 150-15 : 608.7-SNYDER3964

P 151-15

608.9

Proponent: Ronald George, representing Self (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Revise as follows:

608.9 Reutilization prohibited. Water utilized for the heating or cooling of equipment or other processes shall not be returned to the potable water system. Such water shall be discharged into a drainage system through an *air gap* or shall be utilized for nonpotable purposes.

Reason: Plumbing systems should use double wall heat exchangers or other approved means to prevent contamination of the potable water supply. Potable water should not be allowed to flow througgh heat exchangers either hot or cold for other process systems. There have been low-budget combined heating hot water and domestic hot water systems that utilize the domestic hot water piped through heat exchanger coils, baseboard piping, suply & return pipes and control valves for space heating. These systems often have componenets, coils, piping and valves that are not of approved materials for domestic water systems. In addition, many of these systems can remain dormant and for well over six to nine months when the heating cycle is not neeeded. Upon the first call for heat, all of the stagnant and brackish bacteria laden water in the heating system is flushed or injected into the potable hot water system in the hot water tank. This will significantly dump large quantities of bacteria laden water into the domestic hot water system. This is a serious cross-connection and contamination problem. This increases the chances of contracting Legionnaire's Disease and being exposed to a host of other Bacteria and pathogens in the domestic water system. Where the domestic water is allowed to flow through the hydronic heating circuit, the water will sit stagnant in the heating coils, valves and piping for long periods of time allowing the chlorine to dissipate after a few days. when the chlorine or other water treatment chemical is gone, bacteria will flourish. In all cases where the water sits stagnant in the piping for more than a few days conditions will be present where bacteria and other pathogens can grow to very high levels before flow resumes through the coils . These combined heating hot water and domestic hot water systems should not be allowed unless a closed loop of heat transfer fluid (propylene glycol) is flowing through the heating coils. Domestic water should not be allowed to flow through heating coils. There are many systems where heating coils are located inside a domestic hot water tank and the fluid in the heating coils is in a closed loop. That is a preffered system design for combined heating hot water and domestic hot water systems. The domestic hot water should not be allowed to flow through the heating hot water pipes because of this seasonal use and the great potential for bacteria growth. In my opinion, this is a cross connection that can be restricted by the code official, but the codde is not clear on this because it only addresses cooling coils, not heating coils. This should provide clarification for safe plumbing systems.

22 pitfalls to avoid when designing or installing a combined heating hot water and domestic hot water system

A combined heating hot water and domestic hot water system is a hybrid system that utilizes a boiler or boilers to heat water for heating the building environment, and it uses boiler water to heat domestic hot water for bathing, washing and cleaning uses. The two systems are often combined in an effort to reduce the initial cost of installation, but there are a lot of differences between the two that, if not accounted for, could result in someone getting seriously injured.

Over the years, I have investigated numerous combined systems and found that there are a lot of mistakes or pitfalls that seem to occur. Since there are many opportunities to make mistakes with combined systems, someone very familiar with how both systems are supposed to operate should design them. Heating hot water generally needs to be at a very high temperature, while domestic hot water should be at a lower temperature. If the domestic water gets too hot there are scalding dangers, so proper controls are very important.

I have been investigating scald incidents since the mid 1990s, and I have seen a significant number of these combined systems involved in scald litigation cases because they are often not designed, operated or maintained properly. There are only two plumbing code sections that address combined systems. One section calls for the piping and components in a combined system to be approved for use in potable water systems. The other code requirement calls for a thermostatic mixing valve if the system temperature exceeds 140 F.

There are many more issues than the two mentioned above that need to be addressed. Following is a list of problems or pitfalls that I have found over the years that are related to combined heating hot water and domestic hot water systems. If you can avoid these pitfalls you will have a much safer system:

Pitfall number 1: Open system vs. closed system

There are two versions of a combined heating hot water and domestic hot water system. Systems with domestic hot water flowing from the city water supply through the heating hot water system components such as pumps, control valves and heating coils are often called open systems. Open systems utilize the domestic hot water flowing through the heating coils or baseboard heaters for heating the building. The same water flows to the plumbing fixtures for bathing and washing. These systems provide a significant challenge, because the fluid in the system must be potable water. It is difficult to circulate domestic hot water through many hydronic components without having scale, corrosion, buildup of air pockets and oxidation problems. These systems often sit stagnant for long periods of time during the off-season for heating allowing bacteria and other debris to build up to high levels in the stagnant water. When heat is firrst called for in the fall, it will dose the domestic water heater with a large dose of bacteria and stagnant water. this will usually higher doses than the water treatment chemicals can handle.

Systems with a double wall heat exchanger to separate the fluid of the heating hot water system from the domestic hot water are referred to as closed systems. Closed systems use a heat exchanger to provide a closed loop for the heating hot water. The closed loop flows through the water heater tank in single or double wall heat exchanger coils to serve the heating hot water system or vice versa. The boiler will supply a coil in the domestic water tank. The heating coils and the heat exchanger serving the domestic hot water. Most hydronic systems have pumps, valves, coils and components that are not approved for drinking water service. Closed hydronic heating systems allow the heating hot water to be a glycol solution with corrosion inhibiters to prevent corrosion and other chemicals to prevent scale build-up on heating surfaces. The closed systems are preferred because they eliminate a lot of opportunities for systems problems.

Pitfall Number 2: System operating temperatures

The next challenge for combined systems is the system operating temperatures. Heating hot water systems are generally designed to operate between 180 F and 210 F. Domestic hot water systems are designed to operate between 85 F to 140 F. Heating coils sizes must be increased if the combined system temperatures are lower or scald prevention valves are needed if the system temperatures are kept higher for the heating hot water system temperatures.

Tempered water is water having a temperature range between 85 F (29 C) and 110 F (43 C). Hot water is water at a temperature greater than or equal to 110 F (43 C) Domestic hot water for bathing and showering is usually limited to a maximum of 120 F. Domestic hot water for dishwashing and laundries can be higher. Generally, domestic hot water systems operate around 140 F and heating hot water systems operate around 190 to 200 F. Scalding is often associated with combined systems when unqualified maintenace workers adjust system temperatures to address "lack of heat" calls.

Pitfall Number 3: Not including all of the required components in the combined systems

A combined system requires many components to operate properly. If all of the components are not installed in the proper location, the system will experience problems. These components include, but are not limited to the following: the boiler, storage tanks, expansion tank, isolation valves, unions, dielectric waterways, circulating pumps, air eliminators or air vents, control valves, relief valves, balancing valves, heating coils, fin tube radiators, thermostats, pressure gauges, temperature gauges, flushing connections, plumbing fixtures, etc. All of these components must work in concert and must be designed to work together as a system. If any one or several of the components are not installed, or if they are undersized or installed improperly, problems and safety issues can occur.

Pitfall Number 4: Seasonal pumping and pump sizing

During the winter heating season, all of the components in a combined system will require a simultaneous peak demand in the morning when it is showering time. The circulating pump must be sized for the simultaneous peak heating and showering loads. During this time it does not make sense to circulate a large quantity of water. I often see a smaller circulating pump that is piped around the large circulating pump so it can be used in the winter months when the large circulators are not needed for building heating.

Systems with domestic hot water flowing from the city water supply through the heating hot water system components such as pumps, control valves and heating coils are often called open systems. Systems with a double wall heat exchanger separating the fluid of the heating hot water system from the domestic hot water are often referred to as closed systems.

When a significant portion of a system is being used seasonally for heating and the remainder of the system is being used year round for domestic hot water, open systems are susceptible to bacteria growth in stagnant sections of heating coil piping. Heating coils have huge potential for bacterial amplification when hydronic systems are coupled with potable hot water systems where no physical barrier or heat exchanger exists between the two fluids.

Pitfall Number 5: Dead legs

During the summer months, the fan coil units and branches to baseboard heating units are shut off with a solenoid valve or the circulating pump on these branches does not run all summer long. It is not unusual for a heating system to sit idle for more than six months in southern climates. When the first call for heating is made, there is usually a slug of brackish and foul tasting water that is high in debris, metals and bacteria content. Combined systems are by design creating very large dead legs. This is a violation in many plumbing codes. Controls on combined systems need to incorporate a periodic flushing of the zones by operating the solenoid valves and circulators on each zone on at least a weekly basis if not more often.

Pitfall Number 6: Peak load problems

The early morning is generally the coldest time of day. It is also when guests at a hotel or residents of an apartment building or condominium take their morning showers. Equipment, piping, pumps and valves must be sized to handle this simultaneous peak load. If the equipment is not sized big enough the temperature of the space will fall and the shower water temperature will fall. Either condition is likely to result in calls and complaints.

Pitfall Number 7: Sizing

Sizing problems can arise when engineers, owners or contractors try to be thrifty and save a few bucks by rounding down on their peak load calculations and downsizing pumps, piping, valves or coils. This is when the phone starts ringing with complaints of spaces being too cold or there not being enough hot water for a shower. The maintenance men usually do what comes naturally when they receive calls of not enough heat: They go to the boiler and turn the temperature up. Turning up the temperature will not cause problems for the heating coils, but it does significantly increase the risk of scalding if the maximum temperature limit stops in the showers and tub/shower valves are not readjusted.

If the shower has an old two-handle or single handle non-compensating type shower valve that compensates for changes in incoming temperature or pressure the risk of scalding is even greater. The best solution is to have a thermostatic mixing valve on the hot water supply to limit the hot water to a safe temperature. If the hot water and heating water piping are still separated, and the system uses one boiler, then a temperature actuated master thermostatic mixing valve conforming to ASSE 1017 or the appropriate CSA B-125 mixing valve can be located at the water heater to lower the hot water to a safe delivery temperature. If the combined system utilizes the same piping for heating hot water and domestic hot water, a temperature limiting valve conforming to ASSE 1070 should be used in-line to mix cold water with hot water to provide a safe temperature of hot water for bathing or showering fixtures.

Pitfall Number 8: Maintenance

The main problem with a combined system is that the system includes components and controls for two different mechanical trade disciplines. Often, if there is a service call, the service technician may be familiar with one system or the other. If the system was designed with a specific operating temperature, it is not uncommon for a service tech familiar with only one system to set the temperature to that of the system he is accustomed to.

There are also many components in the system that one trade or the other may be unfamiliar with. For example, in one case the owner called an HVAC technician to work on his combined system. The technician was used to setting hydronic systems for building heating at 190 to 200 F. He set the temperature to 190 F, and a woman was scalded when she got into her shower. The technician did not know that he needed to reset the maximum temperature limit stop on all of the ASSE 1016 shower valves when he readjusted the boiler set point temperature.

Pitfall Number 9: Cast iron boiler on an open system

Cast iron boilers do not perform well with open systems because of the large quantities of water that introduces oxygen and minerals that cause rust stains, oxidation and fouling of the heating surfaces. This mistake does not take long to find because of the rust stains that appear in sinks, bathtubs and showers. Cast iron boilers can work well, but they must have a separate closed loop of boiler water that is treated with corrosion inhibitors and other boiler chemicals as needed. The boiler water can then be piped to a coil in a hot water tank or to a heat exchanger to provide domestic hot water.

Pitfall Number 10: No storage tank with copper fin tube boilers

I have seen installations where someone thought they could save a few bucks by eliminating the storage tank and using the heating hot water main as the storage tank. This does not work in motels, hotels, apartment buildings and condos. In facilities like these there needs to be a stored volume of water ready for use in a dump load such as a morning shower period. Copper fin tube boilers are designed to raise the temperature of the water only 20 to 40 F as the water flows through the boiler. If the water flows too slowly through the boiler, it will scale up and if it flows too fast the copper will erode away. These types of boilers need to have a storage tank for plumbing applications with a dump load. In heating applications, the Btu input is matched to the heating load calculations, and the system works fine.

Pitfall Number 11: No thermal expansion tank

All heating hot water system and domestic hot water systems must have a thermal expansion tank rated for use in a potable water system, not a hydronic expansion tank. The tank should be sized for a system start-up from ambient to hot. If the system has one boiler and two piping systems with a heat exchanger each piping system should have a thermal expansion tank.

Pitfall Number 12: Scalding injuries and deaths

Many designers, contractors and owners forget that there are lives at stake when they design and build the combined hot water systems. People have been scalded to death or seriously injured when the systems are not designed, installed or maintained properly.

Pitfall Number 13: Litigation

Kurt Vonnegut, Jr. an american writer once wrote "Another flaw in the human character is that everybody wants to build and nobody wants to do maintenance." If you are not willing to commit to properly maintaining the system for the life of the system, don't design it, don't install it or don't request that it be installed. Combined systems require an extensive amount of work and oversight to make sure someone does not get injured. You must document everything, because when someone is injured, everyone will be named in the lawsuit.

Pitfall Number 14: Code requirements for thermostatic mixing valves

The 2009 International Plumbing Code (IPC) has the following language dealing with combined systems:
501.2 Water heater as space heater. Where a combination potable water heating and space heating system requires water for space heating at temperatures higher than 140°F (60°C), a master thermostatic mixing valve complying with ASSE 1017 shall be provided to limit the water supplied to the potable hot water distribution system to a temperature of 140°F (60°C) or less. The potability of the water shall be maintained throughout the system.

The 2009 IPC also has the following language addressing maximum water temperatures for instantaneous water heaters:

501.6 Water temperature control in piping from tankless heaters. The temperature of water from tankless water heaters shall be a maximum of 140°F (60°C) when intended for domestic uses. This provision shall not supersede the requirement for protective shower valves in accordance with Section 424.3.

Pitfall Number 15: Engineered system

I have seen a value engineering option offered by a contractor to combine the domestic hot water system with the heating hot water system. This was not a value to the owner, and it was not engineered. During the evaluation process, the owner decided to allow the contractor to combine the systems without having the contractor provide engineered drawings. This decision gave the contractor the ability to use whatever he wanted to use. The owner got a system that did not work.

Pitfall Number 16: Pipe materials

I have seen a cost cutting option labeled as a value engineering option given by a contractor. The option was accepted, and the contractor simply eliminated the domestic hot water system and changed the hydronic system from black steel to galvanized steel piping. This was in a condominium building that had about 500 condos that sold in the neighborhood of one million dollars each. The galvanized pipe started to rust significantly within two years of service and rust stains were significant in all fixtures. The seasonal dead legs from the heating coils allowed rust barnacles to form until the first call for heat. When the flow in these dead leg branches resumed on the first call for heat in the fall rust, debris, iron oxide and stagnant water would be flushed into the strainers of the control valves and into the domestic water system.

Galvanized steel pipe should never be used on a domestic hot water system because domestic hot water is an open system connected to the city water main, which introduces a large quantity of oxygenated water into the system. Oxygenated water will cause significant corrosion in ferrous metals such as black steel and galvanized pipe. All components of a combined system should be copper or another code approved non-ferrous material for domestic hot water service if they are in contact with the city water supply. I often see iron valves installed in these combined systems. This is usually the result of a heating contractor installing or performing maintenance on the combined system and of the contractor not being familiar with the requirements in the code for all components to be approved for domestic water use.

Pitfall Number 17: Pumps

When sizing pumps for a combined system there should be two separate systems and one boiler. The hydronic system should be a closed loop that can use large ductile iron-bodied pumps. The problem with an open system is that, when the large pumps are shut down for six months or more, the pumps, and all hydronic circuits to heating coils and baseboard heaters, become dead legs in the piping system. This is why there should be a separate closed piping circuit for the heating system piping.

Pitfall Number 18: Corrosion and Errosion of the pipes

I have seen large cast iron and ductile iron hydronic pumps that were not approved for domestic water systems installed in combined systems. When such systems are first turned on in the fall, large slugs of iron oxide laden water are forced into the domestic hot water distribution system. This generally results in sinks and bathtubs filled with orange rusty looking water until the entire system gets flushed out significantly. The ferrous materials in the combined system typically lead to other problems with plugged strainers on control valves and other components. Another problem I see often with these systems is the flow in GPM is not totaled for the paek flow for both systems often resulting in undersized piping. If copper piping is used, the hot water velocity must be within the limitations provided in the Copper Development Association's "Copper Piping Handbook" Cold water can have a velocity up to 8 feet per second in copper pipes, hot water up to 140 F has a velocity limitation of 5 feet per second. Hot water over 140 F has a velocity limitation of 2 - 3 feet per second. I have seen many copper pipes springing leaks because of high velocities and high temperatures. High velocities and high temperatures can easily occur in combined systems.

Pitfall Number 19: Corrosion inhibitors and other boiler water treatment chemicals

I visited one building on the East Coast where the combined system consisted of eight- inch galvanized water pipes. The galvanized pipes were corroding to the point where the hot water was very cloudy and orange. The building maintenance personnel chose to add an injection pump to inject chemicals into the domestic water main entering the building to raise the PH of the water and to intentionally build up a layer of scale inside the galvanized piping to minimize the amount of corrosion. The problem was that the scale also formed on the heating surfaces and in the control valves, causing them to fail. Upon inspecting the barrel of the chemicals being injected into the water supply, I noted that there were warning labels stating that the materials were toxic to humans. I reported this to the building owner, who had to correct the situation immediately. This was another case of a heating contractor working on a plumbing system and not being familiar with plumbing code requirements. The solution he came up with would be a possible option for a hydronic system, but in a domestic water system that was a code violation.

Pitfall Number 20: Loss of both systems when there is a problem

When there is a problem with a combined system that causes the system to shut down, both the domestic hot water system and the heating hot water system are out of service. If it is a boiler problem or another major problem, the entire building could be without both systems for a long period of time.

Pitfall Number 21: Legionellae bacteria

A research report in 1988 authored by Al Steele, who was the president of the ASPE Research foundation at the time, recommended storing domestic hot water between 135 F and 140 F and utilizing a thermostatic mixing valve to mix the hot water down to a safe delivery temperature below 120 F. With a storage temperature of 140 F, Legionellae bacteria will die within 32 minutes.

The Legionellae bacteria cannot survive water temperatures above 131 F (55 C) for more than five or six hours. The bacteria die instantly at temperatures above 158 F (70 C). General protection against the bacteria can be achieved by designing an operating water temperature of at least 140 F (60 C) or higher. As temperatures increase, so does the risk of scalding. For system water temperatures below 140 F (60 C) special provisions are necessary to allow for cleaning and chemical treatment procedures for addressing the Legionellae bacteria in the domestic hot water system.

A storage temperature of 140 F should be high enough to protect the water heater from the bacteria, but in open systems with Legionellae bacteria in the municipal water supply, the potable hot water system would continually be reseeded with high dosages of water that is potentially infested with Legionellae bacteria. This is another reason why combined systems should have a closed loop for the heating hot water system.

Pitfall Number 22: Leakage of boiler water

When boiler water at a higher temperature than 140 F, (180 to 210 degrees F) leaks through a faulty zone valve or solenoid valve or is allowed to flow by gravity circulation through a circulating pump that is de-energized, there is the potential for overheating the domestic hot water. A thermostat that controls a solenoid valve or circulating pumps on the water heater should never be used to control the temperature in a domestic hot water system. Thermostats allow too great a temperature variation and there is potential for leakage and temperature creep. The best way to address this is to provide a thermostatic mixing valve that conforms to ASSE 1017 on the domestic hot water line coming from the hot water tank to provide a safe hot water distribution temperature.

If you are considering a combined system, avoiding these pitfalls should help keep your building warm and provide the occupants a safe temperature of hot water. If you don't avoid these pitfalls you could find yourself in hot water.

Another option would be to keep life simple and keep the systems separate. Then you will not have to worry about someone coming along later and messing up your system design with system modifications or poor maintenance that can create scalding issues. Steer clear of combined heating hot water and domestic hot water systems and you will also steer clear of potential litigation.

Ron George is president of Ron George Design & Consulting Services. He has served as Chairman of the International Residential Plumbing & Mechanical Code Committee. He has also served on the IPC Code committee. He is active in plumbing code and plumbing product standard development committees with ICC, IAPMO, ASSE, ASME, ISEA, ASHRAE, NFPA and ASTM. His company specializes in plumbing, piping, fire protection and HVAC system design and consulting services. He also provides plumbing and mechanical code consulting services and he provides investigations of mechanical system failures and litigation support. To contact Ron, email: Ron@Plumb-TechLLC.com.

Bibliography: Title of Magazine: Plumbing Engineer Magazine, 22 pitfalls to avoid when designing or installing a combined heating hot water and domestic hot water system, August, 2010 Part 1 & September 2010 Part 2, By Ron George, CIPE, CPD, President, Ron George Design & Consulting Services - Part 1 Website: http://plumbingengineer.com/aug_10/code.php ; Part 2 Website: http://plumbingengineer.com/sept_10/code.php
Copper Development Association's Copper Tube Handbook. website: http://www.copper.org/applications/plumbing/cth/

Cost Impact: Will not increase the cost of construction
There is no cost increase with this code change. This is simply a clarification. Combined system with open piping has not been allowed in the current code because of cross connections. This code change is just clarifying the language because the language is not clear it has allowed an unsafe condition to occur where it has been misinterpreted. Combined heating hot water and domestic hot water systems can still be used, There just needs to be a closed loops for the heating hot water to prevent contamination, stagnant water, corrosion and scald injuries.

P 151-15 : 608.9-GEORGE4656

P 152-15

608.11

Proponent: Jeremy Brown, NSF International, representing NSF International

2015 International Plumbing Code

Revise as follows:

608.11 ~~Painting of~~<u>Potable</u> water tanks. <u>Where in contact with potable water intended for drinking water, water tanks, coatings for the inside of tanks and liners for water tanks shall conform to NSF 61.</u> The interior surface of a potable water tank shall not be lined, painted or repaired with any material that changes the taste, odor, color or potability of the water supply when the tank is placed in, or returned to, service.

Reason: NSF/ANSI Standard 61 Drinking Water System Components-Health Effects addresses critical aspects of drinking water system components: whether contaminants that leach or migrate from the product/material into the drinking water are above acceptable levels in finished waters. Requiring NSF 61 will help protect the drinking water supply from the leaching of contaminants. The IPC and IRC already requires conformance to NSF 61 for pipes, fittings, faucets and valves intended to supply drinking water. (Sections 424.1, 605.3, 605.4, 605.5, 605.7 of IPC). It is logical that tanks should have to meet this same requirement to protect the drinking water. This requirement is also referenced in the Uniform Plumbing Code, and the water works regulations of 46 states.

There are adequate products on the market to fulfill this requirement as there are hundreds of products listed by NSF and other third party certifiers.

Cost Impact: Will not increase the cost of construction

Because there are many certified tanks, tank liners, and coatings on the market, this is not expected to increase the cost of construction.

P 152-15 : 608.11-BROWN5244

P 153-15

608.13.1

Proponent: Michael Moss, American Backflow Prevention Association, representing American Backflow Prevention Association (msmoss@utah.gov)

2015 International Plumbing Code

Revise as follows:

608.13.1 Air gap. The minimum required *air gap* shall be measured vertically from the lowest end of a potable water outlet to the *flood level rim* of the fixture or receptacle into which such potable water outlet discharges. *Air gaps* shall comply with ASME A112.1.2 and *air gap* fittings shall comply with ASME A112.1.3. <u>Products that are *listed* and *labeled* to ASME A112.1.2 or ASME A112.1.3 shall be considered to be in compliance with this section.</u>

Reason: Section 608.13.9 is incorrectly located with and greatly confused by the various types of backflow preventers within Section 608.13. This is specific to the types of backflow preventers, their standards and suitability for use in certain conditions. Table 608.1 aligns with that criteria. Chemical dispensers are already specified with the backflow requirements of Section 608.16.7.

Cost Impact: Will not increase the cost of construction
The installation and proper use of dispenser equipment would not increase or lower costs.

P 153-15 : 608.13.1-MOSS5815

P 154-15

608.13.4

Proponent: Michael Moss, American Backflow Prevention Association, representing American Backflow Prevention Association (msmoss@utah.gov)

2015 International Plumbing Code

Revise as follows:

608.13.4 Barometric loop. ~~Barometric loops~~A barometric loop shall ~~precede~~be designed and installed to rise vertically at an angle of 90 degrees from the ~~point of connection and shall extend vertically~~horizontal to a ~~height~~distance of 35 feet (10 668 mm) above the loop inlet and return vertically downwards through a 180 degree change in direction to the same elevation as the loop inlet. A barometric loop shall ~~only~~be considered to be ~~utilized as an atmospheric-type~~capable of preventing backsiphonage only where the pressure in the downstream piping is less than or ~~pressure-type vacuum breaker.~~equal to the pressure upstream of the loop, whether the flow in the loop is continuous or not.

Reason: The wording of the existing section poorly conveys the required design and installation of protection using a barometric loop. The downstream operating operating conditions are critical for proper use and installation

Cost Impact: Will not increase the cost of construction
This is a clarification of language for installation and inspection and no additional cost is involved.

P 154-15 : 608.13.4-MOSS5776

P 155-15

608.13.5, 608.13.8

Proponent: Michael Moss, American Backflow Prevention Association, representing American Backflow Prevention Association (msmoss@utah.gov)

2015 International Plumbing Code

Revise as follows:

608.13.5 Pressure vacuum breaker assemblies. Pressure vacuum breaker assemblies shall ~~conform to~~comply with ASSE 1020 or CSA B64.1.2. Spill-resistant vacuum breaker assemblies shall comply with ASSE 1056 or CSA B64.1.3. These assemblies ~~are designed for installation under continuous pressure conditions where~~shall be installed with the critical level ~~is installed at~~of the ~~required height~~assembly located not less than 12 inches (304.8 mm) above all downstream piping and outlets. Pressure vacuum breaker assemblies shall not be installed in locations where spillage could cause damage to the structure.

Delete without substitution:

~~**608.13.8 Spill-resistant pressure vacuum breaker assemblies.** Spill-resistant pressure vacuum breaker assemblies shall conform to ASSE 1056 or CSA B64.1.3. These assemblies are designed for installation under continuous-pressure conditions where the critical level is installed at the required height.~~

Reason: The existing section included spill-resistant vacuum breaker assemblies. Section 608.13.8 duplicated the requirements. The conditions for use of both types of backflow assemblies are the same. The deletion of the confusing language and the added language clarifies the installation requirements and inspection criteria for for applicable installations.

Cost Impact: Will not increase the cost of construction
There is no cost increase with proper planning and installation.

P 155-15 : 608.13.5-MOSS5777

P 156-15

608.13.6, 608.13.6.1 (New), 608.13.6.2 (New), 608.13.6.3 (New)

Proponent: Michael Moss, American Backflow Prevention Association, representing American Backflow Prevention Association (msmoss@utah.gov)

2015 International Plumbing Code

Revise as follows:

608.13.6 Atmospheric-type vacuum breakers. ~~Pipeapplied atmospheric-type vacuum~~Vacuum breakers shall ~~conform to ASSE 1001 or CSA B64.1.1~~be in accordance with Sections 608.13.6.1 and 608.13.6.2. ~~Hose-connection vacuum breakers~~Laboratory faucet backflow preventers shall ~~conform to ASME A112.21.3, ASSE 1011, ASSE 1019, ASSE 1035, ASSE 1052, CSA B64.2, CSA B64.2.1, CSA B64.2.1.1, CSA B64.2.2 or CSA B64.7. These devices shall operate under normal atmospheric pressure when the critical level is installed at the required height.~~be in accordance with Section 608.13.6.3.

Add new text as follows:

608.13.6.1 Pipe-applied vacuum breakers Pipe-applied atmospheric-type vacuum breakers shall conform to ASSE 1001 or CSA B64.1.1. These vaccum breakers shall be considered capable of functioning only where the downstream piping is open to the atmosphere and is located not less than 6 inches above all downstream piping and outlets.

608.13.6.2 Hose-connection vacuum breakers. Hose connection vacuum breakers shall conform to ASME A112.21.3, ASSE 1011, ASSE 1019, ASSE 1035, ASSE 1052, CSA B64.2, CSA B64.2.1, CSA B64.2.2 or CSA B64.7. These vacuum breakers shall be considered capable of functioning only where the downstream hose is open to the atmosphere and the open end of the hose is not greater than 10 feet (3048 mm) above the elevation of the vacuum breaker.

608.13.6.3 Laboratory faucet backflow preventers Laboratory faucet backflow preventers shall conform to ASSE 1035 or CSA B64.7. These backflow preventers shall be considered capable of functioning only where the downstream hose is open to the atmosphere and the open end of the hose is not greater than 10 feet (3048 mm) above the elevation of the backflow preventer.

Reason: Existing Section 608.13.6 has requirements for three (3) different vacuum breakers with multiple standards. The statement "These devices shall operate under normal atmospheric pressure when the critical level is installed at the required height." does not provide adequate and necessary guidance for installation and inspection. The section was divided to ensure proper and clear installation and inspection conditions for each device.

Cost Impact: Will not increase the cost of construction
Proper installation and identification will not increase cost.

P 156-15 : 608.13.6-MOSS5778

P 157-15

608.13.7, 608.13.10

Proponent: Michael Moss, American Backflow Prevention Association, representing American Backflow Prevention Association (msmoss@utah.gov)

2015 International Plumbing Code

Revise as follows:

608.13.7 Double check backflow prevention assemblies. Double check backflow prevention assemblies shall conform to ASSE 1015, CSA B64.5, CSA B64.5.1 or AWWA C510. Double check detector fire protection backflow prevention assemblies shall conform to ASSE 1048. These assemblies shall be considered to be capable of ~~operating~~functioning under ~~continuous~~any downstream pressure ~~conditions~~condition whether continuous or intermittent.

608.13.10 Dual check valve type backflow preventer. Dual check valve-type backflow preventers shall conform to ASSE 1024 or CSA B64.6. These backflow preventers shall be considered to be capable of functioning under any downstream pressure condition whether continuous or intermittent.

Reason: In Section 608.13.7 the deleted language is more of a device design statement than a required condition of service for proper operation of the device. The added language conveys permissable downstream operating conditions. This is much clearer langauge for installation and inspection.
Section 608.13.10 has been modified to properly identify this device in accordance with the ASSE naming convention and Table 608.1. The added language conveys the permissable downstream operating conditions. his is much clearer langauge for installation and inspection.

Cost Impact: Will not increase the cost of construction
There is not any cost involved with the clarification of this section.

P 157-15 : 608.13.7-MOSS5774

P 158-15

608.13.9, 608.16.7

Proponent: Michael Moss, American Backflow Prevention Association, representing American Backflow Prevention Association (msmoss@utah.gov)

2015 International Plumbing Code

Delete without substitution:

~~**608.13.9 Chemical dispenser backflow devices.** Backflow devices for chemical dispensers shall comply with ASSE 1055 or shall be equipped with an *air gap* fitting.~~

Revise as follows:

608.16.7 Chemical dispensers. Where chemical dispensers connect to the potable water distribution system, the water supply system shall be protected against backflow in accordance with Section 608.13.1, 608.13.2, 608.13.5, 608.13.6, ~~608.13.8~~ or ~~608.13.9~~608.13.8. The chemical dispenser unit shall connect to a dedicated water supply connection separate from any sink faucet outlet.

Exception: For chemical dispenser units *listed* to act as an air gap fitting because backflow protection is installed within the unit, an external means of protection shall not be required.

Reason: Section 608.13.9 is incorrectly located and confused with the various types of backflow preventers of Section 608.13 which is specific to the types of backflow preventers, their standards and suitability to certain conditions. Table 608.1 aligns with those. Chemical dispensers already specify the backflow requirements in Section 608.16.7

Cost Impact: Will not increase the cost of construction
There is no addition cost for the proper use and installation

P 158-15 : 608.13.9-MOSS5775

P 159-15

608.16.1 (New), 608.16.1, 608.16.1.2 (New)

Proponent: Roger Harper, representing Virginia Plumbing and Mechanical Inspectors Association (skip.harper@dhcd.virginia.gov)

2015 International Plumbing Code

Add new text as follows:

608.16.1 Beverage dispensers. The water supply connection to beverage dispensers shall be protected against backflow in accordance with Sections 608.16.1.1 and 608.16.1.2.

Revise as follows:

~~608.16.1~~608.16.1.1 ~~Beverage~~Carbonated beverage dispensers.
The water supply connection to carbonated beverage dispensers shall be protected against backflow by a backflow preventer conforming to ASSE 1022 or by an *air gap*. The portion of the backflow preventer device downstream from the second check valve of the device and the piping downstream therefrom shall not be affected by carbon dioxide gas.

Add new text as follows:

608.16.1.2 Coffee machines and non carbonated drink dispensers. The water supply connection to coffee machines and noncarbonated beverage dispensers shall be protected against backflow by a backflow preventer conforming to ASSE 1022, ASSE 1024 or by an air gap.

Reason: This section needs to be sub-divided into two catagories one for carbonated beverage dispensers and one for non carbonated dispensers.

Cost Impact: Will not increase the cost of construction
There is no cost increase but actually less cost in many cases because of the price difference between the backflow devices.

P 159-15 : 608.16.1-HARPER3516

P 160-15

608.16.1, 608.16.9, 608.16.10

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

608.16.1 Beverage dispensers. The water supply connection to each beverage ~~dispensers~~dispenser shall be protected against backflow by a backflow preventer conforming to ASSE 1022 or by an *air gap*. The portion of the backflow preventer device downstream from the second check valve and the piping downstream therefrom shall not be affected by carbon dioxide gas.

608.16.9 Dental ~~pump~~pumping equipment. ~~Where~~The water supply connection to each dental pumping equipment ~~connects to the water distribution system, the water supply~~ system shall be protected against backflow in accordance with Section 608.13.1, 608.13.2, 608.13.5, 608.13.6 or 608.13.8.

608.16.10 Coffee machines and noncarbonated beverage dispensers. The water supply connection to each coffee ~~machines~~machine and each noncarbonated beverage ~~dispensers~~dispenser shall be protected against backflow by a backflow preventer conforming to ASSE 1022 or by an *air gap*.

Reason: The reason for these revisions should be obvious. Each "unit" needs to be protected from backflow from the other "unit". For example, installing one backflow preventer device to serve multiple "units" leaves open the possibility that contamination in one "unit" could contaminate an adjacent "unit". In other words, cross contamination could occur. Although the backflow protection section of the code is primarily concerned with protecting the potable water supply from the "units", the code needs to also be specific about protection between units. These changes make this clear. Hopefully, many jurisdictions have already been aware of this potential problem and have already required separate backflow prevention devices for these units.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 128.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. For those jurisdictions that were not enforcing the code in this manner, yes, there might need to be extra backflow prevention devices installed. In those situations there will be an increased cost of material and labor.

P 160-15 : 608.16.1-SNYDER4014

P 161-15

608.16.1, 608.16.1.1 (New), 608.16.1.2 (New), 608.16.10

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

608.16.1 Beverage dispensers. The water supply connection to beverage dispensers shall be protected against backflow ~~by a backflow preventer conforming to ASSE 1022 or by an *air gap*. The portion of the backflow preventer device downstream from the second check valve~~in accordance with Section 608.16.1.1 and ~~the piping downstream therefrom shall not be affected by carbon dioxide gas~~608.16.1.2.

Add new text as follows:

608.16.1.1 Carbonated beverage dispensers. The water supply connection to carbonated beverage dispensers shall be protected against backflow by a backflow prevention device conforming to ASSE 1022 or by an air gap. The portion of the backflow preventer device downstream from the second check valve of the device and the piping downstream therefrom shall not be affected by carbon dioxide gas.

608.16.1.2 Coffee machines and noncarbonated beverage dispensers. The water supply connection to coffee machines and noncarbonated beverage dispensers shall be protected against backflow by a backflow prevention device conforming to ASSE 1024 or by an air gap.

Delete without substitution:

~~**608.16.10 Coffee machines and noncarbonated beverage dispensers.** The water supply connection to coffee machines and noncarbonated beverage dispensers shall be protected against backflow by a backflow preventer conforming to ASSE 1022 or by an *air gap*.~~

Reason: There is not a need to protect the potable water supply to coffee machines and noncarbonated beverage dispensers with a backflow prevention device that is suitable for a potable water supply connection to a carbonated beverage dispenser. The ASSE 1022 device is constructed especially for exposure to carbon dioxide gas and carbonated water. An ASSE 1024 device is a dual check valve device just like the ASSE 1022 device but it does not have an intermediate atmospheric vent and thus, does not require a drain. There isn't any justification for needing to use the ASSE 1022 device (and having to provide a drain for the vent) where there will not be exposure to carbon dioxide gas or carbonated water. What comes from a coffee machine or a non-carbonated beverage dispenser is supposedly safe enough to ingest so why have so great of concern that the potable water supply might become "polluted" with something that will not make people sick if an ASSE 1024 device fails. (See the definition of POLLUTED in Chapter 2).

Also consider that, in general, ASSE 1022 devices apparently don't have a long life according to many field reports. On the other hand, ASSE 1024 devices are frequently used with great success in many other similar low hazard applications.

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Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 161-15 : 608.16.1-SNYDER4015

P 162-15

Part I:
608.16.11 (New), 801.1, 801.2, 802.1
Part II:
P2725 (New), P2726.1 (New), P2902.6 (New)

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

Add new text as follows:

608.16.11 Humidifiers. The water supply connection to humidifiers shall be protected against backflow by a backflow preventer conforming to ASSE 1012 or by an *air gap.*

Revise as follows:

801.1 Scope. This chapter shall govern matters concerning indirect waste piping and special wastes. This chapter shall further control matters concerning food-handling establishments, sterilizers, humidifiers, clear-water waste, swimming pools, methods of providing *air breaks* or *air gaps*, and neutralizing devices for corrosive wastes.

801.2 Protection. Devices, appurtenances, appliances and apparatus intended to serve some special function, such as sterilization, humidification, distillation, processing, cooling, or storage of ice or foods, and that discharge to the drainage system, shall be provided with protection against backflow, flooding, fouling, contamination and stoppage of the drain.

802.1 Where required. Food-handling equipment, in other than dwelling units, clear-water waste, humidifiers, dishwashing machines and utensils, pots, pans and dishwashing sinks shall discharge through an indirect waste pipe as specified in Sections 802.1.1 through 802.1.8. Health-care related fixtures, devices and equipment shall discharge to the drainage system through an indirect waste pipe by means of an *air gap* in accordance with this chapter and Section 713.3. Fixtures not required by this section to be indirectly connected shall be directly connected to the plumbing system in accordance with Chapter 7.

Part II

2015 International Residential Code

Add new text as follows:

SECTION P2725
HUMIDIFIER DISCHARGE

P2726.1 Overflow pipe from humidifier. The overflow pipe from a humidifier shall terminate at an air gap before discharging water to the point of disposal.

P2902.6 Humidifiers. The water supply connection to humidifiers shall be protected against backflow by a backflow preventer conforming to ASSE 1012 or by an air gap.

Reason: Most humidifier manufacturer installation instructions only say to make potable water connections in accordance with local codes. The codes are silent on the protection of the water supply connection to humidifiers. Humidifiers, if not regularly serviced, can be a source of contamination to the connected water supply. The inspector has no way of knowing whether such pieces of equipment have internal backflow protection. This simple addition to the codes will clarify the humidifiers need to have a backflow device just like other similar pieces of equipment in the list of items.
Humidifiers have overflows that drain excess water. Improper (direct) connection of the overflow tube could cause a contamination to occur inside of the humidifier which could result in contamination being carried into the airstream of the equipment that the humidifier is attached to. The requirement for an air gap connection at the termination of this discharge tube will prevent this possible contamination from occurring.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 177.

Cost Impact:

Part I: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, there will be the added cost of a backflow preventer and the installation labor.

Part II: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, there will be the added cost of a backflow preventer and the installation labor.

P 162-15 : 608.16.11 (New)-SNYDER3958

P 163-15

610.1

Proponent: Ronald George, Self; www.LegionellaPrevention.org, representing Self (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Revise as follows:

610.1 General. New potable water systems shall be purged of deleterious matter and disinfected within two weeks prior to utilization and occupancy of the building. The method to be followed shall be that prescribed by the health authority or water purveyor having jurisdiction or, in the absence of a prescribed method, the procedure described in either AWWA C651 or AWWA C652, or as described in this section. This requirement shall apply to "on-site" or "inplant" fabrication of a system or to a modular portion of a system.

1. The pipe system shall be flushed with clean, potable water until dirty water does not appear at the points of outlet.
2. The system or part thereof shall be filled with a water/chlorine solution containing not less than 50 parts per million (50 mg/L) of chlorine, and the system or part thereof shall be valved off and allowed to stand for 24 hours; or the system or part thereof shall be filled with a water/chlorine solution containing not less than 200 parts per million (200 mg/L) of chlorine and allowed to stand for 3 hours.
3. Following the required standing time, the system shall be flushed with clean potable water until the chlorine is purged from the system.
4. The procedure shall be repeated where shown by a bacteriological examination that contamination remains present in the system.

Reason: Chlorine dissipates over time when it is introduced into the piping system and losses its ability to disinfect agains bacteria and other organic pathogens in the water piping. Upon initially filling the piping system, flushing can be done at that time, but final disinfection of the piping system should be completed within two weeks of occupancy the building. During the construction of a recnt project that filled severla city plocks, the plumbing system was flushed and filled with water. The piping was allowed to sit in temperatures over 100 degrees for almost twwo years before the building was completed and occupied. Immediate after occupancy there was an outbreak of Legionnaires disease from people showering in the stagnant water that had been in the pipes for a very long time. This code change is simply requiring the flushing to be performed at initial fill and construction and disinfection to occur within two weeks prior to occupancy so that the hazard of bacteria and Legionnella can be eliminated prior to occupancy.

Cost Impact: Will not increase the cost of construction
This code change is just changing the time of the disinfection to protect occupants in a new building. There is no additional cost.

P 163-15 : 610.1-GEORGE5587

P 164-15

611.2

Proponent: Jeremy Brown, NSF International, representing NSF Internaional

2015 International Plumbing Code

Revise as follows:

611.2 Reverse osmosis systems. Point-of-use reverse osmosis drinking water treatement units shall comply with NSF58 or CSA B483.1. The discharge from a reverse osmosis drinking water treatment unit shall enter the drainage system through an *air gap* or an *air gap* device that meets the requirements of NSF 58 or CSA B483.1.

Reason: Point-of-use reverse osmosis(RO) drinking water treatment units are commonly used in kitchens, day care centers, breakrooms, etc. These standards are a necessary reference to ensure the protection of public health from these units from a performance, material safety and contaminant reduction aspect. These standards are already referenced in the P2909.2 of the IRC and the reference here contains similar language.

Cost Impact: Will not increase the cost of construction
Because a majority of point of use products sold in the US already meet the requirements of NSF/ANSI 58, this code change is not expected to increase the cost of construction.

P 164-15 : 611.2-BROWN5076

P 165-15

614 (New), 614.1 (New), 614.2 (New),

Proponent: Ronald George, Self; Plumb-Tech Design & Consulting Services, representing Self (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Add new text as follows:

SECTION 614
PRESSURE GAUGES

614.1 Where required. Pressure gauges shall be installed in the following locations:

1. On the suction and discharge piping of water pressure booster pumps or booster pump package systems.
2. In buildings over 3 stories, at the top of each water riser.
3. In buildings over 3 stories, at the top of each pressure zone in a high rise building.
4. In buildings over 3 stories, at the bottom of each riser or pressure zone.
5. In buildings over 3 stories, at the bottom of each pressure zone.
6. In buildings over 3 stories, at the building water service entrance downstream of the meter and backflow preventer.

614.2 Gauge connection requirements Pressure gauges shall have snubbers and gauge cocks that can be normally closed except for when taking pressure readings to prevent physical damage to the gauge from water hammer and pump pulsations.

614.2 Gauge range selection. The range chosen for pressure gauges selection shall provide for the normal system operating pressure reading to be within the middle third of the range.

Reason: There should be requirements for pressure gauges to allow for diagnosis of sytem problems.

Cost Impact: Will increase the cost of construction
There is a slight cost associated with providing pressure gauges.

P 165-15 : 614 (New)-GEORGE5605

P 166-15

Part I:
701.2
Part II:
P2602.1

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

Revise as follows:

701.2 ~~Sewer~~Connection to sewer required. ~~Buildings in which~~Sanitary drainage piping from plumbing fixtures ~~are installed~~in buildings and ~~premises having~~sanitary drainage piping systems from premises shall be connected to a public *sewer~~, where~~*. Where a public sewer is not available, ~~or an *approved*~~ the sanitary drainage piping and systems shall be connected to a private sewage disposal system in compliance with state or local requirements. Where state or local requirements do not exist for private sewage disposal systems, the sanitary drainage piping and systems shall be connected to an approved private sewage disposal system that is in accordance with the *International Private Sewage Disposal Code*.

> **Exception:** Sanitary drainage piping and systems that convey only the discharge from bathtubs, showers, lavatories, clothes washers and laundry trays shall not be required to connect to a public sewer or to a private sewage disposal system provided that the piping or systems are connected to a system in accordance with Chapter 13 or 14.

Part II

2015 International Residential Code

Revise as follows:

P2602.1 General. The water-distribution~~ and drainage~~ system of any building or premises where plumbing fixtures are installed shall be connected to a public water supply~~ or sewer system, respectively, if available~~. Where~~ either~~ a public water-supply ~~or sewer system, or both, are~~system is not available, or connection to ~~them~~the supply is not feasible, an individual water supply ~~or individual (private) sewage-disposal system, or both, ~~shall be provided. Sanitary drainage piping from plumbing fixtures in buildings and sanitary drainage piping systems from premises shall be connected to a public sewer. Where a public sewer is not available, the sanitary drainage piping and systems shall be connected to a private sewage disposal system in compliance with state or local requirements. Where state or local requirements do not exist for private sewage disposal systems, the sanitary drainage piping and systems shall be connected to an approved private sewage disposal system that is in accordance with the International Private Sewage Disposal Code.

> **Exception:** Sanitary drainage piping and systems that convey only the discharge from bathtubs, showers, lavatories, clothes washers and laundry trays shall not be required to connect to a public sewer or to a private sewage disposal system provided that the piping or systems are connected to a system in accordance with Sections P2911 or P2910.

Reason: PART I: The section is being re-written because many jurisdictions have state and local laws regulating private sewage disposal systems and do not and cannot use the IPSDC. However, there are some jurisdictions that do not have state and local laws for private sewage disposal, therefore in those cases, the IPSDC provide regulations for waste disposal.

The section language (existing or revised) presents a roadblock for utilizing gray water systems. The exception was added to allow for gray water to be diverted from the sewer or private sewage disposal system so that it can be processes by systems in accordance with Chapters 13 or 14.

PART II: Some jurisdictions do not have state and local laws for private sewage disposal systems. Therefore in those cases, the IPSDC provides regulations for waste disposal. The section language (existing or revised) presents a roadblock for utilizing gray water systems. The exception was added to allow for gray water to be diverted from the sewer or private sewage disposal system so that it can be processed by systems in accordance with Chapters P2910 or P2911.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 199.

Cost Impact:

Part I: Will not increase the cost of construction

This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

Part II: Will not increase the cost of construction

This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, where private sewage disposal is not regulated by state and local laws, builders could do anything with sewage. They might not provide a large enough private sewage disposal system or one made of materials having long life. In those situations, there will be the extra cost for properly sized systems and better materials. Possibly there would be some additional labor for a larger installation.

P 166-15 : 701.2-SNYDER4017

P 167-15

701.8

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Delete without substitution:

~~**701.8 Drainage piping in food service areas.** Exposed soil or waste piping shall not be installed above any working, storage or eating surfaces in food service establishments.~~

Reason: Questions about this section have been coming up more frequently concerning the necessity of this requirement and the intent of the section. Does this section mean that soil and waste piping cannot be above the indicated areas regardless of whether a "ceiling" is between the piping and those areas? Or is this section requiring that a ceiling be installed and if so, what type of ceiling (lay-panel/grid work or gypsum board on framing)? Or is this section requiring custom-made "drip pans" under all soil and waste piping (whether there is a ceiling between the piping and the surfaces below or not)?

This section is vague and should be removed from the code. Here's why:

There seems to be the implication that soil and waste piping joints will always leak even though the piping is installed in accordance with the code and is pressure tested in the presence of a code official. If there really is a significant problem with joints failing, then that is an issue to be solved elsewhere. What about ductwork, sprinkler piping and even penetrations through a floor above that can leak "contaminated water" that can drop down to the surfaces below? What about condensation on the outside of cool surfaces that carry years of dirt off of surfaces. Why is there not a similar restriction against the installation of ductwork, sprinkler piping and penetrations above these areas?

If the assumption is made that a ceiling below the piping is what is required, why does a ceiling make the situation any more acceptable? Lay-in panel/grid ceiling systems can "leak" water without ever showing any damage to ceiling panels (think of the lighting troffers). Would we not be just as concerned about leakage in a space above a ceiling that served as an air plenum for a HVAC system?

A recent popular building design practice for restaurants is to not have a "ceiling" over the eating surfaces such as tables or bars. The "ceiling" in these areas is the bottom of the roof deck or the floor above. All the support structure, ductwork, sprinkler piping, other piping and associated hardware is exposed; typically all painted a uniform dark color.

Where the floor above the eating surfaces has plumbing fixtures, there will necessarily be soil and waste piping below the floor and in the open ceiling area just described. If the code intends for "drip pans" to be installed under the piping, then what should the drip pans be made of? Should those pans slope to a drain point? If so, where should the discharge of the drip pans be routed to? Is it acceptable to have the drip pans catching leaks for years and, unbeknownst to the owner, allowing a build-up of a festering mess of bacteria that is open to the moving ventilation air in the space?

A reading of the latest Food Code by the FDA, did not reveal any prohibitions for soil and waste piping above the surfaces indicated in this section. However, the Food Code does make a big deal about the "clean ability" of surfaces above food prep areas (but not above eating surfaces). Obviously, pipes and pipe hangers as well as most structural and ductwork surfaces would be difficult to clean. The local health departments enforcing their version of the Food Code will most likely demand ceilings in the food prep area even though the code (the IBC) does not have such a requirement.

Perhaps what needs to happen is that a proposal to the IBC be made to indicate that ceilings (and what type) are required above food preparation areas with the justification that the Food Code has concerns about "clean ability" of items that would be exposed if the ceiling was not there. That seems more logical than possibly what IPC Section 701.8 is trying to imply.

The PMGCAC did not feel that it was within their scope to make or suggest an IBC proposal for ceilings in restaurants. However, if such a proposal was made and was successful, it would be appropriate to make a proposal to the IPC that would prohibit the installation of any type of piping below a ceiling required by IBC Section 123.4 (whatever the IBC section number would end up being). Until then, this IPC Section 701.8 should simply be removed.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 137.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 167-15 : 701.8-SNYDER4019

P 168-15

Table 702.1

Proponent: Pennie L Feehan, Copper Development Association, representing Copper Development Association (penniefeehan@me.com)

2015 International Plumbing Code

Revise as follows:

TABLE 702.1
ABOVE-GROUND DRAINAGE AND VENT PIPE

MATERIAL	STANDARD
~~Brass pipe~~	~~ASTM B 43~~
Copper or copper-alloy pipe	ASTM B 42; ASTM B 43; B 302

(Portions of table not shown remain unchanged)

Reason: Brass is a copper alloy and I relocated the standard to the Copper and Copper Alloy Pipe line to cleanup the table.

Cost Impact: Will not increase the cost of construction
This proposal will not increast the cost of construction as this change is only to update the name of a material that is already in the code.

P 168-15 : T702.1-FEEHAN3796

P 169-15

Table 702.1,Table 702.2, Table 702.3, 705.12 (New)

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

TABLE 702.1
ABOVE-GROUND DRAINAGE AND VENT PIPE

MATERIAL	STANDARD
Ductile iron	AWWA C115/A21.15, AWWA C151/A21.51

(Portions of table not shown remain unchanged)

TABLE 702.2
UNDERGROUND BUILDING DRAINAGE AND VENT PIPE

MATERIAL	STANDARD
Ductile iron	AWWA C115/A21.15, AWWA C151/A21.51

(Portions of table not shown remain unchanged)

TABLE 702.3
BUILDING SEWER PIPE

MATERIAL	STANDARD
Ductile iron	AWWA C115/A21.15, AWWA C151/A21.51

(Portions of table not shown remain unchanged)

Add new text as follows:

705.12 Ductile iron. Joints between ductile iron pipe sections, or between ductile iron pipe and ductile or gray iron fittings shall be mechanical joints installed in accordance with the manufacturer's instructions.

Reason: Tables 702.1, 702.2, 702.3 are each missing a ductile iron pipe material entry even though the pipe fitting Table 702.4 includes ductile iron fittings. That in itself is a coordination problem. Why would the pipe fittings be included in the code but not the pipe? Over the years, there have been a few designers asking about what this is because they want to use ductile iron for sanitary drainage service. Although more costly that most other drainage pipe materials, there are good reasons for that material choice for special circumstances both inside and outside of a building. This material might be used where support spacing is desired to be much wider than the code allows (Table 308.5). Or burial in expansive soils creates significant stresses for the piping that other pipe materials don't have the strength to withstand.

Ductile iron piping is frequently used by utilities for wastewater service. The standards for ductile iron piping are already in the code because the same standards apply to ductile iron water piping. However, for water service, the piping is required (by this code) to have cement mortar lining to reduce rust coloring of potable water. Ductile iron for wastewater service does not need a lining.

The new section simply covers how the joints are to be made between fittings and the piping.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 52.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 169-15 : T702.1-SNYDER4020

P 170-15

Part I:
Table 702.2
Part II:
Table P3002.1

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC PLUMBING COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Mike Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservnet.com)

Part I

2015 International Plumbing Code

Revise as follows:

TABLE 702.2
UNDERGROUND BUILDING DRAINAGE AND VENT PIPE

MATERIAL	STANDARD
Polyolefin pipe	ASTM F 1412; <u>ASTM F714;</u> CSA B181.3

(Portions of table not shown remain unchanged)

Part II

2015 International Residential Code

Revise as follows:

TABLE P3002.1
UNDERGROUND BUILDING DRAINAGE AND VENT PIPE

PIPE	STANDARD
Polyolefin pipe	ASTM F 1412; <u>ASTM F714;</u> CSA B181.3

(Portions of table not shown remain unchanged)

Reason:

Part I: ASTM F714 polyethylene pipe is sometimes used to rehabilitate piping sewers under buildings. Currently the code does not list the product for that use, and we were asked to submit a change to allow the use of the product.

HDPE sewer pipe made to ASTM F714, *Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter* is currently listed under TABLE 702.2, Building Sewer Pipe, allowing its installation and use outside of buildings. Section 717, which is a new section in the code, explains the use and installation of the product outside of buildings in pipe bursting methods. PPFA has had calls regarding the codes not permitting the products under buildings when repair is needed.

Part II: ASTM F714 polyethylene pipe is sometimes used to rehabilitate piping sewers under buildings. Currently the code does not list the product for that use, and we were asked to submit a change to allow the use of the product.
HDPE sewer pipe made to ASTM F714, "Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter", is currently listed under TABLE P3002.1, Building Sewer Pipe, allowing its installation and use outside of buildings. PPFA has had calls regarding the codes not permitting the products under buildings when repair is needed.
ASTM F714, "Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter" is already in the code.

Cost Impact:

Part I: Will increase the cost of construction
This proposal allows for an optional pipe material to be used under buildings. The option is not requiring that this method be chosen. Thus the code with this proposal added will not cause the cost of construction to increase, and the material may even cost less than other options.

Part II: Will not increase the cost of construction
This proposal allows for an optional pipe material to be used under buildings. The option is not requiring that this method be chosen. Thus the code with this proposal added will not cause the cost of construction to increase, and the material may even cost less than other options.

P 170-15 : T702.2-CUDAHY4633

P 171-15

Table 702.3, 703.2, 705.16 (New)

Proponent: Shawn Coombs, Advanced Drainage Systems, Inc., representing Advanced Draiange Systems, Inc. (shawn.coombs@ads-pipe.com)

2015 International Plumbing Code

Revise as follows:

TABLE 702.3
BUILDING SEWER PIPE

MATERIAL	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D 2661; ASTM F 628; ASTM F 1488; CSA B181.1
Acrylonitrile butadiene styrene (ABS) plastic pipe in sewer and drain diameters, including SDR 42 (PS 20), PS 35, SDR 35 (PS 45), PS 50, PS 100, PS 140, SDR 23.5 (PS 150) and PS 200; with a solid, cellular core or composite wall	ASTM F 1488; ASTM D 2751
Cast-iron pipe	ASTM A 74; ASTM A 888; CISPI 301
Concrete pipe	ASTM C 14; ASTM C 76; CSA A257.1M; CSA A257.2M
Copper or copper-alloy tubing (Type K or L)	ASTM B 75; ASTM B 88; ASTM B 251
Polyethylene (PE) plastic pipe (SDR-PR)	ASTM F 714
Polypropylene (PP) Plastic Pipe	ASTM F2736; ASTM F2764; CSA B182.13
Polyvinyl chloride (PVC) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D 2665; ASTM F 891; ASTM F 1488
Polyvinyl chloride (PVC) plastic pipe in sewer and drain diameters, including PS 25, SDR 41 (PS 28), PS 35, SDR 35 (PS 46), PS 50, PS 100, SDR 26 (PS 115), PS 140 and PS 200; with a solid, cellular core or composite wall	ASTM F 891; ASTM F 1488; ASTM D 3034; CSA B182.2; CSA B182.4
Polyvinyl chloride (PVC) plastic pipe with a 3.25-inch O.D. and a solid, cellular core or composite wall	ASTM D 2949, ASTM F 1488
Polyvinylidene fluoride (PVDF) plastic pipe	ASTM F 1673; CSA B181.3

Stainless steel drainage systems, Types 304 and 316L	ASME A112.3.1
Vitrified clay pipe	ASTM C 4; ASTM C 700

For SI: 1 inch = 25.4 mm.

703.2 Drainage pipe in filled ground. Where a building sewer or building drain is installed on filled or unstable ground, the drainage pipe shall conform to one of the standards for ABS plastic pipe, cast-iron pipe, copper or copperalloy tubing, ~~or~~ PVC plastic pipe or PP plastic pipe listed in Table 702.3.

Add new text as follows:

705.16 Polypropylene plastic. The joint between polypropylene plastic pipe and fittings shall incorporate an elastomeric seal. The joint shall conform to ASTM D3212. Mechanical joints shall not be installed above ground.

Add new standard(s) as follows:

ASTM F2736-13e1 Standard Specification for 6 to 30 in (152 to 762 mm) Polypropylene (PP) Corrugated Single Wall Pipe And Double Wall Pipe

ASTM F2764/F2764M-11ae2 Standard Specification for 30 to 60 in (750 to 1500 mm) Polypropylene (PP) Triple Wall Pipe and Fittings for Non-Pressure Sanitary Sewer Applications

CSA B181.0-11 Definitions, general requirements, and methods of testing for thermoplastic non-pressure piping

CSA B182.13-11 Profile polypropylene (PP) sewer pipe and fittings for leak-proof sewer applications

Reason: This code change is proposed to incorporate the current ASTM and CSA standards for Polypropylene (PP) sanitary sewer pipe into the IPC code to bring it current with accepted pipe technology. PP pipe is widely used in North America for sanitary sewer trunk lines and has been used in Europe for many years for similar applications. The incorpoation of PP into the IPC will allow sewer authorities following IPC to specify PP pipe in their systems.

Cost Impact: Will not increase the cost of construction
Polypropylene has proven to be a lower cost alternative to many iother sanitary sewer pipe products.

Analysis: A review of the standard proposed for inclusion in the code,ASTM F2736-13e1, ASTM F2764/F2764M-11ae2, CSA B181.0-11 & CSA B182.13-11, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 171-15 : T702.3-COOMBS4586

P 172-15

Part I:
Table 702.4
Part II:
Table P3002.3

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

Revise as follows:

TABLE 702.4
PIPE FITTINGS

MATERIAL	STANDARD
Copper or copper alloy	~~ASME B 16.15; ASME B 16.18; ASME B 16.22;~~ ASME B 16.23~~; ASME B 16.26; ASME B 16.29~~

Part II

2015 International Residential Code

Revise as follows:

TABLE P3002.3
PIPE FITTINGS

PIPE MATERIAL	FITTING STANDARD
Copper or copper alloy	~~ASME B 16.15; ASME B 16.18; ASME B 16.22;~~ ASME B 16.23~~; ASME B 16.26; ASME B 16.29~~

Reason: PART I: Chapter 7 is the sanitary drainage chapter of the code. ASME B 16.15 (pressure fittings), B 16.18 (pressure fittings), B16.22 (pressure fittings) and B16.26 (flared copper tube fittings) are not drainage pattern fittings and should be removed from this table. The remaining standards ASME B16.23 and B16.29 are correct for DWV piping.
PART II: Chapter 30 is the sanitary drainage chapter of the code. ASME B 16.15 (pressure fittings), B 16.18 (pressure fittings), B16.22 (pressure fittings) and B16.26 (flared copper tube fittings) are not drainage pattern fittings and should be removed from this table. The remaining standards ASME B16.23 and B16.29 are correct for DWV piping.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 53.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

Part II: Will not increase the cost of construction

This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 172-15 : T702.4-SNYDER4058

P 173-15

Table 702.4

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

TABLE 702.4
PIPE FITTINGS

MATERIAL	STANDARD
~~Malleable iron~~	~~ASME B 16.3~~

(Portions of table not shown remain unchanged)

Reason: Chapter 7 is the sanitary drainage chapter of the code. The malleable iron row should be deleted. These are not drainage pattern fittings and would not be suitable for venting systems as the condensate would not ready flow back to the drain system. Malleable iron fittings has not been in the sanitary drainage fittings table of the IRC for many editions.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC). The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 54.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 173-15 : T702.4-SNYDER4059

P 174-15

Part I:
Table 702.4
Part II:
Table P3002.3

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

Revise as follows:

TABLE 702.4
PIPE FITTINGS

MATERIAL	STANDARD
Polyethylene	ASTM D2683

Part II

2015 International Residential Code

Revise as follows:

TABLE P3002.3
PIPE FITTINGS

PIPE MATERIAL	FITTING STANDARD
Polyethylene	ASTM D2683

(Portions of table not shown remain unchanged)

Reason: PART I: Polyethylene pipe is already in IPC table for Building Sewer Pipe. However, a corresponding entry for pipe fittings of this material was not installed in the fittings table. This created a problem where fittings were needed for this pipe. Fittings could be required for branch piping, lateral connections and cleanouts. Section 717 for Pipe Bursting for sewer replacement was added to the code in the last cycle. That section included the fitting standard ASTM D2683. This standard just needs to be put in Table 702.4 so that fittings for polyethylene pipe included for sewer applications other than pipe bursting sewer applications.
PART II: Polyethylene pipe is already in IRC table for Building Sewer Pipe. However, a corresponding entry for pipe fittings of this material was not installed in the fittings table. This created a problem where fittings were needed for this pipe. Fittings could be required for branch piping, lateral connections and cleanouts. Section P3010 for Pipe Bursting for sewer replacement was added to the code in the last cycle. That section included the fitting standard ASTM D2683. This standard just needs to be put in Table P3002.3 so that fittings for polyethylene pipe included for sewer applications other than pipe bursting sewer applications.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 35.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

Part II: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 174-15 : T702.4-SNYDER4060

P 175-15

702.5

Proponent: Mike Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservnet.com)

2015 International Plumbing Code

Revise as follows:

702.5 Temperature rating. Where the waste water temperature will be greater than 140°F (60°C), the sanitary drainage piping material shall be ~~rated~~ recommended for such service by the pipe and fitting manufacturers for the highest temperature of the waste water.

Reason: Non-pressure DWV piping materials are not "rated" as pressure piping is - rating is a combination temperature and pressure issue.

Cost Impact: Will not increase the cost of construction
This proposal is only modifying and correcting language and does not impact costs. Thus the code with this proposal added will not cause the cost of construction to increase.

P 175-15 : 702.5-CUDAHY4926

P 176-15

703.4

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

703.4 Existing building sewers and building drains. ~~Existing~~Where the entire sanitary drainage system of an existing building is replaced, existing building drains under concrete slabs and existing building sewers ~~and drains shall connect with new building sewer and drainage systems only where found by examination and test to conform to~~that will serve the new system shall be internally examined to verify that the piping is sloping in ~~quality~~the correct direction, is not broken, is not obstructed and is sized for the drainage load of ~~material. The code official shall notify~~ the ~~owner~~new plumbing drainage system to ~~make the changes necessary to conform to this code.~~be installed.

Reason: This same proposal was approved for the 2015 IRC. This proposal is to coordinate the IPC with the same allowance.

Consider a few situations that happen to buildings. 1) A slab-on grade building burns down or is wind damaged such that only the remaining slab foundation will be used to re-construct a new building. Re-use of the building drain would be desirable to avoid extensive slab rework. 2) A building is completely razed or the entire plumbing drainage system of a building needs replaced such that only the building sewer remains. Re-use of the building sewer would be desirable to avoid extensive costs and possible complications for replacing the sewer (such as crossing a public street to connect to the public sewer). Why tear out good, serviceable building drains and building sewers for the sake of replacing with new material? The only way to know if existing building drains and existing building sewers are serviceable is to internally examine the piping for problems.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 200.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 176-15 : 703.4-SNYDER4061

P 177-15

704.1, Table 704.1

Proponent: Ronald George, Self, representing Self (Ron@Plumb-TechLLC.com)

2015 International Plumbing Code

Revise as follows:

704.1 Slope of horizontal drainage piping. Horizontal drainage piping shall be installed in uniform alignment at uniform slopes. The slope of a horizontal drainage pipe shall be not less than that indicated in Table 704.1 except that where the drainage piping is upstream of a grease interceptor, the slope of the piping shall be twice that indicated in Table 704.1.

TABLE 704.1
SLOPE OF HORIZONTAL DRAINAGE PIPE

SIZE (inches)	MINIMUM SLOPE (inch per foot)
$2^1/_2$ or less	$^1/_4$[a]
3 to 6	$^1/_8$[a]
8 or larger	$^1/_{16}$[a]

For SI: 1 inch = 25.4 mm, 1 inch per foot = 83.33 mm/m.

Notes:

a. Slopes for piping draining to a grease interceptor shall comply with Section 704.1.

Reason: Currently there is no requirement for increased slope for grease laden waste to increase the velocity of the grease laden waste to get it to the interceptor before ot cools and coagulates in the drain line. This concept of increasing the slope of grease laden waste has been discussed in many design books and industry publications and articles for years, but it has not been a code requirement.

Cost Impact: Will not increase the cost of construction
There should be no additional materials required to apply this design.

P 177-15 : 704.1-GEORGE5824

P 178-15

Part I:
704.2
Part II:
P3005.1.6

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

Revise as follows:

704.2 ~~Change~~No reduction in size in the direction of flow. The size of the drainage piping shall not be reduced in ~~size in~~ the direction of the flow. The following shall not be considered a reduction in size in the direction of flow:

1. A 4-inch by 3-inch (102 mm by 76 mm) water closet ~~connection shall~~flange.
2. A water closet bend fitting having a 4-inch (102 mm) inlet and a 3-inch (76 mm) outlet provided that the 4 inch leg of the fitting is upright and below, but not ~~be considered as a reduction in size.~~necessarily directly connected to, the water closet flange.
3. An approved offset closet flange.

Part II

2015 International Residential Code

Revise as follows:

P3005.1.6 ~~Change~~No reduction in size in the direction of flow. The size of the drainage piping shall not be reduced in ~~size in~~ the direction of the flow. The following shall not be considered a reduction in size in the direction of flow:

1. A 4-inch by 3-inch (102 mm by 76 mm) water closet ~~connection shall~~flange.
2. A water closet bend fitting having a 4-inch (102 mm) inlet and a 3-inch (76 mm) outlet provided that the 4 inch leg of the fitting is upright and below, but not ~~be considered as a reduction in size.~~necessarily directly connected to, the water closet flange.
3. An approved offset closet flange.

Reason:

Part I: This section begs for clarification especially since 4 x 3 closet bends (elbows) and offset closet flanges are frequently being used in current day construction. Item 1 is not any change to what was stated before.

Item 2- Four x 3 closet bends were commonly used many decades ago when these bends were made of lead. The item is carefully worded to make the intent clear that the bend is to be installed in the upright orientation (and not horizontally). Also, the wording indicates that the bend is not required to be directly connected to closet flange – there can be a vertical section of pipe between the upright bend and the closet flange.

Item 3-Offset closet flanges have been used for decades. Some jurisdictions are reluctant to allow any offset closet flanges because the code doesn't outright discuss the use offset flanges (nor does it prohibit them). Because some offset closet flanges are especially "restrictive looking", code officials didn't want to start allowing some types and not other types. This section is often cited as the basis for disapproving the use of all offset flanges. However, that doesn't seem completely appropriate as some offset closet flanges comply with the standards indicated for pipe fittings in Table 702.4. For example, the standard ASTM D2665 (for PVC fittings) references the standard ASTM D3311 for the patterns and dimensions of DWV fittings. Table 44 in ASTM D3311 shows two types of offset closet flanges. Thus, a code official denying the use of that particular offset closet flange might not be supported by what the code is allowing by Table 702.4. Therefore, Item 3 is being added to open the door for fittings that are already approved by inclusion in a referenced standard and any other offset closet flange that the code official thinks is acceptable.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 201.

Part II: This section begs for clarification especially since 4 x 3 closet bends (elbows) and offset closet flanges are frequently being used in current day construction. Item 1 is not any change to what was stated before.

Item 2- Four x 3 closet bends were commonly used many decades ago when these bends were made of lead. The item is carefully worded to make the intent clear that the bend is to be installed in the upright orientation (and not horizontally). Also, the wording indicates that the bend is not required to be directly connected to closet flange – there can be a vertical section of pipe between the upright bend and the closet flange.

Item 3-Offset closet flanges have been used for decades. Some jurisdictions are reluctant to allow any offset closet flanges because the code doesn't outright discuss the use offset flanges (nor does it prohibit them). Because some offset closet flanges are especially "restrictive looking", code officials didn't want to start allowing some types and not other types. This section is often cited as the basis for disapproving the use of all offset flanges. However, that doesn't seem completely appropriate as some offset closet flanges comply with the standards indicated for pipe fittings in Table P3002.3. For example, the standard ASTM D2665 (for PVC fittings) references the standard ASTM D3311 for the patterns and dimensions of DWV fittings. Table 44 in ASTM D3311 shows two types of offset closet flanges. Thus, a code official denying the use of that particular offset closet flange might not be supported by what the code is allowing by Table P3002.3. Therefore, Item 3 is being added to open the door for fittings that are already approved by inclusion in a referenced standard and any other offset closet flange that the code official thinks is acceptable.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 201.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

Part II: Will not increase the cost of construction

This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 178-15 : 704.2-SNYDER4063

P 179-15

705.3, 705.3.1, 705.3.2, 705.3.3, 705.3.4

Proponent: Pennie L Feehan, Copper Development Association, representing Copper Development Association (penniefeehan@me.com)

2015 International Plumbing Code

Delete without substitution:

~~**705.3 Brass.** Joints between brass pipe or fittings shall comply with Sections 705.3.1 through 705.3.4.~~

~~**705.3.1 Brazed joints.** All joint surfaces shall be cleaned. An *approved* flux shall be applied where required. The joint shall be brazed with a filler metal conforming to AWS A5.8.~~

~~**705.3.2 Mechanical joints.** Mechanical joints shall be installed in accordance with the manufacturer's instructions.~~

~~**705.3.3 Threaded joints.** Threads shall conform to ASME B1.20.1. Pipe-joint compound or tape shall be applied on the male threads only.~~

~~**705.3.4 Welded joints.** All joint surfaces shall be cleaned.The joint shall be welded with an *approved* filler metal.~~

Reason: The proposal removes brass because brass is a copper alloy and is covered in Section 706.6 and Secton 705.7.

Cost Impact: Will not increase the cost of construction
This proposal will not increast the cost of construction as this change is only to update the name of a material that is already in the code.

P 179-15 : 705.3-FEEHAN3800

P 180-15

705.16.1, 705.16.2, 705.16.3, 705.19

Proponent: Pennie L Feehan, representing Copper Development Association (penniefeehan@me.com)

2015 International Plumbing Code

Revise as follows:

705.16.1 Copper or copper-alloy pipe or tubing to cast-iron hub pipe. Joints between copper or copper-alloy pipe or tubing and cast-iron hub pipe shall be made with a ~~brass~~ copper or copper-alloy ferrule or compression joint. The copper or copper-alloy pipe or tubing shall be soldered to the ferrule in an *approved* manner, and the ferrule shall be joined to the cast-iron hub by a caulked joint or a mechanical compression joint.

705.16.2 Copper or copper-alloy pipe or tubing to galvanized steel pipe. Joints between copper or copper-alloy pipe or tubing and galvanized steel pipe shall be made with a ~~brass converter fitting~~ copper-alloy or dielectric fitting. The copper tubing shall be soldered to the fitting in an *approved* manner, and the fitting shall be screwed to the threaded pipe.

705.16.3 Cast-iron pipe to galvanized steel ~~or brass pipe~~. Joints between cast-iron and galvanized steel ~~or brass pipe~~ shall be made by either caulked or threaded joints or with an *approved* adapter fitting.

705.19 Soldering bushings. Soldering bushings shall be of ~~red brass~~ copper or copper-alloy and shall be in accordance with Table 705.19.

Reason: This proposal cleans up the section and does not change the intent. Copper-alloy is the term used to identify materials manufactured where copper is the base metal and it includes brass and bronze. The term brass convertor fitting is typical use in fuel gas piping systems.

Cost Impact: Will not increase the cost of construction
This proposal will not increast the cost of construction as this change is only to update the name of a material that is already in the code.

P 180-15 : 705.16.1-FEEHAN3968

P 181-15

Part I:
705.16.1
Part II:
P3003.13.1, P3003.13.2, P3003.13.3

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

Proponent: Pennie L Feehan, representing Copper Development Association (penniefeehan@me.com)

Part I

2015 International Plumbing Code

Revise as follows:

705.16.1 Copper pipe or ~~copper-alloy~~ tubing to cast-iron hub pipe. Joints between copper pipe or ~~copper-alloy~~ tubing and cast-iron hub pipe shall be made with a ~~brass~~ copper-alloy ferrule or compression joint. The copper pipe or ~~copper-alloy~~ tubing shall be soldered to the ferrule in an *approved* manner, and the ferrule shall be joined to the cast-iron hub by a caulked joint or a mechanical compression joint.

Part II

2015 International Residential Code

Revise as follows:

P3003.13.1 Copper pipe or ~~copper-alloy~~ tubing to cast-iron hub pipe. Joints between copper pipe or ~~copper-alloy~~ tubing and cast-iron hub pipe shall be made with a copper-alloy ferrule or compression joint. The copper pipe or ~~copper-alloy~~ tubing shall be soldered to the ferrule in an *approved* manner, and the ferrule shall be joined to the cast-iron hub by a caulked joint or a mechanical compression joint.

P3003.13.2 Copper pipe or ~~copper-alloy~~ tubing to galvanized steel pipe. Joints between copper pipe or ~~copper-alloy~~ tubing and galvanized steel pipe shall be made with a copper-alloy ~~fitting~~ or dielectric fitting. The copper tubing shall be soldered to the fitting in an *approved* manner, and the fitting shall be screwed to the threaded pipe.

P3003.13.3 Cast-iron pipe to galvanized steel or ~~brass~~copper-alloy pipe. *No change to text.*

Reason: This proposal cleans up the section and does not change the intent. Copper alloy is the term used to identify materials manufactured where copper is the base metal and it includes brass and bronze. The term brass convertor fitting is typical use in fuel gas piping systems.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal will not increast the cost of construction as this change is only to update the name of a material that is already in the code.

Part II: Will not increase the cost of construction
This proposal will not increase the cost of construction as this change is only to update the name of a material that is already in the code.

P 181-15 : 705.16.1-FEEHAN3983

P 182-15

705.16.2

Proponent: Pennie L Feehan, representing Copper Development Association (penniefeehan@me.com)

2015 International Plumbing Code

Revise as follows:

705.16.2 Copper or copper-alloy tubing to galvanized steel pipe. Joints between copper pipe or ~~copper-alloy~~ tubing and galvanized steel pipe shall be made with a ~~brass converter fitting~~ copper-alloy or dielectric fitting. The copper tubing shall be soldered to the fitting in an *approved* manner, and the fitting shall be screwed to the threaded pipe.

Reason: Because brass is a copper-alloy the sentence does not make sense. It's telling you to use a brass fitting when you are already using a brass nipple.

Cost Impact: Will not increase the cost of construction
This proposal will not increast the cost of construction as this change is only to update the name of a material that is already in the code.

P 182-15 : 705.16.2-FEEHAN3954

P 183-15

705.16.3

Proponent: Pennie L Feehan, representing Copper Development Association (penniefeehan@me.com)

2015 International Plumbing Code

Revise as follows:

705.16.3 Cast-iron pipe to galvanized steel or ~~brass~~copper-alloy pipe. Joints between cast-iron and galvanized steel or ~~brass~~ copper-alloy pipe shall be made by either caulked or threaded joints or with an *approved* adapter fitting.

Reason: Copper alloy is the term used to identify materials manufactured where copper is the base metal and it includes brass and bronze.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction as this change is only to update the name of a material that is already in the code.

P 183-15 : 705.16.3-FEEHAN3986

P 184-15

Part I:
705.16.4, 707.1, Chapter 14
Part II:
P3003.2, P3003.13.4, Chapter 44

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC PLUMBING COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Mike Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservnet.com)

Part I

2015 International Plumbing Code

Revise as follows:

705.16.4 Plastic pipe or tubing to other piping material. Joints between different types of plastic pipe shall be made with an approved adapter fitting or by a solvent cement joint only where a single joint is made between ABS and PVC pipes at the end of a building drainage pipe and the beginning of a building sewer pipe using a solvent cement complying with ASTM D3138. Joints between plastic pipe and other piping material shall be made with an *approved* adapter fitting. Joints between plastic pipe and cast-iron hub pipe shall be made by a caulked joint or a mechanical compression joint.

707.1 Prohibited joints. The following types of joints and connections shall be prohibited:

1. Cement or concrete joints.
2. Mastic or hot-pour bituminous joints.
3. Joints made with fittings not *approved* for the specific installation.
4. Joints between different diameter pipes made with elastomeric rolling O-rings.
5. Solvent-cement joints between different types of plastic pipe except where provided for in Section 705.16.4.
6. Saddle-type fittings.

Add new standard(s) as follows:
ASTM D3138-04(2011) , Standard Specification for Solvent Cements for Transition Joints Between Acrylonitrile-Butadiene-Styrene (ABS) and Poly(Vinyl Chloride) (PVC) Non-Pressure Piping Component.

Part II

2015 International Residential Code

Revise as follows:

P3003.2 Prohibited joints. Running threads and bands shall not be used in the drainage system. Drainage and vent piping shall not be drilled, tapped, burned or welded.
The following types of joints and connections shall be prohibited:

1. Cement or concrete.
2. Mastic or hot-pour bituminous joints.
3. Joints made with fittings not *approved* for the specific installation.
4. Joints between different diameter pipes made with elastomeric rolling O-rings.
5. Solvent-cement joints between different types of plastic pipe except where provided for in Section P3003.13.4.
6. Saddle-type fittings.

P3003.13.4 Plastic pipe or tubing to other piping material. Joints between different types of plastic pipe shall be made with *approved* adapter fitting or by a solvent cement joint only where a single joint is made between ABS and PVC pipes at the end of a building drainage pipe and the beginning of a building sewer pipe using a solvent cement complying with ASTM D3138. Joints between plastic pipe and other piping material shall be made with an *approved* adapter fitting. Joints between plastic pipe and cast-iron hub pipe shall be made by a caulked joint or a mechanical compression joint.

Add new standard(s) as follows:
ASTM D3138-04(2011) Standard Specification for Solvent Cements for Transition Joints Between Acrylonitrile-Butadiene-Styrene (ABS) and Poly(Vinyl Chloride) (PVC) Non-Pressure Piping Components

Reason: The use of a special transition cement for this single application is widely accepted, both by local authorities having jurisdiction and other national codes when the building sewer and building drainage change from ABS to PVC. This will create a consistent practice in the industry.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal allows for an optional method of joining used elsewhere, but not in this code. The option is not requiring that this method be chosen. Thus the code with this proposal added will not cause the cost of construction to increase.

Part II: Will not increase the cost of construction
This proposal allows for an optional method of joining used elsewhere, but not in this code. The option is not requiring that this method be chosen. Thus the code with this proposal added will not cause the cost of construction to increase.

Analysis:

Part I: A review of the standard proposed for inclusion in the code, ASTM D3138, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

Part II: A review of the standard proposed for inclusion in the code, ASTM D3138, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 184-15 : 705.16.4-CUDAHY4617

P 185-15

705.18

Proponent: Pennie L Feehan, representing Copper Development Association (penniefeehan@me.com)

2015 International Plumbing Code

Revise as follows:

705.18 Caulking ferrules. Ferrules shall be of ~~red brass~~ copper-alloy and shall be in accordance with Table 705.18.

Reason: Copper alloy is the term used to identify materials manufactured where copper is the base metal and it includes brass and bronze.

Cost Impact: Will not increase the cost of construction
This proposal will not increast the cost of construction as this change is only to update the name of a material that is already in the code.

P 185-15 : 705.18-FEEHAN3982

P 186-15

705.18

Proponent: Janine Snyder, City of Thornton, Colorado, representing Colorado Association of Plumbing & Mechanical Officials (Janine.Snyder@cityofthornton.net)

2015 International Plumbing Code

Revise as follows:

705.18 Caulking ferrules. ~~Ferrules~~Caulking ferrules shall be of red brass and shall be in accordance with Table 705.18.

Reason: Simply an editorial clarification within the section.

Cost Impact: Will not increase the cost of construction
This is merely an editorial change to clarify the type of ferrule not a new code requirement.

P 186-15 : 705.18-SNYDER5377

P 187-15

705.19

Proponent: Pennie L Feehan, representing Copper Development Association (penniefeehan@me.com)

2015 International Plumbing Code

Revise as follows:

705.19 Soldering bushings. Soldering bushings shall be of ~~red brass~~ copper-alloy and shall be in accordance with Table 705.19.

Reason: Copper alloy is the term used to identify materials manufactured where copper is the base metal and it includes brass and bronze.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction as this change is only to update the name of a material that is already in the code.

P 187-15 : 705.19-FEEHAN3987

P 188-15

Table 706.3

Proponent: Robert Perry, representing self (BPerry@gmail.com)

2015 International Plumbing Code

Revise as follows:

TABLE 706.3
FITTINGS FOR CHANGE IN DRAINAGE FLOW DIRECTION

TYPE OF FITTING PATTERN	CHANGE IN FLOW DIRECTION[a]		
	Horizontal to vertical	**Vertical to horizontal**	**Horizontal to horizontal**
BEND PATTERNS			
Sixteenth bend	~~X~~Y	~~X~~Y	~~X~~Y
Eighth bend	~~X~~Y	~~X~~ Y	~~X~~Y
Sixth bend	~~X~~Y	~~X~~Y	~~X~~Y
Plastic Quarter bend	~~X~~Y	~~X[a]~~ L[b]	~~X[a]~~ L[b]
Plastic Long sweep quarter bend	~~X~~Y	~~X~~Y	~~X~~Y
Cast iron Quarter bend	Y	L[b]	L[b]
Cast iron Short sweep (90 degree bend)	~~X~~Y	~~X[a]~~ L[b,c]	~~X[a]~~ L[c]
Cast iron Long sweep (90 degree bend)	~~X~~Y	~~X~~Y	~~X~~Y
BRANCH FITTING PATTERNS[e]			
Sanitary tee	~~X[c]~~ L[d]	NA	NA
Wye	~~X~~Y	~~X~~Y	~~X~~Y
Combination wye and eighth bend	~~X~~Y	~~X~~Y	~~X~~Y

For SI: ~~1 inch = 25.4 mm.~~ 1 degree = 0.17 radians.

a. ~~The fittings shall only be permitted for a 2-inch or smaller fixture drain.~~ Legend: Y = Acceptable use. NA = Not allowed. L = Limited use; refer to the indicated note.

b. ~~Three inches or larger.~~ For 2-inch (50.8 mm) or smaller sizes, acceptable for piping serving only a single fixture.

c. ~~For a limitation on double sanitary tees, see Section 706.3.~~ Acceptable only for 3-inch or larger size piping.

d. Double pattern is limited in accordance with Section 706.3.

e. Double and single patterns.

706.3 Installation of fittings. Fittings shall be installed to guide sewage and waste in the direction of flow. Change in direction shall be made by fittings installed in accordance with Table 706.3. Change in direction by combination fittings, side inlets or increasers shall be installed in accordance with Table 706.3 based on the pattern of flow created by the fitting. ~~Double~~The branches of double sanitary tee patterns shall not receive the discharge of any of the following:

> ~~**Exception:** Back-to-back water closet connections to double sanitary tees shall be permitted where the horizontal developed length between the outlet of the double sanitary tee pattern is 18 inches (457 mm) or greater.~~

1. back-to-back water closetswhere either water closet is less than 18 inches horizontal developed length from the water closet outlet to the connection to the sanitary tee.
2. ~~and~~ fixtures or appliances with pumping action discharge.
3. drainage stacks discharging to both branches of the tee where the vertical portion of either stack is within 10 pipe diameters horizontally to the sanitary tee.

Reason: The existing table is is primitive, at best, and it is a wonder that more installers haven't made significant mistakes. There even isn't a legend for what X means. First off, putting an "X" in a table cell where something is allowed is just backward to how the rest of the world uses "X"s. This is the reason for changing the "X"s to "Y"s. (The new legend in the note a indicates Y=Acceptable use.)
Next, putting a dash in for where something is "not allowed" doesn't make sense either. Use of "NA" makes more sense. (The new legend in the note a indicates NA=Not Allowed)

Then, having a X with superscript note letters doesn't tell give a quick, clear warning that something (in the notes) needs to be considered. That is why I used "L" to indicate that the use is Limited and to see the specific notes in the table. (The new legend in the note a indicates L=Limited use: see notes)

The headers for BEND PATTERNS and BRANCH FITTING PATTERNS were put in to be helpful in separating the table for better reading. Also, this alloed me to a note on BRANCH FITTING PATTERNS to indicate that this part of the table applies to both single and double patterns. This has always been a hot topic in the plumber and code official worlds as some of each think that this table only applies to single patterns for some types of fittings in some applications. There have been articles written in magazines about this. The added note "e" makes it clear that the table is for both single and double. Note that I have submitted a companion proposal for the issue about double wyes and double combos being used in horizontal drains if this particular part of the proposal causes you concern. Some don't like this practice, some seem to think it is OK to do. I believe my companion proposal will resolve all concerns.

The existing notes were reworded for clarity...no changes in requirements were done.

Changes to Section 706.3 were included with this proposal as I felt that since the table made reference to that section, it should be in this proposal.

I changed how Section 706.3 was laid out for the back-to-back issue because i wanted to include item 3. There have been situations where some plumbers wanted to connect the horizontal pipes from the bases of two stacks, into a double san tee. If those stacks were really close to each other,then the flow from one could shoot across the double san tee and into the pipe coming from the other stack. I think that it is necessary to limit how close the base of a stack can be to these double san tees to avoid presssure fluctuations in the system (and perhaps clogging). The old timers "right way" to make the connection would be to use a double combo....but there could be reasons that someone would want to use the tee (probably a double san tee is cheaper!) . If they do that, they need to be limited.

Cost Impact: Will not increase the cost of construction
This is just a clarification of the table. The additional Item 3 for Section 706.3 is just a limitation that would rarely, if ever apply. There wouldn't be any hardship in labor and materials. The installer would just do the work in a slightly different way, not at any greater cost.

P 188-15 : 706.3-PERRY5791

P 189-15

706.4 (New)

Proponent: Robert Perry, representing Self (BPerry@gmail.com)

2015 International Plumbing Code

Add new text as follows:

706.4 Double pattern fittings in horizontal piping Double wye fittings and double combination-wye-and-eighth-bend fittings shall not be installed in horizontal drain piping except where the barrell of the fitting is installed at a slope of not less than 1/2 inch per foot (4-percent).

Reason: This issue is the source of great aggravation for many installers. Some code officials say NO, you cannot have a double wye or a double combo wye "in the flat". Others, including some APSE engineers say that this is allowed. Mathematically, when the barrel of the fitting is set at a minimum slope, especially slopes such as 1% or less, the slope in the branches is almost nothing. This could lead to stoppages in the lines connecting to the branches. Along with the possibility that the branches might not be set perfectly level with each other, this is precisely why some people refuse to allow this type of fitting "in the flat". But what if the barrel of the fitting is installed with a greater slope such as 8% slope (about 1 inch per foot). The branches would have plenty of slope for proper flow. The issue as to whether to allow or not allow double pattern fittings in horizontal piping has to do with the slope of the barrell of the fitting.
This proposal requires a 4 percent slope (or greater) for that barrell of the fitting. That 1/2 inch per foot slope results in slightly greater than 3/8 inch per foot slope (about 3% slope) in the branches of the fitting. That is enough slope for any size of piping connecting to the branches and has a little leeway to account fot he installer not setting the branches perfectly level. I strongly request that you approve this proposal to end the years of arguments abou this issue. And it doesn't matter to me if the committee wanted to change the slope number to something larger like 3/4 inch per foot slope (about 6% slope) to be safe about what is happening in the branches. Just choose a number and let's move forward.

Cost Impact: Will not increase the cost of construction
This proposal would solidify the allowance to use a single fitting in some applications so there would be a reduction in labor and material costs.

P 189-15 : 706.4 (New)-PERRY5790

P 190-15

Part I:
705.16.4, 707.1, Chapter 14
Part II:
P3003.13.4, P3003.2, Chapter 44

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

Proponent: Tim Earl, GBH International, representing The Oatey Company (tearl@gbhinternational.com)

Part I

2015 International Plumbing Code

Revise as follows:

705.16.4 Plastic pipe or tubing to other piping material. Joints between different types of plastic pipe or between plastic pipe and other piping material shall be made with an *approved* adapter fitting. Joints between plastic pipe and cast-iron hub pipe shall be made by a caulked joint or a mechanical compression joint.

<u>**Exception:** Where a PVC sewer pipe connects to an ABS building drainage pipe, an adapter fitting shall not be required to be used where a single, solvent cement joint will be used. The solvent cement for the single joint shall be green in color and shall conform to ASTM D3138.</u>

707.1 Prohibited joints. The following types of joints and connections shall be prohibited:

1. Cement or concrete joints.
2. Mastic or hot-pour bituminous joints.
3. Joints made with fittings not *approved* for the specific installation.
4. Joints between different diameter pipes made with elastomeric rolling O-rings.
5. Solvent-cement joints between different types of plastic pipe<u> except where provided for in Section 705.16.4</u>.
6. Saddle-type fittings.

Add new standard(s) as follows:
<u>ASTM D3138 - ??? Standard Specification for Solvent Cements for Transition Joints Between Acrylonitrile-Butadiene-Styrene (ABS) and Poly(Vinyl Chloride) (PVC) Non-Pressure Piping Components</u>

Part II

2015 International Residential Code

Revise as follows:

P3003.13.4 Plastic pipe or tubing to other piping material. Joints between different types of plastic pipe or between plastic pipe and other piping material shall be made with an *approved* adapter fitting. Joints between plastic pipe and cast-iron hub pipe shall be made by a caulked joint or a mechanical compression joint.

<u>**Exception:** Where a PVC sewer pipe connects to an ABS building drainage pipe, an adapter fitting shall not be required to be used where a single, solvent cement joint will be used. The solvent cement for the single joint shall be green in color and shall conform to ASTM D3138.</u>

P3003.2 Prohibited joints. Running threads and bands shall not be used in the drainage system. Drainage and vent piping shall not be drilled, tapped, burned or welded.

The following types of joints and connections shall be prohibited:

1. Cement or concrete.
2. Mastic or hot-pour bituminous joints.
3. Joints made with fittings not *approved* for the specific installation.
4. Joints between different diameter pipes made with elastomeric rolling O-rings.
5. Solvent-cement joints between different types of plastic pipe<u> except as provided for in Section P3003.13.4</u>.
6. Saddle-type fittings.

Add new standard(s) as follows:
<u>ASTM D3138 - 04 (2011) Standard Specification for Solvent Cements for Transition Joints Between Acrylonitrile-Butadiene-Styrene (ABS) and Poly(Vinyl Chloride) (PVC) Non-Pressure Piping Components</u>

Cost Impact:

Part I: Will not increase the cost of construction
This may save as much as $50 per such joint, accounting for labor reduction and no longer needing mechanical joint components.

Part II: Will not increase the cost of construction
This may save as much as $50 per such joint, accounting for labor reduction and no longer needing mechanical joint components.

Analysis:

Part II: A review of the standard proposed for inclusion in the code, ASTM D3138, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 190-15 : 707.1-EARL4640

P 191-15

Part I:
708.1.6
Part II:
P3005.2.6

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

Proponent: Pennie L Feehan, representing Copper Development Association (penniefeehan@me.com)

Part I

2015 International Plumbing Code

Revise as follows:

708.1.6 Cleanout plugs. Cleanout plugs shall be of ~~brass~~copper-alloy, plastic or other *approved* materials. Cleanout plugs for borosilicate glass piping systems shall be of borosilicate glass. ~~Brass~~Copper-alloy cleanout plugs shall conform to ASTM A 74 and shall be limited for use only on metallic piping systems. Plastic cleanout plugs shall conform to the referenced standards for plastic pipe fittings, as indicated in Table 702.4. Cleanout plugs shall have a raised square head, a countersunk square head or a countersunk slot head. Where a cleanout plug will have a trim cover screw installed into the plug, the plug shall be manufactured with a blind end threaded hole for such purpose.

Part II

2015 International Residential Code

Revise as follows:

P3005.2.6 Cleanout plugs. Cleanout plugs shall be copper alloy, plastic or other *approved* materials. Cleanout plugs for borosilicate glass piping systems shall be of borosilicate glass. ~~Brass~~ Copper-alloy cleanout plugs shall conform to ASTM A74 and shall be limited for use only on metallic piping systems. Plastic cleanout plugs shall conform to the referenced standards for plastic pipe fittings as indicated in Table P3002.3. Cleanout plugs shall have a raised square head, a countersunk square head or a countersunk slot head. Where a cleanout plug will have a trim cover screw installed into the plug, the plug shall be manufactured with a blind end threaded hole for such purpose.

Reason: This proposal cleans up the section and does not change the intent. There are many different copper and copper-alloy compositions. Copper alloy is the term used to identify materials manufactured where copper is the base metal and it includes brass and bronze.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal will not increast the cost of construction as this change is only to update the name of a material that is already in the code.

Part II: Will not increase the cost of construction
This proposal will not increase the cost of construction as this change is only to update the name of a material that is already in the code.

P 191-15 : 708.1.6-FEEHAN3973

P 192-15

709.3

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

709.3 ~~Values for continuous and semicontinuous~~Conversion of gpm flow into dfu values. Where discharges to a waste receptor or to a drainage system are only known in gallons per minute (liters per second) values, the ~~*Drainage*~~*drainage fixture unit* values for ~~continuous and semicontinuous flow into a drainage system~~those flows shall be computed on the basis that 1 gpm (0.06 L/s) of flow is equivalent to two *drainage* fixture units.

Reason: This section is often misunderstood because of the vague and undefined terms "continuous" and "semicontinuous". Also, some have interpreted that this is a conversion factor that works in both directions. It is not and was never intended to be because of the "probability of use" of a fixture that is incorporated in all dfu values. This equivalency is provided as an easy way to convert gallons per minute flows into an approximate dfu value so that the designer of the plumbing system can move forth with the design of the drainage system according to dfu sizing tables.

This wording only clarifies the intent of the existing section and does not add any new requirements.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 34.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 192-15 : 709.3-SNYDER4064

P 193-15

709.4

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

709.4 Values for indirect waste receptor. The *drainage fixture unit* load of an indirect waste receptor receiving the discharge of indirectly connected fixtures shall be the sum of the *drainage fixture unit* values of the fixtures that discharge to the receptor, but not less than the *drainage fixture unit* value given for the ~~indirect~~ waste receptor in Table 709.1 or 709.2.

Reason: This is a simple cleanup of language for clarity. Although there could be an indirectly connected waste receptor, there is no such thing as an indirect waste receptor. Piping (discharging) to a waste receptor is often called indirect waste piping because the connection to the sanitary drainage system is indirect (through an air gap or air break). This section is not about the special circumstance of the outlet pipe from a waste receptor discharging to another waste receptor. For example, such as a floor drain in a refrigerated food storage room required to discharge to a waste receptor outside of the room.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 202.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 193-15 : 709.4-SNYDER4065

P 194-15

Part I:
712.3.2
Part II:
P3007.3.2

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC PLUMBING COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Donald Surrena, National Association of Home Builders, representing National Association of Home Builders (dsurrena@nahb.org)

Part I

2015 International Plumbing Code

Revise as follows:

712.3.2 Sump pit. The sump pit shall be not less than 18 inches (457 mm) in diameter and not less than 24 inches (610 mm) in depth, unless otherwise *approved*. The pit shall be accessible and located such that all drainage flows into the pit by gravity. The sump pit shall be constructed of tile, concrete, steel, plastic or other *approved* materials. The pit bottom shall be solid and provide permanent support for the pump. The sump pit shall be fitted with a gastight removable cover that is installed ~~flush with grade or floor level, or above~~<u>not more than 2 inches (51 mm) below</u> grade or floor level. The cover shall be adequate to support anticipated loads in the area of use. The sump pit shall be vented in accordance with Chapter 9.

Part II

2015 International Residential Code

Revise as follows:

P3007.3.2 Sump pit. The sump pit shall be not less than 18 inches (457 mm) in diameter and 24 inches (610 mm) deep, unless otherwise *approved*. The pit shall be accessible and located so that drainage flows into the pit by gravity. The sump pit shall be constructed of tile, concrete, steel, plastic or other *approved* materials. The pit bottom shall be solid and provide permanent support for the pump. The sump pit shall be fitted with a gas-tight removable cover that is installed ~~above grade level or floor level, or~~ not more than 2 inches (51 mm) below grade or floor level. The cover shall be adequate to support anticipated loads in the area of use. The sump pit shall be vented in accordance with Chapter 31.

Reason: The purpose of this code change is to make the IPC consistent with the IRC where the sump cover is installed not more than 2 inches below grade. Currently the cover for sump pits needs to be located at grade or higher leaving little to no flexibility for the design of the finished floor, however by allowing the cover to be not more than 2 inches below grade (as in the IRC) or higher eliminates this problem.

Cost Impact:

Part I: Will not increase the cost of construction
When unable to install cover flush with grade, or to allow for a finished surface, correcting the problem could potentially cost in excess of $200. Therefore, this code change could decrease the cost of construction in certain circumstances.

Part II: Will not increase the cost of construction
There is no change to the requirements of this section. This proposal is for correlation purposes only.

P 194-15 : 712.3.2-SURRENA5014

P 195-15

Part I:
712.3.3
Part II:
P3007.3.3

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

Revise as follows:

712.3.3 Discharge pipe and fittings. Discharge pipe and fittings serving sump pumps and ejectors shall be constructed of materials in accordance with Sections 712.3.3.1 and 712.3.3.2~~ and shall be *approved*~~.

Part II

2015 International Residential Code

Revise as follows:

P3007.3.3 Discharge pipe and fittings. Discharge pipe and fittings serving sump pumps and ejectors shall be constructed of materials in accordance with Sections P3007.3.3.1 and P3007.3.3.2~~ and shall be *approved*~~.

Reason:

Part I: Subsections 712.3.3.1 and 712.3.3.1 provide enough guidance to the designer and installer for proper selection of discharge piping components such that there is not a need for the code official to further approve the selections. Besides, what other criteria would a code official use to grant approval?

> **712.3.3.1 Materials.** Pipe and fitting materials shall be constructed of brass, copper, CPVC, ductile iron, PE, or PVC.
>
> **712.3.3.2 Ratings.** Pipe and fittings shall be rated for the maximum system operating pressure and temperature. Pipe fitting materials shall be compatible with the pipe material. Where pipe and fittings are buried in the earth, they shall be suitable for burial.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 50.

Part II: Subsections P3007.3.3.1and P3007.3.3.2 provide enough guidance to the designer and installer for proper selection of discharge piping components such that there is not a need for the code official to further approve the selections. Besides, what other criteria would a code official use to grant approval?

> **P3007.3.3.1 Materials.** Pipe and fitting materials shall be constructed of copper alloy, copper, CPVC, ductile iron, PE, or PVC.
>
> **P3007.3.3.2 Ratings.** Pipe and fittings shall be rated for the maximum system operating pressure and temperature. Pipe fitting materials shall be compatible with the pipe material. Where pipe and fittings are buried in the earth, they shall be suitable for burial.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 50.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

Part II: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 195-15 : 712.3.3-SNYDER4066

P 196-15

712.3.3.1

Proponent: Pennie L Feehan, representing Copper Development Association (penniefeehan@me.com)

2015 International Plumbing Code

Revise as follows:

712.3.3.1 Materials. Pipe and fitting materials shall be constructed of ~~brass~~copper, ~~copper~~copper-alloy, CPVC, ductile iron, PE, or PVC.

Reason: This proposal cleans up the section and does not change the intent. Copper alloy is the term used to identify materials manufactured where copper is the base metal and it includes brass and bronze.

Cost Impact: Will not increase the cost of construction
This proposal will not increast the cost of construction as this change is only to update the name of a material that is already in the code.

P 196-15 : 712.3.3.1-FEEHAN3975

P 197-15

Part I:
712.4.2
Part II:
P3007.6

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

Proponent: Robert Adkins, Prince William County, representing Virginia Plumbing and Mechanical Inspectors Association (radkins@pwcgov.org)

Part I

2015 International Plumbing Code

Revise as follows:

712.4.2 Capacity. A sewage pump or sewage ejector shall have the capacity and head for the application requirements. Pumps or ejectors that receive the discharge of water closets shall be capable of handling spherical solids with a diameter of up to and including 2 inches (51 mm). Other pumps or ejectors shall be capable of handling spherical solids with a diameter of up to and including ~~1~~ ½ inch (~~25~~13 mm). The capacity of a pump or ejector based on the diameter of the discharge pipe shall be not less than that indicated in Table 712.4.2.

Exceptions:

1. Grinder pumps or grinder ejectors that receive the discharge of water closets shall have a discharge opening of not less than 1 -1/4 inches (32 mm).
2. Macerating toilet assemblies that serve single water closets shall have a discharge opening of not less than $^3/_4$ inch (19 mm).

Part II

2015 International Residential Code

Revise as follows:

P3007.6 Capacity. Sewage pumps and sewage ejectors shall have the capacity and head for the application requirements. Pumps and ejectors that receive the discharge of water closets shall be capable of handling spherical solids with a diameter of up to and including 2 inches (51 mm). Other pumps or ejectors shall be capable of handling spherical solids with a diameter of up to and including ~~1 inch (25.4 mm)~~½ inch (13 mm). The minimum capacity of a pump or ejector based on the diameter of the discharge pipe shall be in accordance with Table 3007.6.

Exceptions:

1. Grinder pumps or grinder ejectors that receive the discharge of water closets shall have a discharge opening of not less than $1^1/_4$ inches (32 mm).
2. Macerating toilet assemblies that serve single water closets shall have a discharge opening of not less than $^3/_4$ inch (19 mm).

Reason: Many pumps do not comply with the 1 inch minimum requirement, especially smaller pump systems used for individual fixtures such as pantry sinks, etc. Numerous pumps for these purposes are available with this size discharge.

Cost Impact:

Part I: Will not increase the cost of construction
Allowing a slightly smaller pump will not increase the cost of construction.

Part II: Will not increase the cost of construction
Allowing a slightly smaller pump will not increase the cost of construction.

P 197-15 : 712.4.2-ADKINS3488

P 198-15

Part I:
712.4.2
Part II:
P3007.6

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

Revise as follows:

712.4.2 Capacity. A sewage pump or sewage ejector shall have the capacity and head for the application requirements. Pumps or ejectors that receive the discharge of water closets shall be capable of handling spherical solids with a diameter of up to and including 2 inches (51 mm). Other pumps or ejectors shall be capable of handling spherical solids with a diameter of up to and including **1/2** inch (~~25~~13 mm). The capacity of a pump or ejector based on the diameter of the discharge pipe shall be not less than that indicated in Table 712.4.2.

Exceptions:

1. Grinder pumps or grinder ejectors that receive the discharge of water closets shall have a discharge opening of not less than $1^1/_4$ inches (32 mm).
2. Macerating toilet assemblies that serve single water closets shall have a discharge opening of not less than $^3/_4$ inch (19.1 mm).

Part II

2015 International Residential Code

Revise as follows:

P3007.6 Capacity. Sewage pumps and sewage ejectors shall have the capacity and head for the application requirements. Pumps and ejectors that receive the discharge of water closets shall be capable of handling spherical solids with a diameter of up to and including 2 inches (51 mm). Other pumps or ejectors shall be capable of handling spherical solids with a diameter of up to and including **1/2** inch (~~25.4~~13 mm). The minimum capacity of a pump or ejector based on the diameter of the discharge pipe shall be in accordance with Table 3007.6.

Exceptions:

1. Grinder pumps or grinder ejectors that receive the discharge of water closets shall have a discharge opening of not less than $1^1/_4$ inches (32 mm).
2. Macerating toilet assemblies that serve single water closets shall have a discharge opening of not less than $^3/_4$ inch (19 mm).

Reason: There are smaller pump systems used for individual fixtures such as pantry sinks and bar sinks that are only capable of passing ½ inch solids. These pumps have been successfully used in jurisdictions where these pumps were approved as an alternative method.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 113.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

Part II: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 198-15 : 712.4.2-SNYDER4067

P 199-15

713 (New), 713.1 (New), 713.1.1 (New), 713.1.2 (New)

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing InSinkErator (JBENGINEER@aol.com)

2015 International Plumbing Code

Add new text as follows:

SECTION 713
FOOD WASTE IN COMMERCIAL FOOD HANDLING ESTABLISHMENTS

713.1 Food waste. In commercial food handling establishments, the disposal of food waste shall be in accordance with Section 713.1.1 or Section 713.1.2.

713.1.1 Food waste disposer. Food waste shall discharge to the sanitary drainage system through a commercial food waste disposer.

713.1.2 Separation of food waste. Food waste shall be separated from sanitary drainage flow. Such food waste shall be put into a trash receptacle, a composting bin, a beneficial reuse bin or a pulper for disposal. Sink strainers and mechanical strainers shall be an *approved* means for separating food waste from drainage flow.

Reason: While this may appear to be an obvious requirement, there are still plumbing systems that have food waste discharged down the drain. The only time food waste should discharge down the drain in a food handling establishment is after it has been first ground up through a commercial food waste disposer.
If a commercial food waste disposer is not provided, the food waste must be disposed of in another manner. The most common method of disposing of food waste is to a trash receptacle. Other options are to compost the food waste, have it sent for beneficial reuse, or dispose of it to a pulper.

This code requirement will help prevent stoppages in the drainage system resulting for large food waste items that do not belong in the piping. Only pulverized food particle are intended to be discharged to the sanitary drainage system.

Cost Impact: Will not increase the cost of construction
The intent of the code is currently to prevent uncontrolled food waste from discharging down the drain. This section merely identifies the options for doing this.

P 199-15 : 713 (New)-BALLANCO3806

P 200-15

713.4

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

713.4 Vacuum system station. Ready *access* shall be provided to vacuum system station ~~receptacles~~inlets. ~~Such receptacles shall be built into cabinets or recesses and shall be visible.~~

Reason: The proper term is 'inlet', not 'receptacles'. It is a conflict to both require being built into a cabinet and visible. The inlets cannot be recessed because it would be too hard to connect with patient equipment

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal removes a potentially hazardous requirement. There are many more options available, therefore, the cost of construction will not change.

P 200-15 : 713.4-WILLIAMS4253

P 201-15

713.5, 713.6, 713.7, 713.7.1, 713.7.2

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

713.5 ~~Bottle~~Medical vacuum system. ~~Vacuum (fluid suction)~~ Medical vacuum systems intended for collecting, removing and disposing of blood, ~~pus~~other bodily fluids or ~~other fluids by the bottle system~~waste anesthesia gasses shall ~~provided~~comply with ~~receptacles equipped with an overflow prevention device at each vacuum outlet station.~~NFPA 99.

Delete without substitution:

~~**713.6 Central disposal system equipment.** Central vacuum (fluid suction) systems shall provide continuous service. Systems equipped with collecting or control tanks shall provide for draining and cleaning of the tanks while the system is in operation. In hospitals, the system shall be connected to the emergency power system. The exhausts from a vacuum pump serving a vacuum (fluid suction) system shall discharge separately to open air above the roof.~~

~~**713.7 Central vacuum or disposal systems.** Where the waste from a central vacuum (fluid suction) system of the barometric-lag, collection-tank or bottle-disposal type is connected to the drainage system, the waste shall be directly connected to the sanitary drainage system through a trapped waste.~~

~~**713.7.1 Piping.** The piping of a central vacuum (fluid suction) system shall be of corrosion-resistant material with a smooth interior surface. A *branch* shall be not less than $^1/_2$- inch (12.7 mm) nominal pipe size for one outlet and shall be sized in accordance with the number of vacuum outlets. A main shall be not less than 1-inch (25 mm) nominal pipe size. The pipe sizing shall be increased in accordance with the manufacturer's instructions as stations are increased.~~

~~**713.7.2 Velocity.** The velocity of airflow in a central vacuum (fluid suction) system shall be less than 5,000 feet per minute (25 m/s).~~

Reason: This proposal deletes some of the incomplete requirements in this section and references NFPA 99, which is broadly accepted as the national standard for medical gas and vacuum systems. It is much more appropriate to send the medical vacuum component of the piping system to NFPA 99 for design and installation. This system is covered more completely in 5.1.10 in that standard. As written the requirements in this section are incomplete. NFPA99 is already referenced in Section 1202.1.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
NFPA 99 is referenced in Section 1202.1, therefore, there would be no increase in construction cost.

P 201-15 : 713.5-WILLIAMS4254

P 202-15

Part I:
715.1, 715.2 (New)
Part II:
P3008.1, P3008.2 (New)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC PLUMBING COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Mainline Backflow Products (JBENGINEER@aol.com)

Part I

2015 International Plumbing Code

Revise as follows:

715.1 ~~**Sewage backflow.**~~**Where required.** Where plumbing fixtures are installed on a floor with a finished floor elevation below the elevation of the manhole cover of the next upstream manhole in the public *sewer*, such fixtures shall be protected by a backwater valve installed in the *building drain*, or horizontal *branch* serving such fixtures. ~~Plumbing fixtures installed on a floor with a finished floor elevation above the elevation of the manhole cover of the next upstream manhole in the public *sewer* shall not discharge through a backwater valve.~~

> ~~**Exception:** In existing buildings, fixtures above the elevation of the manhole cover of the next upstream manhole in the public *sewer* shall not be prohibited from discharging through a backwater valve.~~

Add new text as follows:

715.2 Allowable installation. Where plumbing fixtures are installed on a floor with a finished floor elevation above the elevation of the manhole cover of the next upstream manhole in the public sewer, and a backwater valve is installed in the building drain or horizontal branch serving such fixtures, the backwater valve shall be of the normally-open type.

> **Exception:** Normally-closed backwater valve installations for existing buildings shall not be prohibited.

Part II

2015 International Residential Code

Revise as follows:

P3008.1 ~~**Sewage backflow.**~~**Where required.** Where the flood level rims of plumbing fixtures are below the elevation of the manhole cover of the next upstream manhole in the public sewer, the fixtures shall be protected by a backwater valve installed in the *building drain*, branch of the *building drain* or horizontal branch serving such fixtures. ~~Plumbing fixtures having flood level rims above the elevation of the manhole cover of the next upstream manhole in the public sewer shall not discharge through a backwater valve.~~

> ~~**Exception:** In existing buildings, fixtures above the elevation of the manhole cover of the next upstream manhole in the *public sewer* shall not be prohibited from discharging through a backwater valve.~~

Add new text as follows:

P3008.2 Allowable installation. Where plumbing fixtures are installed on a floor with a finished floor elevation above the elevation of the manhole cover of the next upstream manhole in the public sewer, and a backwater valve is installed in the building drain or horizontal branch serving such fixtures, the backwater valve shall be of the normally-open type.

> **Exception:** Normally-closed backwater valve installations for existing buildings shall not be prohibited.

Reason:

Part I: This section was originally developed based on the use of what is now classified as "normally closed backwater valve." ASME A112.14.1 has two categories of backwater valves, normally closed backwater valves and normally open backwater valves. A normally open backwater valve allows the free movement of air throughout the drainage system. The connection to the public sewer is based on having a free movement of air from the public sewer through the vent terminal on the roof.
When a normally closed backwater valve is installed for the entire plumbing system, this is not accomplished. However, with a normally open backwater valve, the free movement of air occurs in the sanitary drainage and vent system.

This change merely adds a distinction between the use of a normally closed backwater valve and a normally open backwater valve. The requirements for normally closed backwater valve remain the same. The only change is to revise the title of the section to read, "Where required." Since this is the section that requires backwater valves to be installed, it is most appropriate to entitle the section, "Where required."

The second half of the original section has been split into a new section entitled, "Allowable installation." This is the part of the original code section that placed limitations on using backwater valves for fixtures that are located above the elevation of the manhole cover. The change is to allow the discharge of fixtures located above the elevation of the manhole cover provided that a normally open backwater valve is installed. This is consistent with the intended use of each style of backwater valve.

The wording of the exception was been changed to reflect the revised wording to Section 915.2. However, the requirements of the exception do not change. It still will allow a normally closed backwater valve for an existing building.

Part II: This section was originally developed based on the use of what is now classified as "normally closed backwater valve." ASME A112.14.1 has two categories of backwater valves, normally closed backwater valves and normally open backwater valves. A normally open backwater valve allows the free movement of air throughout the drainage system. The connection to the public sewer is based on having a free movement of air from the public sewer through the vent terminal on the roof.

When a normally closed backwater valve is installed for the entire plumbing system, this is not accomplished. However, with a normally open backwater valve, the free movement of air occurs in the sanitary drainage and vent system.

This change merely adds a distinction between the use of a normally closed backwater valve and a normally open backwater valve. The requirements for normally closed backwater valve remain the same. The only change is to revise the title of the section to read, "Where required." Since this is the section that requires backwater valves to be installed, it is most appropriate to entitle the section, "Where required."

The second half of the original section has been split into a new section entitled, "Allowable installation." This is the part of the original code section that placed limitations on using backwater valves for fixtures that are located above the elevation of the manhole cover. The change is to allow the discharge of fixtures located above the elevation of the manhole cover provided that a normally open backwater valve is installed. This is consistent with the intended use of each style of backwater valve.

The wording of the exception was been changed to reflect the revised wording of Section P3008.2. However, the requirements of the exception do not change. It still will allow a normally closed backwater valve for an existing building.

Cost Impact:

Part I: Will increase the cost of construction
This change provides options for the code user. There is no additional language mandating the use of backwater valves.

Part II: Will not increase the cost of construction
This change provides options for the code user. There is no additional language mandating the use of backwater valves.

P 202-15 : 715.1-BALLANCO3730

P 203-15

Part I:

715.2, 715.3, 715.4, 715.5

Part II:

P3008.2, P3008.5, P3008.3, P3008.4

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC PLUMBING COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Mainline Backflow Products (JBENGINEER@aol.com)

Part I

2015 International Plumbing Code

Revise as follows:

715.2 Material. ~~Bearing parts of backwater valves shall be of corrosion-resistant material.~~
Backwater valves shall comply with ASME A112.14.1, CSA B181.1 or CSA B181.2.

Delete without substitution:

~~**715.3 Seal.** Backwater valves shall be so constructed as to provide a mechanical seal against backflow.~~

~~**715.4 Diameter.** Backwater valves, when fully opened, shall have a capacity not less than that of the pipes in which they are installed.~~

Revise as follows:

~~**715.5**~~**715.3 Location.** Backwater valves shall be installed so that *access* is provided to the working parts~~ for service and repair~~.

Part II

2015 International Residential Code

Revise as follows:

P3008.2 Material. ~~Bearing parts of backwater valves shall be of corrosion-resistant material.~~
Backwater valves shall comply with ASME A112.14.1, CSA B181.1 or CSA B181.2.

~~**P3008.5**~~**P3008.3 Location.** Backwater valves shall be installed so that access is provided to *the working parts~~ are accessible for service and repair~~*.

Delete without substitution:

~~**P3008.3 Seal.** Backwater valves shall be constructed to provide a mechanical seal against backflow.~~

~~**P3008.4 Diameter.** Backwater valves, when fully opened, shall have a capacity not less than that of the pipes in which they are installed.~~

Reason:

Part I: This change cleans up the language in the section. Backwater valves, like all plumbing products, are required to be third party listed. The listing is to the referenced standard. The reference standard has the requirements that are proposed to be stricken in the section. Furthermore, plumbing inspectors are not checking on the dimensions or working parts of a listed backwater valve.
Paragraph 2.4 of ASME A112.14.1 goes into great detail regarding the material requirements for the backwater valve. Not only are the bearing parts corrosion resistant, the quality of the corrosion resistance is listed. Hence the first sentence in Section 712.2 is unnecessary.

Paragraph 3.2 of the ASME standard specifies water tightness requirements for the backwater valve. Hence, Section 712.3 is unnecessary.

Paragraph 2.1.1 of the ASME standard requires the backwater valve to comply with the opening dimensions of Table 1. The opening dimensions equal the pipe dimensions. Hence, Section P712.4 is unnecessary.

The last section does not require a statement that the access is for service and repair. The language is simply cleaned up to use the term defined in the code

Part II: This change cleans up the language in the section. Backwater valves, like all plumbing products, are required to be third party listed. The listing is to the referenced standard. The reference standard has the requirements that are proposed to be stricken in the section. Furthermore, plumbing inspectors are not checking on the dimensions or working parts of a listed backwater valve.
Paragraph 2.1.1 of ASME A112.14.1 requires the backwater valve to comply with the opening dimensions of Table 1. The opening dimensions equal the pipe dimensions. Hence, Section P3008.4 is unnecessary.

Paragraph 2.4 of the ASME standard goes into great detail regarding the material requirements for the backwater valve. Not only are the bearing parts corrosion resistant, the quality of the corrosion resistance is listed. Hence the first sentence in Section P3008.2 is unnecessary.

Paragraph 3.2 of the ASME standard specifies water tightness requirements for the backwater valve. Hence, Section P3008.3 is unnecessary.

The last section has been cleaned up to identify that the internal moving components are what must be accessible. The movement in the code has been to use the term, "provide access" or "access is provided," as opposed to accessible. The term "accessible" is more associated with requirements for the physically challenged. The sentence would become identical to the wording in the IPC.

Cost Impact:

Part I: Will not increase the cost of construction
There are no changes to the mandatory requirements. This cleans up the requirement with greater reliance on the standard and listing.

Part II: Will not increase the cost of construction
There is no change in the requirements. The proposal cleans up the langauge with reliance on the standard and the listing.

P 203-15 : 715.2-BALLANCO3731

P 204-15

Part I:
717.4, 717.5
Part II:
P3010.4, P3010.5

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC PLUMBING COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Mike Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservnet.com)

Part I

2015 International Plumbing Code

Revise as follows:

717.4 Pipe. The replacement ~~piping~~pipe shall be ~~manufactured with~~made of a high density polyethylene (HDPE) and shall have a standard dimension ratio (SDR) of 17 ~~and~~. The pipe shall be in compliance with ASTM F 714.

717.5 Pipe fittings. Pipe fittings to be connected to the replacement ~~piping~~pipe shall be made of ~~extra-high molecular weight PE3408 material~~high-density polyethylene (HDPE) and shall be ~~manufactured with an SDR of 17 and~~ in compliance with ASTM D 2683.

Part II

2015 International Residential Code

Revise as follows:

P3010.4 Pipe. The replacement pipe shall be made of a high-density polyethylene (HDPE) ~~that conforms to cell classification number PE3608, PE4608 or PE4710 as indicated in ASTM F 714. The pipe fittings~~and shall be ~~manufactured with an SDR of 17 and~~ in compliance with ASTM F 714.

P3010.5 Pipe fittings. Pipe fittings to be connected to the replacement ~~piping~~pipe shall be made of high-density polyethylene (HDPE) ~~that conforms to cell classification number PE3608, PE4608 or PE4710 as indicated in ASTM F 714. The pipe fittings~~and shall be ~~manufactured with an SDR of 17 and~~ in compliance with ASTM D 2683.

Reason: ASTM F714, Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter, only refers to pipe, not fittings. Fittings are not made in SDR's. And calling out resin designation codes is not necessary. This change has a companion change in the IRC to get the requirements to match this language.

Cost Impact:

Part I: Will not increase the cost of construction
None.

Part II: Will not increase the cost of construction
This proposal is modifying language to coordinate with each other in multiple code sections and does not impact costs. Thus the code with this proposal added will not cause the cost of construction to increase."

P 204-15 : 717.4-CUDAHY4648

P 205-15

Part I:
718 (New), Chapter 14
Part II:
3011 (New), Chapter 44

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

Proponent: Larry Gill, representing IPEX USA LLC (larry.gill@ipexna.com)

Part I

2015 International Plumbing Code

Add new text as follows:

SECTION 718
REPLACEMENT OF UNDERGROUND SEWERS BY PVC FOLD AND FORM METHODS

718.1 General This section shall govern the replacement of existing building sewer piping by PVC fold and form methods.

718.2 Applicability The replacement of building sewer piping by PVC fold and form methods shall be limited to gravity drainage piping of sizes 6 inches (152mm) and smaller. The replacement piping shall be of the same nominal size as the existing piping.

718.3 Pre-installation inspection The existing piping sections to be replaced shall be inspected internally by a recorded video camera survey. The survey shall include notations of the position of cleanouts and the depth of connections to the existing piping.

718.4 Pipe The replacement piping shall be manufactured in compliance with ASTM F1871 or ASTM F1504.

718.5 Installation Pipe complying with ASTM F1504 shall be installed in accordance with ASTM F1947. Pipe complying with ASTM F1871 shall be installed in accordance with ASTM F1867.

718.6 Cleanouts Where the existing building sewer did not have cleanouts meeting the requirements of this code, cleanout fittings shall be installed as required by this code.

718.7 Post-installation inspection The completed replacement piping shall be inspected internally by a recorded video camera survey. The video survey shall be reviewed and approved by the code official prior to pressure testing of the replacement piping system.

718.8 Pressure testing The replacement piping system and the connections to the replacement piping shall be tested in accordance with Section 312.

Add new standard(s) as follows:

ASTM F1871-2011 Standard Specification for Folded/Formed Poly (Vinyl Chloride) Pipe Type A for Existing Sewer and Conduit Rehabilitation

ASTM F1504-2014 Standard Specification for Folded Poly(Vinyl Chloride) (PVC) Pipe for Existing Sewer and Conduit Rehabilitation

ASTM F1947-2010 Standard Practice for Installation of Folded Poly (Vinyl Chloride) (PVC) Pipe into Existing Sewers and Conduits

ASTM F1867-2012 Standard Practice for Installation of Folded/Formed Poly (Vinyl Chloride) (PVC) Pipe Type A for Existing Sewer and Conduit Rehabilitation

Part II

2015 International Residential Code

Add new text as follows:

SECTION 3011
REPLACEMENT OF UNDERGROUND SEWERS BY PVC FOLD AND FORM METHODS

3011.1 General This section shall govern the replacement of existing building sewer piping by PVC Fold and Form methods.

3011.2 Applicability The replacement of building sewer piping by PVC Fold and Form methods shall be limited to gravity drainage piping 6 inches (152MM) and smaller. The replacement piping shall be of the same nominal size as the existing piping.

3011.3 Pre-installation inspection The existing piping sections to be replaced shall be inspected internally by a recorded video camera survey. The survey shall include notations of the position of cleanouts and the depth of connections to the existing piping.

3011.4 Pipe The replacement piping shall be manufactured in complaince with ASTM F1871 or ASTM F1504.

3011.5 Installation Piping complying with ASTM F1504 shall be installed in accordance with ASTM F1947. Piping complying with ASTM F1871 shall be installed in accordance with ASTM F1867.

3011.6 Cleanouts Where the existing building sewer did not have cleanouts meeting the requirements of this code, cleanout fittings shall be installed as required by this code.

3011.7 Post-installation inspection The completed replacement piping shall be inspected internally by a recorded video camera survey. The video survey shall be reviewed and approved by the code official prior to pressure testing of the replacement piping system.

3011.8 Pressure testing The replacement piping system as well as the connections to the replacement piping shall be tested in accordance with Section P2503.4.

Add new standard(s) as follows:

ASTM F1871 - 2011 Standard Specification for Folded/Formed Poly (Vinyl Chloride) Pipe Type A for Existing Sewer and Conduit Rehabilitation

ASTM F1504 - 2014 Standard Specification for Folded Poly(Vinyl Chloride) (PVC) Pipe for Existing Sewer and Conduit Rehabilitation

ASTM F1947 - 2010 Standard Practice for Installation of Folded Poly (Vinyl Chloride) (PVC) Pipe into Existing Sewers and Conduits

ASTM F1867 - 2012 Standard Practice for Installation of Folded/Formed Poly (Vinyl Chloride) (PVC) Pipe Type A for Existing Sewer and Conduit Rehabilitation

Reason: The current IPC includes provisions for replacement of underground sewers by pipe bursting or the installation of new pipe in an open cut trench. This proposal introduces a different method for sewer rehabilitation which is similar to pipe bursting. Fold and form is a method where a PVC pipe is manufactured in a plant to either ASTM F1504 or ASTM F1871. The pipe is heated and collapsed to form a roll for transport to the worksite. Once on site the pipe is heated and pulled into an existing sewer pipe which is in need of rehabilitation. The new pipe is then expanded and installed per ASTM F1947 or ASTM F1867. This proposal also includes sections similar to Section 717 to put the sewer line back in service. This proposal will provide for an alternative to open cut and pipe bursting methods and give owners and municipalities additional means to repair a deteriorating system.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal provides another option for sewer rehabilitation/replacement. It is estimated that pipe bursting and fold and form methods are approximatley 60% of the cost of open cut installation. These methods offer significant savings as well as less impact on the surrounding area.

Part II: Will not increase the cost of construction
No cost impact. It is estimated that pipe bursting and fold and form methods are approximately 60% of the cost of open cut installations. These methods offer significant savings as well as less impact on the surrounding area.

Analysis:

Part II: A review of the standard proposed for inclusion in the code, ASTM F1871-2011, ASTM F1504-2014, ASTM F1947-2010 and ASTM F1867-2012, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 205-15 : 718 (New)-GILL4544

P 206-15

802.1

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

802.1 Where required. Food-handling equipment, in other than dwelling units, clear-water waste, dishwashing machines and utensils, pots, pans and dishwashing sinks shall discharge through an indirect waste pipe as specified in Sections 802.1.1 through 802.1.8. Health-care related fixtures, devices and equipment shall discharge to the drainage system through an indirect waste pipe by means of an *air gap* in accordance with this chapter and Section 713.3. Fixtures not required ~~by this section~~ to be indirectly connected by this section and the exception of Section 301.6 shall be directly connected to the plumbing system in accordance with Chapter 7.

Reason: The revised language resolves a conflict that has existed in the code for many cycles. The existing section language seemed to require that floor drains at the base of elevator shafts had to be direct connected to the drainage system. However, the exception of Section 301.6 requires that these floor drains must be indirectly connected to the drainage system.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 17.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 206-15 : 802.1-SNYDER4068

P 207-15

802.1

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

802.1 Where required. Food-handling equipment, in other than dwelling units, clear-water waste, dishwashing machines and utensils, pots, pans and dishwashing sinks shall discharge through an indirect waste pipe as specified in Sections 802.1.1 through 802.1.8. ~~Health-care related fixtures, devices and equipment shall discharge to the drainage system through an indirect waste pipe by means of an *air gap* in accordance with this chapter and Section 713.3.~~ Fixtures not required by this section to be indirectly connected shall be directly connected to the plumbing system in accordance with Chapter 7.

Reason: This proposal deletes the requirement that all healthcare related fixtures discharge through an air gap. Flushing rim sinks, which are used for the disposal of solid waste and bedpan cleaning, are healthcare related fixtures and should not have an indirect drain. The term "healthcare related" is too broad, and potentially creates infection control problems.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
This proposal is for clarification, therefore, there will be not increase in the cost of construction.

P 207-15 : 802.1-WILLIAMS4255

P 208-15

202, 422, 713, 802.1

Proponent: John Williams, CBO, Chair, representing Adhoc Health Care Committee (AHC@iccsafe.org)

2015 International Plumbing Code

Delete without substitution:

SECTION 202 DEFINITIONS

~~**STERILIZER.**~~

~~**Boiling type.** A boiling-type sterilizer is a fixture of a nonpressure type utilized for boiling instruments, utensils or other equipment for disinfection. These devices are portable or are connected to the plumbing system.~~
~~**Instrument.** A device for the sterilization of various instruments.~~
~~**Pressure (autoclave).** A pressure vessel fixture designed to utilize steam under pressure for sterilizing.~~
~~**Pressure instrument washer sterilizer.** A pressure vessel fixture designed to both wash and sterilize instruments during the operating cycle of the fixture.~~
~~**Utensil.** A device for the sterilization of utensils as utilized in health care services.~~
~~**Water.** A device for sterilizing water and storing water.~~

~~**STERILIZER VENT.**~~

~~A separate pipe or *stack*, indirectly connected to the building drainage system at the lower terminal, that receives the vapors from nonpressure sterilizers, or the exhaust vapors from pressure sterilizers, and conducts the vapors directly to the open air. Also called vapor, steam, atmospheric or exhaust vent.~~

~~**SECTION422 HEALTH CARE FIXTURES AND EQUIPMENT**~~

~~**422.1 Scope.** This section shall govern those aspects of health care plumbing systems that differ from plumbing systems in other structures. Health care plumbing systems shall conform to the requirements of this section in addition to the other requirements of this code. The provisions of this section shall apply to the special devices and equipment installed and maintained in the following *occupancies*: nursing homes, homes for the aged, orphanages, infirmaries, first aid stations, psychiatric facilities, clinics, professional offices of dentists and doctors, mortuaries, educational facilities, surgery, dentistry, research and testing laboratories, establishments manufacturing pharmaceutical drugs and medicines and other structures with similar apparatus and equipment classified as plumbing.~~

~~**422.2 Approval.** All special plumbing fixtures, equipment, devices and apparatus shall be of an *approved* type.~~

~~**422.3 Protection.** All devices, appurtenances, appliances and apparatus intended to serve some special function, such as sterilization, distillation, processing, cooling, or storage of ice or foods, and that connect to either the water supply or drainage system, shall be provided with protection against backflow, flooding, fouling, contamination of the water supply system and stoppage of the drain.~~

~~**422.4 Materials.** Fixtures designed for therapy, special cleansing or disposal of waste materials, combinations of such purposes, or any other special purpose, shall be of smooth, impervious, corrosion-resistant materials and, where subjected to temperatures in excess of 180°F (82°C), shall be capable of withstanding, without damage, higher temperatures.~~

~~**422.5 Access.** *Access* shall be provided to concealed piping in connection with special fixtures where such piping contains steam traps, valves, relief valves, check valves, vacuum breakers or other similar items that require periodic inspection, servicing, maintenance or repair. *Access* shall be provided to concealed piping that requires periodic inspection, maintenance or repair.~~

~~**422.6 Clinical sink.** A clinical sink shall have an integral trap in which the upper portion of a visible trap seal provides a water surface. The fixture shall be designed so as to permit complete removal of the contents by siphonic or blowout action and to reseal the trap. A flushing rim shall provide water to cleanse the interior surface. The fixture shall have the flushing and cleansing characteristics of a water closet.~~

~~**422.7 Prohibited usage of clinical sinks and service sinks.** A clinical sink serving a soiled utility room shall not be considered as a substitute for, or be utilized as, a service sink. A service sink shall not be utilized for the disposal of urine, fecal matter or other human waste.~~

~~**422.8 Ice prohibited in soiled utility room.** Machines for manufacturing ice, or any device for the handling or storage of ice, shall not be located in a soiled utility room.~~

~~**422.9 Sterilizer equipment requirements.** The approval and installation of all sterilizers shall conform to the requirements of the *International Mechanical Code.*~~

~~**422.9.1 Sterilizer piping.** *Access* for the purposes of inspection and maintenance shall be provided to all sterilizer piping and devices necessary for the operation of sterilizers.~~

~~**422.9.2 Steam supply.** Steam supplies to sterilizers, including those connected by pipes from overhead mains or branches, shall be drained to prevent any moisture from reaching the sterilizer. The condensate drainage from the steam supply shall be discharged by gravity.~~

~~**422.9.3 Steam condensate return.** Steam condensate returns from sterilizers shall be a gravity return system.~~

~~**422.9.4 Condensers.** Pressure sterilizers shall be equipped with a means of condensing and cooling the exhaust steam vapors. Nonpressure sterilizers shall be equipped with a device that will automatically control the vapor, confining the vapors within the vessel.~~

~~**422.10 Special elevations.** Control valves, vacuum outlets and devices protruding from a wall of an operating, emergency, recovery, examining or delivery room, or in a corridor or other location where patients are transported on a wheeled stretcher, shall be located at an elevation that prevents bumping the patient or stretcher against the device.~~

~~**SECTION713 HEALTH CARE PLUMBING**~~

~~**713.1 Scope.** This section shall govern those aspects of health care plumbing systems that differ from plumbing systems in other structures. Health care plumbing systems shall conform to this section in addition to the other requirements of this code. The provisions of this section shall apply to the special devices and equipment installed and maintained in the following occupancies: nursing homes; homes for the aged; orphanages; infirmaries; first aid stations; psychiatric facilities; clinics; professional offices of dentists and doctors; mortuaries; educational facilities; surgery, dentistry, research and testing laboratories; establishments manufacturing pharmaceutical drugs and medicines; and other structures with similar apparatus and equipment classified as plumbing.~~

~~**713.2 Bedpan washers and clinical sinks.** Bedpan washers and clinical sinks shall connect to the drainage and vent system in accordance with the requirements for a water closet. Bedpan washers shall also connect to a local vent.~~

~~**713.3 Indirect waste.** Sterilizers, steamers and condensers shall discharge to the drainage through an indirect waste pipe by means of an *air gap.* Where a battery of not more than three sterilizers discharges to an individual receptor, the distance between the receptor and a sterilizer shall not exceed 8 feet (2438 mm). The indirect waste pipe on a bedpan steamer shall be trapped.~~

~~**713.4 Vacuum system station.** Ready *access* shall be provided to vacuum system station receptacles. Such receptacles shall be built into cabinets or recesses and shall be visible.~~

~~**713.5 Bottle system.** Vacuum (fluid suction) systems intended for collecting, removing and disposing of blood, pus or other fluids by the bottle system shall be provided with receptacles equipped with an overflow prevention device at each vacuum outlet station.~~

~~**713.6 Central disposal system equipment.** Central vacuum (fluid suction) systems shall provide continuous service. Systems equipped with collecting or control tanks shall provide for draining and cleaning of the tanks while the system is in operation. In hospitals, the system shall be connected to the emergency power system. The exhausts from a vacuum pump serving a vacuum (fluid suction) system shall discharge separately to open air above the roof.~~

~~**713.7 Central vacuum or disposal systems.** Where the waste from a central vacuum (fluid suction) system of the barometric-lag, collection-tank or bottle-disposal type is connected to the drainage system, the waste shall be directly connected to the sanitary drainage system through a trapped waste.~~

~~**713.7.1 Piping.** The piping of a central vacuum (fluid suction) system shall be of corrosion-resistant material with a smooth interior surface. A *branch* shall be not less than $^{1}/_{2}$- inch (12.7 mm) nominal pipe size for one outlet and shall be sized in accordance with the number of vacuum outlets. A main shall be not less than 1-inch (25 mm) nominal pipe size. The pipe sizing shall be increased in accordance with the manufacturer's instructions as stations are increased.~~

~~**713.7.2 Velocity.** The velocity of airflow in a central vacuum (fluid suction) system shall be less than 5,000 feet per minute (25 m/s).~~

~~**713.8 Vent connections prohibited.** Connections between local vents serving bedpan washers or sterilizer vents serving sterilizing apparatus and normal sanitary plumbing systems are prohibited. Only one type of apparatus shall be served by a local vent.~~

~~**713.9 Local vents and stacks for bedpan washers.** Bedpan washers shall be vented to open air above the roof by means of one or more local vents. The local vent for a bedpan washer shall be not less than a 2-inch-diameter (51 mm) pipe. A local vent serving a single bedpan washer is permitted to drain to the fixture served.~~

~~**713.9.1 Multiple installations.** Where bedpan washers are located above each other on more than one floor, a local vent *stack* is permitted to be installed to receive the local vent on the various floors. Not more than three bedpan washers shall be connected to a 2-inch (51 mm) local vent *stack*, not more than six to a 3-inch (76 mm) local vent *stack* and not more than 12 to a 4-inch (102 mm) local vent *stack*. In multiple installations, the connections between a bedpan washer local vent and a local vent *stack* shall be made with tee or tee-wye sanitary pattern drainage fittings installed in an upright position.~~

~~**713.9.2 Trap required.** The bottom of the local vent stack, except where serving only one bedpan washer, shall be drained by means of a trapped and vented waste connection to the sanitary drainage system. The trap and waste shall be the same size as the local vent *stack*.~~

~~**713.9.3 Trap seal maintenance.** A water supply pipe not less than $^{1}/_{4}$ inch (6.4 mm) in diameter shall be taken from the flush supply of each bedpan washer on the discharge or fixture side of the vacuum breaker, shall be trapped to form not less than a 3-inch (76 mm) water seal and shall be connected to the local vent stack on each floor. The water supply shall be installed so as to provide a supply of water to the local vent stack for cleansing and drain trap seal maintenance each time a bedpan washer is flushed.~~

~~**713.10 Sterilizer vents and stacks.** Multiple installations of pressure and nonpressure sterilizers shall have the vent connections to the sterilizer vent *stack* made by means of inverted wye fittings. *Access* shall be provided to vent connections for the purpose of inspection and maintenance.~~

~~**713.10.1 Drainage.** The connection between sterilizer vent or exhaust openings and the sterilizer vent *stack* shall be designed and installed to drain to the funnel or baskettype waste fitting. In multiple installations, the sterilizer vent *stack* shall be drained separately to the lowest sterilizer funnel or basket-type waste fitting or receptor.~~

~~**713.11 Sterilizer vent stack sizes.** Sterilizer vent *stack* sizes shall comply with Sections 713.11.1 through 713.11.4.~~

~~**713.11.1 Bedpan steamers.** The minimum size of a sterilizer vent serving a bedpan steamer shall be $1^{1}/_{2}$ inches (38 mm) in diameter. Multiple installations shall be sized in accordance with Table 713.11.1.~~

TABLE 713.11.1

~~**STACK SIZES FOR BEDPAN STEAMERS AND BOILING-TYPE STERILIZERS (Number of Connections of Various Sizes Permitted to Various-sized Sterilizer Vent Stacks)**~~

~~**STACK SIZE (inches)**~~	~~**CONNECTION SIZE**~~		
	~~**$1^{1}/_{2}$"**~~	-	~~**2"**~~
~~$1^{1}/_{2}$~~[a]	~~1~~	~~or~~	~~0~~
~~2~~[a]	~~2~~	~~or~~	~~1~~
~~2~~[b]	~~1~~	~~and~~	~~1~~
~~3~~[a]	~~4~~	~~or~~	~~2~~
~~3~~[b]	~~2~~	~~and~~	~~2~~
~~4~~[a]	~~8~~	~~or~~	~~4~~
~~4~~[b]	~~4~~	~~and~~	~~4~~

~~For SI: 1 inch = 25.4 mm.~~

~~a. Total of each size.~~

~~b. Combination of sizes.~~

~~**713.11.2 Boiling-type sterilizers.** The size of a sterilizer vent *stack* shall be not less than 2 inches (51 mm) in diameter where serving a utensil sterilizer and not~~

~~less than $1^{1}/_{2}$ inches (38 mm) in diameter where serving an instrument sterilizer. Combinations of boiling-type sterilizer vent connections shall be sized in accordance with Table 713.11.1.~~

~~**713.11.3 Pressure sterilizers.** Pressure sterilizer vent stacks shall be $2^{1}/_{2}$ inches (64 mm) minimum. Those serving combinations of pressure sterilizer exhaust connections shall be sized in accordance with Table 713.11.3.~~

~~TABLE 713.11.3~~
~~STACK SIZES FOR PRESSURE STERILIZERS (Number of Connections of Various Sizes Permitted To Various-sized Vent Stacks)~~

~~STACK SIZE (inches)~~	~~CONNECTION SIZE~~			
	~~$^{3}/_{4}$"~~	~~1"~~	~~$1^{1}/_{4}$"~~	~~$1^{1}/_{2}$"~~
~~$1^{1}/_{2}$[a]~~	~~3 or~~	~~2 or~~	~~1~~	—
~~$1^{1}/_{2}$[b]~~	~~2 and~~	~~1~~	—	—
~~2[a]~~	~~6 or~~	~~3 or~~	~~2 or~~	~~1~~
~~2[b]~~	~~3 and~~	~~2~~	—	—
~~2[b]~~	~~2 and~~	~~1 and~~	~~1~~	—
~~2[b]~~	~~1 and~~	~~1 and~~	—	~~1~~
~~3[a]~~	~~15 or~~	~~7 or~~	~~5 or~~	~~3~~
~~3[b]~~	~~1 and~~	~~1 and 5 and~~	~~2 and~~	~~2 1~~

~~For SI: 1 inch = 25.4 mm.~~

~~a. Total of each size.~~

~~b. Combination of sizes.~~

~~**713.11.4 Pressure instrument washer sterilizer sizes.** The diameter of a sterilizer vent stack serving an instrument washer sterilizer shall be not less than 2 inches (51 mm). Not more than two sterilizers shall be installed on a 2-inch (51 mm) *stack*, and not more than four sterilizers shall be installed on a 3-inch (76 mm)~~

Revise as follows:

802.1 Where required. Food-handling equipment, in other than dwelling units, clear-water waste, dishwashing machines and utensils, pots, pans and dishwashing sinks shall discharge through an indirect waste pipe as specified in Sections 802.1.1 through 802.1.8. Health-care related fixtures, devices and equipment shall discharge to the drainage system through an indirect waste pipe by means of an *air gap* in accordance with this chapter~~ and Section 713.3~~. Fixtures not required by this section to be indirectly connected shall be directly connected to the plumbing system in accordance with Chapter 7.

Reason: This proposal deletes a section that provides no practical value to the text. The requirements in this section are too broad to be enforceable; too generic to provide any clear direction; or otherwise covered in the text of this code.

The ICC Ad Hoc Committee on Healthcare (AHC) has just completed its 4th year. The AHC was established by the ICC Board to evaluate and assess contemporary code issues relating to hospitals and ambulatory healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. Information on the AHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the AHC effort can be downloaded from the AHC website at: http://www.iccsafe.org/cs/AHC/Pages/default.aspx.

Cost Impact: Will not increase the cost of construction
These items are already addressed in the IPC, therefore, the deletion will not increase the cost of construction.

P 208-15 : 802.1-WILLIAMS4256

P 209-15

802.1.2.1 (New)

Proponent: James Richardson, Jr (jarichardson@columbus.gov)

2015 International Plumbing Code

Add new text as follows:

802.1.2.1 **Optional indirect connections** Waste lines from dental cuspidor bowls, cuspidor fountains, drinking fountains, bar sinks, soda fountains, floor drains and shower drains shall be directly connected to the sanitary drainage system or shall discharge independently through an air break to a waste receptor, standpipe or floor drain that is directly connected to the sanitary drainage system.

Reason: Some fixtures make sense to allow for indirect drainage, especially if it eliminates the need for some type of trap primer device for the fixture receicing the discharge. Allowing these indirect connections will give business owners more flexibility in their design and help lower overall construction costs without impacting public safety.

Cost Impact: Will not increase the cost of construction
This is an option and not a requirement. But if the option is chosen, the costs to install such drains will be reduced.

P 209-15 : 802.1.2.1 (New)-RICHARDSON6022

P 210-15

802.1.2 (New), 802.1.7 (New), 802.1.8

Proponent: James Richardson, Jr (jarichardson@columbus.gov)

2015 International Plumbing Code

Add new text as follows:

802.1.2 **Hand sinks.** Hand sinks in food service areas and in food preparation establishments shall be directly connected to the drainage system or indirectly connected through an air gap to a floor sink that is connected to the drainage system.

802.1.7 **Commercial food waste disposers.** Commercial food waste disposers shall not be indirectly connected to the drainage system. Such disposer connections shall be in accordance with Section 413.3.

Revise as follows:

802.1.8 Food utensils, dishes, pots and pans sinks. Sinks, in other than dwelling units, used for the washing, rinsing or sanitizing of utensils, dishes, pots, pans or service ware used in the preparation, serving or eating of food shall discharge indirectly through an *air gap* ~~or an *air break*~~ to the drainage system.

Reason: For most fixtures in a food service kitchen, it makes sense to allow for indirect connections. This allows for maximum flexibility for kitchen layouts and future changes as floor sinks can capture multiple fixtures if the floor sink sized correctly. Hand sinks are often required by local health departments to be indirect connected so this proposal will align the code with many jurisdication's needs.
Some health departments allow (or acknowledge) that 3-compartment pots-and-pans sinks are sometimes used for thawing of frozen food. These sinks should be treated no differently than any other food prep sink (that does require an air gap at the drain). This is a simple change that will do a lot towards food safety. The code already allows either an air break or an air gap for these siks. Requiring an air gap only just means that the drain pipes will need to terminate above the floor sink and not in the floor sink. A simple change that does not affect the cost of the installation but will be safer considering all the possible uses for 3-compartment sinks. This will promote better sanitary conditions in such establishments and keep in line with requirements by health departments,

The new section for commercial food waste disposer discharge connections is simply a reminder, in an appropriate place in the code, that these discharges cannot go to a floor sink or other type waste receptor. Section 413.3 already covers this, however, many people are missing the direct connection requirement. As these disposers are commonly installed just ahead of the commercial dishwasher (at a plate and-tray scraping station), this new section is located in the code just before the code requiremnt for connection of commercial dishwashers.

Cost Impact: Will not increase the cost of construction
This proposal provides for an option for hand sinks that could save on installation costs. And certainly, future remodeling costs could be lower for kitchen layout changes.

P 210-15 : 802.1.2.2 (New)-RICHARDSON6023

P 211-15

202 (New), 428 (New), 428.1 (New)

Proponent: James Richardson, Jr, representing City of Columbus Ohio (jarichardson@columbus.gov)

2015 International Plumbing Code

Add new definition as follows:

SECTION 202 DEFINITIONS

<u>**SERVICE SINK** Any designated sink so approved for liquid discharge, surface water liquid filling, subsurface water cleaning, and similar liquid wastes, washing in a facility, and installed in a dedicated area or space.</u>

Add new text as follows:

<u>**SECTION 428**</u>
<u>**SERVICE SINKS**</u>

<u>**428.1 Location.** Service sinks shall not be installed in toilet facilities. A service sink shall be located in a space dedicated for the sink such as a janitor's closet that is equipped with a door. Employees in the building or tenant space shall have access to the dedicated space.</u>

Reason: There is no definition of a mops sink or service sink, but yet are required for occupancies for cleaning purposes. Many times designers try to locate these within toielt facilites which allows for improper usage of the fixture and also limits the availability of the fixture when the toilet facility is in use.

Cost Impact: Will not increase the cost of construction
Service sinks are already a required fixture in many occupancies. This proposal simply identifies what those sinks are and where to locate them.

P 211-15 : 802.3-RICHARDSON5695

P 212-15

802.3.3.1 (New)

Proponent: Guy McMann, Jefferson County, Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Plumbing Code

Add new text as follows:

802.3.3.1 Connection of laundry tray to standpipe. As an alternative for a laundry tray fixture connecting directly to a drainage system, a laundry tray waste line without a fixture trap shall connect to a standpipe for an automatic clothes washer drain. The standpipe shall extend not less than 30 inches (732 mm) above the weir of the standpipe trap and shall extend above the flood level rim of the laundry tray. The outlet of the laundry tray shall not be greater than 30 inches (762 mm) horizontal distance from the side of the standpipe.

Reason: This allowance language has been in the IRC for several code cycles and has been a frequent practice in many jurisdictions for much longer. It has been proven to work well for many years. There is no technical justification to not allow this method for IPC buildings.
Where this method will really be advantageous is in multi-family high-rise construction where the cost savings will be significant *and* the laundry tray providing a buffer against overflow of the ACW standpipe (if the standpipe drain clogs). The laundry tray will fill up with the washer discharge. This is a nice safety feature against water damage for multi-level buildings.

Cost Impact: Will not increase the cost of construction
This proposal will not increase costs and may actually decrease costs by permitting a practice that is recognized in the residential Code. The savings could be realized as not having to install a vent, trap and waste line for a laundry tub.

P 212-15 : 802.3.3.1 (New)-MCMANN3603

P 213-15

804.1, 804

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com)

2015 International Plumbing Code

Revise as follows:

~~804.1~~802.2 ~~General~~Material, joints, and connections. The materials, joints, connections, and methods utilized for the construction and installation of indirect waste ~~pipes and~~piping systems shall comply with the applicable provisions of Chapter 7.

Delete without substitution:

~~SECTION 804~~
~~MATERIALS, JOINTS AND CONNECTIONS~~

Reason: Since this requirement only applies to indirect waste systems, it should appear in Section 802, not as a separate section. Section 803 applies to special waste. Nothing in Section 804 applies to special waste. Hence, the appropriate location is Section 802.
The text has been cleaned up to address joints and connections, as well as, materials. The current section does not coordinate with the title of the section.

Cost Impact: Will not increase the cost of construction
There is no increase in the cost of construction when the code is wordsmithed to make it easier to understand.

P 213-15 : 804-BALLANCO3384

P 214-15

804.1, 804.2 (New)

Proponent: Brian Conner, Charlotte Pipe and Foundry, representing Charlotte Pipe and Foundry (bconner@charlottepipe.com)

2015 International Plumbing Code

Revise as follows:

804.1 General. The ~~materials and~~ methods utilized for the construction and installation of indirect waste pipes and systems shall comply with the applicable provisions of Chapter 7.

Add new text as follows:

<u>**804.2** **Special waste pipe, fittings and components.** Pipes ,fittings and components receiving or intended to receive the discharge of any fixture into which acid or corrosive chemicals are placed shall be constructed of CPVC, high silicon iron, PP, PVDF, chemical resistant glass, or glazed ceramic materials.</u>

Reason: Sanitary and chemical drainage are inherently different applications. The purpose of this proposed change is to clarify the allowable materials which are specifically listed for chemical drainage applications.

Cost Impact: Will not increase the cost of construction
This change will not increase the cost of construction as special wastes have alwaus required special piping of one of those types..

P 214-15 : 804.1-CONNER5388

P 215-15

Part I:

903.1, 903.1.1 (New), 903.1.2 (New), 903.1.3 (New), 903.1.4 (New), 903.6

Part II:

P3103.1, P3103.1.1 (New), P3101.1.2 (New), P3103.1.3 (New), P3103.1.4 (New), P3103.6

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC PLUMBING COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Solar City (JBENGINEER@aol.com)

Part I

2015 International Plumbing Code

Revise as follows:

903.1 ~~Roof extension.~~Vent pipes terminating outdoors. ~~Open vent~~Vent pipes ~~that extend through a roof~~terminating outdoors shall be ~~terminated not less than [**NUMBER**] inches (mm) above~~extended to the outdoors through the roof~~. Where~~ or a ~~roof is to be used for assembly or as a promenade, observation deck, sunbathing deck or similar purposes, open vent pipes shall terminate not less than 7 feet (2134 mm) above~~side wall of the ~~roof~~building in accordance with one of the methods identified in Sections 903.1.1 through 903.1.4.

Add new text as follows:

903.1.1 Roof extension. Open vent pipes that extend through a roof and that do not meet the conditions of Section 902.1.2 or Section 903.1.3 shall terminate not less than [NUMBER] inches (mm) above the roof.

903.1.2 Roof used for recreational uses. Where a roof is to be used for assembly or as a promenade, observation deck, sunbathing deck or similar purposes, open vent pipes shall terminate not less than 7 feet (2134 mm) above the roof.

903.1.3 Roof extension covered. Where an open vent pipe terminates above a sloped roof and is covered by either a roof-mounted panel such as a solar collector or photovoltaic panel mounted over the vent opening, or by a roof element such as an architectural feature or a decorative shroud, the vent pipe shall terminate not less than 2 inches (51 mm) above the roof surface. Such roof elements shall be designed to prevent the adverse effects of snow accumulation and wind on the function of the vent. The placement of a panel over a vent pipe and the design of a roof element covering the vent pipe shall provide for an open area for the vent pipe to the outdoors that is not less than the area of the pipe, as calculated from the inside diameter of the pipe. Such vent terminals shall be protected by a method that prevents birds and rodents from entering or blocking the vent pipe opening.

903.1.4 Side wall vent terminal. Vent terminals extending through the wall shall terminate not closer than 10 feet (3048 mm) from a lot line and not less than 10 feet (3048 mm) above the highest grade elevation within 10 feet (3048 mm) in any direction horizontally of the vent terminal. Vent pipes shall not terminate under the overhang of a structure where the overhang includes soffit vents. Such vent terminals shall be protected by a method that prevents birds and rodents from entering or blocking the vent pipe opening and that does not reduce the open area of the vent pipe.

Delete without substitution:

~~**903.6 Extension through the wall.** Vent terminals extending through the wall shall terminate at a point not less than 10 feet (3048 mm) from a lot line and not less than 10 feet (3048 mm) above average ground level. Vent terminals shall not terminate under the overhang of a structure with soffit vents. Side wall vent terminals shall be protected to prevent birds or rodents from entering or blocking the vent opening.~~

Part II

2015 International Residential Code

Revise as follows:

P3103.1 ~~Roof extension.~~Vent pipes terminating outdoors. ~~Open vent~~Vent pipes ~~that extend through a roof~~terminating outdoors shall be ~~terminated not less than 6 inches (152 mm) above~~extended to the outdoors through the roof or ~~6 inches (152 mm) above~~a side wall of the ~~anticipated snow accumulation, whichever is greater. Where a roof is to be used for assembly, as a promenade, observation deck or sunbathing deck or for similar purposes, open vent pipes shall terminate not less than 7 feet (2134 mm) above~~building in accordance with one of the ~~roof~~methods identified in Sections P3103.1.1 through P3103.1.4.

Add new text as follows:

P3103.1.1 Roof extension. Open vent pipes that extend through a roof and that do not meet the conditions of Section P3101.1.2 or Section P3101.1.3 shall terminate not less than 6 inches (150 mm) above the roof or 6 inches (150 mm) above the anticipated snow accumulation, which ever is greater.

P3101.1.2 Roof used for recreational puposes. Where a roof is to be used for assembly or as a promenade, observation deck, sunbathing deck or similar purposes, open vent pipes shall terminate not less than 7 feet (2134 mm) above the roof.

P3103.1.3 Roof extension covered. Where an open vent pipe terminates above a sloped roof and is covered by either a roof-mounted panel such as a solar collector or photovoltaic panel mounted over the vent opening, or by a roof element such as an architectural feature or a decorative shroud, the vent pipe shall terminate not less than 2 inches (51 mm) above the roof surface. Such roof elements shall be designed to prevent the adverse effects of snow accumulation and wind on the function of the vent. The placement of a panel over a vent pipe and the design of a roof element covering the vent pipe shall provide for an open area for the vent pipe to the outdoors that is not less than the area of the pipe, as calculated from the inside diameter of the pipe. Such vent terminals shall be protected by a method that prevents birds and rodents from entering or blocking the vent pipe opening.

P3103.1.4 Side wall vent terminal. Vent terminals extending through the wall shall terminate not closer than 10 feet (3048 mm) from a lot line and not less than 10 feet (3048 mm) above the highest grade elevation within 10 feet (3048 mm) in any direction horizontally of the vent terminal. Vent pipes shall not terminate under the overhang of a structure where the overhang includes soffit vents. Such vent terminals shall be protected by a method that prevents birds and rodents from entering or blocking the vent pipe opening and that does not reduce the open area of the vent pipe.

Delete without substitution:

~~**P3103.6 Extension through the wall.** Vent terminals extending through the wall shall terminate not less than 10 feet (3048 mm) from the *lot line* and 10 feet (3048 mm) above the highest adjacent *grade* within 10 feet (3048 mm) horizontally of the vent terminal. Vent terminals shall not terminate under the overhang of a structure with soffit vents. Side wall vent terminals shall be protected to prevent birds or rodents from entering or blocking the vent opening.~~

Reason: This proposed change reorganizes the section regarding the vent terminal. There are currently three options for a vent terminal, extending the vent (number) inches or more above the roof, extending the vent more than 7 feet above the roof when the roof is used for entertainment, or extending the vent through the side wall. However, the three requirements are separated between multiple sections. This makes the requirement readily identifiable in a section that presents all the options in one main section.

A fourth option for terminating the vent has been included. The fourth option would allow the vent to terminate 2 inches above a sloped roof when protected by a covering. This would allow photovoltaic solar collectors to be installed over vent terminals. It would also allow other protected vent terminals, such as architectural features that hide the vent for aesthetic purposes.

The size, length, and location of vent terminals has been a subject matter that has been greatly discussed over the last century. There are many myths, innuendoes, theories, and hypothesis regarding vent terminals. One of the most complete papers on vent terminals was published by the National Bureau of Standards (NBS) in 1954, entitled, "Frost Closure of Roof Vents in Plumbing Systems," authored by Nerbert Eaton and Robert Wyly. Most of the current code requirements originate from the recommendations of this paper.

The NBS paper investigated plumbing roof vents and their termination throughout North America. Identified as a major concern is the frost closure of the vent terminal. Other concerns included snow blockage, shearing off of the vent terminal, and rainwater entrance.

Prior to this paper, it was largely alluded that the reason for a minimum size of 1-1/4 inch and a termination above the roof surface was to prevent a bird from building a nest and laying an egg to block off the vent. To this day, birds building nests in vents is a concern. However, that concern is more related to side wall venting that provides an easy opening for a bird to build a nest.

When a vent terminates lower to the roof, measures must be taken to prevent a bird from building a nest around the vent pipe and blocking it off. Increasing the size of the vent is one means used to avoid a bird's nest. Screening and vent covers also are used to prevent birds from building a nest.

The more pressing issue is how far above the roof a vent should terminate. Two issues of importance are water tightness of the flashing and preventing rainwater entrance into the plumbing vent. Modern day flashings can make the roof penetration water tight at much lower heights, including a termination 2 inches above the roof.

The NBS report suggested a minimum of 2 inch penetration above the roof to prevent rainwater from entering the plumbing vent. It is recognized that a flat roof can have a greater accumulation of water hence the need for the vent to be at a higher elevation. Typically secondary roof drains are located between 2 and 4 inches above the roof. Thus, the vent terminal would have to be located at a higher height which is the reason for maintaining a minimum of inserting the appropriate number of inches above the roof for a flat roof.

The NBS report identified a vent terminal used in Saskatoon, Canada that terminates at the sloped roof. There was no extension above the roof. This was found to be extremely effective in preventing frost closure. As the NBS report states, the closer the vent terminates to the roof, the lower the possibility of frost closure. The report also found that by making the vent a minimum of 3 inch in diameter, frost closure that impacts the performance of the venting system was avoided.

Snow accumulation has been a subject of more recent discussions regarding vent terminals. However, snow accumulation was addressed in the NBS report. The NBS report found that while snow may completely cover the vent terminal, the snow eventually melts from the heated vapors emanating out of the vent. Prior to the snow melting, the NBS report found that the snow cover did not impact the performance of the vent. This makes sense since the purpose of the vent is to balance the pressure in the drainage system with atmospheric pressure. The snow cover is not dense enough to prevent the balancing of pressure in the piping system.

The current code requires the vent to terminate at a height specified by the jurisdiction. The Residential Code requires the termination to be 6 inches above the anticipated snow cover. The requirement add the local value remains intact. However, when the vent is covered, such as by a solar panel or architectural feature, it cannot be covered by snow such that the vent doesn't perform properly. Thus, the vent could terminate at a 2 inch height above a sloped roof.

In the mountain west, shearing of the roof vent is a problem when the snow and ice melt and slide off of sloped roofs. By extending the vent higher through the roof, there is a greater force applied on the vent that can result in the pipe being sheared off. If the vent is lowered, the force on the vent during snow and ice slides is also lowered. This may reduce the shearing incidents of vent pipes. However, that is not part of the reason for lowering the vent terminal height. The vent would be protected if installed at a lower height. Hence, the snow and ice slides would have little to no impact on the vent since it is covered.

Plumbing contractors in the mountain west with heavy snow and ice accumulations have found that the more practical solution is to extend the vent through the roof closer to the peak of the roof. Thus, the force from sliding snow and ice is lowered. This has not been addressed in this code change and is more of a regional issue addressed by knowledgeable local contractors.

The remaining issue that is not often addressed for vent terminals is the impact of wind. During windy conditions, the vent terminal can create a reduced pressure zone that siphons the trap seal. This is often called a Venturi effect. The other concern is downdrafts that can increase the pressure in the drainage system. However, downdrafts have not had a major impact on the drainage system based on the termination height above the roof. While the possibility exists that a lower vent termination height could result in higher wind downdrafts, this has not proven to be the case. However, the code requirement addresses downdrafts by requiring the covering to prevent any adverse impact from wind.

What the plumbing profession must acknowledge is that solar is a viable source of energy for a building. As such, accommodations must be made to allow for the maximum area of roof coverage with solar panels. This may require the adjustment in the height of the vent terminal.

While accommodations must be made, there cannot be a sacrifice of public health. The lowering of the vent terminal to 2 inches on a sloped roof will not impact public health. This was proven by the NBS study published in 1954. Furthermore, modern building practices will result in a water tight vent terminal that will perform as intended.

Bibliography:

Part I:*"Frost Closure of roof Vents in Plumbing Systems*," Herbert N. Eaton and Robert S. Wyly, BMS Report 142, published 1954, United States Department of Commerce, National Bureau of Standards.

National Plumbing Code Handbook, Standards and Design Information, Vincent T. Manas, P.E., copyright 1957, McGraw-Hill Book Company

Part II:*"Frost Closure of roof Vents in Plumbing Systems*," Herbert N. Eaton and Robert S. Wyly, BMS Report 142, published 1954, United States Department of Commerce, National Bureau of Standards.
National Plumbing Code Handbook, Standards and Design Information, Vincent T. Manas, P.E., copyright 1957, McGraw-Hill Book Company

Cost Impact:

Part I: Will not increase the cost of construction
This change provides options to the code user. There are no cost implications.

Part II: Will not increase the cost of construction
This change provides options. As such, there is no cost implication.

P 215-15 : 903.1-BALLANCO4131

P 216-15

902.3, 903.3, 305.5

Proponent: Tim Earl, GBH International , representing The Oatey Company (tearl@gbhinternational.com)

2015 International Plumbing Code

Delete without substitution:

~~**902.3 Sheet lead.** Sheet lead for vent pipe flashings shall weigh not less than 3 pounds per square foot (15 kg/m^2) for field-constructed flashings and not less than 2 $^1/_2$ pounds per square foot (12 kg/m^2) for prefabricated flashings.~~

Revise as follows:

903.3 Flashings. The juncture of each vent pipe with the roof line shall be made water tight by an *approved* flashing. <u>Flashings shall contain less than 4% lead by weight.</u>

305.5 Waterproofing of openings. Joints at the roof and around vent pipes shall be made water tight by the use of ~~lead,~~ copper, galvanized steel, aluminum, plastic or other *approved* flashings or flashing material. Exterior wall openings shall be made water tight.

Reason: Lead is a material identified as causing birth defects and reproductive harm. It also persists in the environment and is an aquatic toxicant. Now that alternatives exist, its use should be minimized. 4% maximum lead content is logical as non-potable water alloys used in plumbing have that as a limit; meaning that such alloys are commonly available for use. This would also still allow lead coated copper, which is needed in some applications.

Cost Impact: Will not increase the cost of construction
Other flashing options, such as copper or lead coated copper, are no more expensive than lead.

P 216-15 : 903.3-EARL4532

P 217-15

Table 909.1 (New), 909.2

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com)

2015 International Plumbing Code

Delete and substitute as follows:

TABLE 909.1
MAXIMUM LENGTH OF FIXTURE DRAIN
FROM FIXTURE TRAP TO VENT CONNECTION[a,b]
(FEET)

Fixture drain pipe size (inches)	Vent connection at a horizontal drain pipe			Vent connection at a vertical drain pipe					
				Sanitary tee fitting fixture drain connection to the vertical drain pipe			Tee-wye fitting fixture drain connection to the vertical drain pipe[c]		
	Slope of fixture drain[d] (inches per foot)			Slope of fixture drain[d] (inches per foot)			Slope of fixture drain[d] (inches per foot)		
	1/8	1/4	1/2	1/8	1/4	1/2	1/8	1/4	1/2
1-1/4	NP	5	2.5	NP	3.5	2	NP	1.5	1
1-1/2	NP	6	3	NP	5	3	NP	4	2
2	NP	8	4	NP	6	4	NP	4.5	4
3	24	12	6	10	8	6	6	6	6
4	32	16	8	12	10	8	8	8	8

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 inch per foot = 83.3 mm/m.

a. Developed length.

b. NP = Not permitted

c. A tee-wye fitting is also known as a combination-wye-and-eight-bend fitting.

d. Fixture drain shall be at uniform slope.

Delete without substitution:

~~**909.2 Venting of fixture drains.** The total fall in a *fixture drain* due to pipe slope shall not exceed the diameter of the *fixture drain*, nor shall the vent connection to a *fixture drain*, except for water closets, be below the weir of the trap.~~

Reason: When table 909.1 was revised, it only incorporated some of the provision in the report on self siphonage, BMS 126, published in 1951. The report identified that fixture could connect to tee wye fittings. However, the distance from trap to vent is greatly reduced. This change includes the allowance of a connection to a vertical drain through a tee wye.
The other change that is necessary is to address when a pitch greater than ¼ inch per foot is used. The greater the pitch, the shorter the length between the trap and the vent.
This table has been used in the State of Wisconsin for more than 20 years. The distances are consistent with the results of the self siphonage report from the National Bureau of Standards.
Section 909.2 must be deleted to be consistent with the revised table. Otherwise, the connection to a tee wye would not be permitted.

Cost Impact: Will not increase the cost of construction
This will reduce the cost of construction when a vent distance can be extended.

P 217-15 : T909.2-BALLANCO3385

P 218-15

Part I:
911.1, 911.2, 911.3, 911.3 (New)
Part II:
P3107.1, P3107.2, P3107.3, P3107.3 (New)

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

Revise as follows:

911.1 Individual vent as common vent. An individual vent is shall be permitted to vent two traps or ~~trapped~~two fixtures having integral traps as a common vent provided that the installation complies with Section 911.2, 911.3 or 911.4. The traps or trapped fixtures being common vented shall be located on the same floor level.

911.2 ~~Connection at the same level.~~Horizontal common vent. Where ~~the~~two fixture drains ~~being common vented connect~~connect horizontally to a horizontal drain, their connection shall be at the same level~~, the~~ through a double pattern fitting. The vent connection shall be at the interconnection of the fixture drains being common vented or downstream of the interconnection.

~~911.3~~911.4 ~~Connection~~Vertical common vent with connection at different levels. *No change to text.*

Add new text as follows:

911.3 Vertical common vent with connection at the same level. Where the two *fixture drains* being common vented connect horizontally to a vertical drain at the same level, their vent connection shall be through a double pattern fitting. The vent connection shall be at the interconnection of the *fixture drains* being common vented.

Part II

2015 International Residential Code

Revise as follows:

P3107.1 Individual vent as common vent. An individual vent is shall be permitted to vent two traps or ~~trapped~~ two fixtures having integral traps as a common vent provided that the installation complies with Section P3107.2, P3107.2.3 or P3107.2.4. The traps or trapped fixtures being common vented shall be located on the same floor level.

P3107.2 ~~Connection at the same level.~~Horizontal common vent. Where ~~the~~ two*fixture drains* ~~being common vented~~ connect horizontally to a horizontal drain, their vent connection shall be at the same level~~, the~~ through a double pattern fitting. The vent connection shall be at the interconnection of the *fixture drains* being common vented or downstream of the interconnection.

~~P3107.3~~P3107.4 ~~Connection~~Vertical common vent with connection at different levels. Where the *fixture drains* connect at different levels, the vent shall connect as a vertical extension of the vertical drain. The vertical drain pipe connecting the two *fixture drains* shall be considered the vent for the lower *fixture drain*, and shall be sized in accordance with Table P3107.3. The upper fixture shall not be a water closet.

P3107.3 Vertical common vent with connection at the same level. Where the two *fixture drains* being common vented connect horizontally to a vertical drain at the same level, their vent connection shall be through a double pattern fitting. The vent connection shall be at the interconnection of the *fixture drain*s being common vented.

Reason: This proposal does not propose any new requirements but only provides clarification for what is already in the code (but is hard to understand).

Proposed revisions new section 911.3 and revised section 911.4 are the widely used and well known, vertical common vent arrangements that has been used for decades. Section 911.3 was extracted from the existing 911.2 in order to separate out the horizontal common vent application.

The code has allowed horizontal common venting for many decades but the language was not clear enough to be widely understood. The revised language should make the requirements clear.

A minor rewriting to Section P3107.1 provide the conditions under which the individual vent can be a common vent, ties the following sections into it and clarifies what "trapped fixtures" are.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 3.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

Part II: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 218-15 : 911.1-SNYDER4069

P 219-15

Part I:
915.1
Part II:
P3111.1

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IPC COMMITTEE. PART II WILL BE HEARD BY THE IRC PLUMBING COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Julius Ballanco, representing Self (JBENGINEER@aol.com)

Part I

2015 International Plumbing Code

Revise as follows:

915.1 Type of fixtures. A *combination waste and vent system* shall not serve fixtures other than floor drains, sinks, lavatories and drinking fountains. *Combination waste and vent systems* shall not receive the discharge from a ~~food waste disposer or~~ clinical sink.

Part II

2015 International Residential Code

Revise as follows:

P3111.1 Type of fixtures. A combination waste and vent system shall not serve fixtures other than floor drains, sinks and lavatories. ~~A combination waste and vent system shall not receive the discharge of a food waste disposer.~~

Reason: The American Society of Plumbing Engineers Research Foundation completed a study of the impact of food waste disposer on combination waste and vent systems. The study concluded that there was no impact on the venting and that food waste disposer can readily connect to these systems. Based on the technical findings of this research, there is no technical justification for placing a limitation on the discharge of food waste disposers to combination waste and vent systems. The Research Report of the findings has been published and is available for review on the ASPE website, http://aspe.org/sites/default/files/webfm/ASPE%20RF/rf_report_food%20waste.pdf.
The code change that originally added the restriction for food waste disposers identified the pumping action of the reason for restricting food waste disposers. The concern was that the pumping action would result in the siphonic of other traps for fixtures connecting to the system. This was proven to not be the case during the testing.

A combination waste and vent system is a popular venting method for island fixtures. However, the current code language would prohibit a food waste disposer on these kitchen sinks. There is no reason for restricting the use of food waste disposers on these sink.

Cost Impact:

Part I: Will not increase the cost of construction
This will lower the cost of construction by allowing a viable venting method to be used when a kitchen sink has a food waste disposer.

Part II: Will not increase the cost of construction
This will lower the cost of construction by allowing a viable venting method to be used when a kitchen sink has a food waste disposer.

P 219-15 : 915.1-BALLANCO3797

P 220-15

Part I:
915.1
Part II:
P3111.1

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

Proponent: Billy Smith, American Society of Plumbing Engineers Legislative Committee, representing American Society of Plumbing Engineers Legislative Committee (bsmith@aspe.org)

Part I

2015 International Plumbing Code

Revise as follows:

915.1 Type of fixtures. A *combination waste and vent system* shall not serve fixtures other than floor drains, sinks, lavatories and drinking fountains. *Combination waste and vent systems* shall not receive the discharge from a ~~food waste disposer or~~ clinical sink.

Part II

2015 International Residential Code

Revise as follows:

P3111.1 Type of fixtures. A combination waste and vent system shall not serve fixtures other than floor drains, sinks and lavatories. ~~A combination waste and vent system shall not receive the discharge of a food waste disposer.~~

Cost Impact:

Part I: Will not increase the cost of construction
It's going to allow an installation that previously wasn't permitted thus lowering the cost of production.

Part II: Will not increase the cost of construction
It's going to allow an installation that previously wasn't permitted thus lowering the cost of production.

P 220-15 : 915.1-SMITH4838

P 221-15

Part I:

915.1, 915.1.1 (New), 915.2, 915.2.1, 915.2.2, 915.2.3, 915.2.4, 915.2.5

Part II:

P3111.1, P3111.1.1 (New), P3111.2, P3111.2.1, P3111.2.2, P3111.2.3, P3111.2.4, P3111.3

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

Revise as follows:

915.1 Type of fixtures. A *combination waste and vent system* shall ~~not~~ only serve ~~fixtures other than~~ floor drains, sinks, lavatories and drinking fountains. A *combination waste and vent system* shall be considered to be the vent for those fixtures.The developed length of a *fixture drain* to the *combination waste and vent system* piping shall not exceed the limitations of Table 909.1.*Combination waste and vent systems* shall not receive the discharge from a food waste disposer or clinical sink.

915.2 Installation. The only vertical pipe of a *combination waste and vent system* shall be the connection between ~~the~~a f*ixture drain* and ~~the~~a horizontal combination waste and vent pipe. The length of the vertical ~~distance~~pipe shall not exceed 8 feet (2438 mm).

915.2.1 Slope. The slope of a horizontal combination waste and vent ~~pipe~~piping shall not exceed one-half unit vertical in 12 units horizontal (4-percent slope) and shall not be less than that indicated in Table 704.1.

915.2.2 Size and length. The size of a combination waste and vent ~~pipe~~piping shall be not less than that indicated in Table 915.2.2. The horizontal length of a *combination waste and vent system* shall be unlimited.

915.2.3 ~~Connection~~Vent connection. ~~The~~ A *combination waste and vent system* shall be provided with a dry vent connected at any point within the system or the system shall connect to a horizontal drain or building drain, that serves vented fixtures located on the same floor. *Combination waste and vent systems* connecting to building drains receiving only the discharge from one or more stacks shall be provided with a dry vent. The dry vent ~~connection~~ connected to the combination waste and vent pipe shall extend vertically to a point not less than 6 inches (152 mm) above the flood level rim of the highest fixture being vented by the *combination waste and vent system* before ~~offsetting horizontally.~~ horizontal offsets in the dry vent piping are allowed.

915.2.4 Vent size. The dry vent connected to the *combination waste and vent system* shall be sized for the total *drainage fixture* unit load in accordance with Section 906.2.

Delete without substitution:

~~**915.2.5 Fixture branch or drain.** The *fixture branch* or *fixture drain* shall connect to the combination waste and vent within a distance specified in Table 909.1. The combination waste and vent pipe shall be considered the vent for the fixture.~~

Add new text as follows:

915.1.1 Single fixture systems. A horizontal *fixture drain* shall be considered to be a c*ombination waste and vent system* provided that the *fixture drain* size complies with Table 915.2.2.

Part II

2015 International Residential Code

Revise as follows:

P3111.1 Type of fixtures. A combination waste and vent system shall ~~not~~only serve ~~fixtures other than~~ floor drains, sinks, lavatories and ~~lavatories~~drinking fountains. A combination waste and vent system shall be considered to be the vent for those fixtures. The developed length of a fixture drain to the combination waste and vent system piping shall not exceed the limitations of Table P3105.1. Combination waste and vent systems shall not receive the discharge ~~of~~from a food waste disposer.

Add new text as follows:

P3111.1.1 Single fixture systems. A horizontal fixture drain shall be considered to be a combination waste and vent system provided that the fixture drain size complies with P3105.1.

Revise as follows:

P3111.2 Installation. The only vertical pipe of a combination waste and vent system shall be the connection between ~~the~~a fixture drain and ~~the~~a horizontal combination waste and vent pipe. The lenght of the vertical ~~distance~~pipe shall be not greater than 8 feet (2438 mm).

P3111.2.1 Slope. The slope of a horizontal combination waste and vent ~~pipe~~piping shall ~~have a slope of~~be not greater than $^{1}/_{2}$ unit vertical in 12 units horizontal (4-percent slope)~~. The minimum slope~~ and shall not be less than that indicated in ~~accordance with~~ Section ~~P3005.3~~P3005.2.

P3111.2.2 ~~Connection~~Vent connection. ~~The~~A combination waste and vent system shall be provided with a dry vent connected at any point within the system or the system shall connect to a horizontal drain or building drain, that serves vented fixtures located on the same floor. Combination waste and vent systems connecting to*building drains* receiving only the discharge from one or more stacks shall be provided with a dry vent. The dry vent ~~connection~~connected to the combination waste and vent pipe shall extend vertically to a point not less than 6 inches (152 mm) above the flood level rim of the highest fixture being vented by the combination waste and vent system before ~~offsetting horizontally.~~horizontal offsets in the dry vent piping are allowed.

P3111.2.3 Vent size. The dry vent connected to the combination waste and vent system shall be sized for the total drainage fixture unit load in accordance with Section ~~P3113.1~~P3111.1.

Delete without substitution:

~~**P3111.2.4 Fixture branch or drain.** The fixture branch or *fixture drain* shall connect to the combination waste and vent within a distance specified in Table P3105.1. The combination waste and vent pipe shall be considered the vent for the fixture.~~

Revise as follows:

P3111.3 Size and length. The size of a combination drain and vent ~~pipe~~piping shall be not less than that specified in Table 3111.3. The horizontal length of a combination drain and vent system shall be unlimited.

Reason: PART I: The primary reason for this proposal is to add new Section 915.1.1 to cover the very special situation of a single fixture combination waste and vent system.

Consider a 2 inch floor drain which by definition has a 2 inch trap. Where the floor drain is an emergency floor drain, Table 709.1 indicates that the dfu value is zero. Where the floor drain is not emergency floor drain, Table 709.1 indicates that the dfu value is 2. Where the floor drain is intended to receive only clear-water waste from certain types of equipment, Section 709.4.1 (through note h of Table 709.1), the dfu value is 1/2. For this example, consider that the floor drain is a 2 dfu value. Now review Table 915.2.2 and determine that a 2 inch combination waste and vent pipe can accommodate up to 3 dfu. Therefore, the 2 inch pipe from the trap of the 2 inch floor drain can be its own combination waste and vent system.

However, this is not readily apparent from existing language especially when reading existing Section 915.2.5. That section seems to indicate that the length of a fixture drain to its vent connection is always limited by the trap-to-vent distances in Table 909.1. The piping from any fixture trap to the vent connection is limited in length so that the vent connection is not below the trap weir (see Section 909.1). Table 909.1 reflects the maximum length of the fixture drain at the indicated slopes so Section 909.1 is not violated. But where the fixture drain is "oversized" according to the requirements for a combination waste and vent system, then the limit on fixture drain length for these single fixture applications is meaningless. The fixture trap cannot siphon because the pipe is oversized for the intended dfu going into the drain.

For a better flow of requirements, Section 915.2.5 was merged into Section 915.1. This was important in order to move the requirement for meeting Table 909.1 before new Section 915.1.1 to make that new section make sense.

Several minor changes were made to other sections including changing pipe to piping. Pipe implies a section of pipe without fittings. A combination waste and vent system can have horizontal bends. Some have misinterpreted that "pipe" meant that a CWV system only was allowed as a "straight run" system.

Another small but important change is in 915.2. Here, pipe really does mean pipe as in a straight run of pipe in vertical direction. Adding words to the last sentence will hopefully reinforce that it is not just the distance of 8 feet but a vertical pipe not longer than 8 feet. Note the definition for VERTICAL PIPE in chapter 2. A vertical pipe could have vertical offsets and still be considered vertical.

PART II: The primary reason for this proposal is to add new Section 915.1.1 to cover the very special situation of a single fixture combination waste and vent system.

Consider a 2 inch floor drain which by definition has a 2 inch trap. Where the floor drain is an emergency floor drain, Table P3004.1 indicates that the dfu value is zero. Where the floor drain is not emergency floor drain, note b indicates the dfu unit value is the summation of dfu discharging to the floor drain. For this example, consider that the floor drain is a 2 dfu value. Now review Table P3111.3 and determine that a 2 inch combination waste and vent pipe can accommodate up to 3 dfu. Therefore, the 2 inch pipe from the trap of the 2 inch floor drain can be its own combination waste and vent system.

However, this is not readily apparent from existing language especially when reading existing Section P3111.2.4. That section seems to indicate that the length of a fixture drain to its vent connection is always limited by the trap-to-vent distances in Table P3105.1. The piping from any fixture trap to the vent connection is limited in length so that the vent connection is not below the trap weir (see Section P3105.2). Table P3105.1reflects the maximum length of the fixture drain at the indicated slopes so Section P3105.2 is not violated. But where the fixture drain is "oversized" according to the requirements for a combination waste and vent system, then the limit on fixture drain length for these single fixture applications is meaningless. The fixture trap cannot siphon because the pipe is oversized for the intended dfu going into the drain.

For a better flow of requirements, Section P3111.2.4 was merged into Section P3111.1. This was important in order to move the requirement for meeting Table P3105.1 before new Section P3111.1 to make that new section make sense.

Several minor changes were made to other sections including changing pipe to piping. Pipe implies a section of pipe without fittings. A combination waste and vent system can have horizontal bends. Some have misinterpreted that "pipe" meant that a CWV system only was allowed as a "straight run" system.

Another small but important change is in P3111.2. Here, pipe really does mean pipe as in a straight run of pipe in vertical direction. Adding words to the last sentence will hopefully reinforce that it is not just the distance of 8 feet but a vertical pipe not longer than 8 feet. Note the definition for VERTICAL PIPE in chapter 2. A vertical pipe could have vertical offsets and still be considered vertical.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 18.

Cost Impact:

Part I: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

Part II: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 221-15 : 915.1-SNYDER4071

P 222-15

915.2.3

Proponent: James Richardson, Jr, representing City of Columbus Ohio (jarichardson@columbus.gov)

2015 International Plumbing Code

Revise as follows:

915.2.3 Connection. The *combination waste and vent system* shall be provided with a dry vent connected at any point within the system or the system shall connect to a horizontal drain that serves vented fixtures located on the same floor. *Combination waste and vent systems* connecting to building drains and branches of building drains receiving ~~only~~ the discharge from one or more stacks shall be provided with a dry vent. The vent connection to the combination waste and vent pipe shall extend vertically to a point not less than 6 inches (152 mm) above the flood level rim of the highest fixture being vented before offsetting horizontally.

Reason: Discharge from stacks causes the biggest pressure fluxuation in a plumbing system, especially for combination drain and vent systems which have no method for relieving positive pressures. In larger municipalities, many sewer systems maintain positive pressure which further compounds issues for combination drain and vent systems. Additionally, a combination drain and vent system connected to building drain (not a branch drain) currently requires no dry vent connection to the "system", in the event of a blockage in the building drain, upon the release of the blockage the traps attached to the CD&V system will lose their trap seal due to the subsequent negative pressure since there is no dry vent connection to balance the pressure within the system.

Cost Impact: Will not increase the cost of construction
This doesn't change the design of these systems but just clarifies where the systems can be installed.

P 222-15 : 915.2.3-RICHARDSON5325

P 223-15

915.2.3

Proponent: James Richardson, Jr (jarichardson@columbus.gov)

2015 International Plumbing Code

Revise as follows:

915.2.3 Connection. The *combination waste and vent system* shall be provided with a dry vent connected at any point within the system or the system shall connect to a horizontal drain that serves vented fixtures located on the same floor. *Combination waste and vent systems* connecting to building drains receiving ~~only~~ the discharge from one or more stacks shall be provided with a dry vent. The vent connection to the combination waste and vent pipe shall extend vertically to a point not less than 6 inches (152 mm) above the flood level rim of the highest fixture being vented before offsetting horizontally.

Reason: Building drains receive higher flows than other horizontal drains in a building. Depending on a single vented fixture far away from the building drain to provide venting air for a CWV system connected to a building drain that has stacks (possibly many stacks) discharging to the building drain just isn't a safe thing to do. There could be a CWV system for floor drains in a rarely occupied basement of a commercial building where numerous stacks come down into the building drain. A vent on a service sink somewhere in the corner of a large basement area is simply going to be too far away to provide sufficient venting air, through a nearly flooded building drain (at times), for connected CWV systems. These CWV systems need dedicated vents to prevent blowback of waste out of the connected floor drains. As you might imagine, blowback out of the floor drains could leave the trap seals open to allow sewer gases into the unhabited basement. These gases could be picked up air handlers or worse, become concentrated enough to explode with a spark from nearby switchgear.
The concept currently allowed by this code section might be workable for a home plumbing system but for a commerical building system, it just isn't smart design.

Cost Impact: Will not increase the cost of construction
This doesn't change the design of these systems but just clarifies where the systems can be installed.

P 223-15 : 915.2.3-RICHARDSON6025

P 224-15

Part I:
918.1
Part II:
P3114.1

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

Proponent: Tim Earl, GBH International, representing The Oatey Company (tearl@gbhinternational.com)

Part I

2015 International Plumbing Code

Revise as follows:

918.1 General. Vent systems utilizing air admittance valves shall comply with this section. Stack-type air admittance valves shall conform to ASSE 1050. Individual and branchtype air admittance valves shall conform to ASSE 1051. Both types of air admittance valves shall have a membrane constructed of silicone rubber.

Part II

2015 International Residential Code

Revise as follows:

P3114.1 General. Vent systems using *air admittance valves* shall comply with this section. Individual and branch-type air admittance valves shall conform to ASSE 1051. Stack-type air admittance valves shall conform to ASSE 1050. Both types of air admittance valves shall have a membrane constructed of silicone rubber.

Reason: Silicone rubber is much more resistant to deformation and degradation from temperature change and humidity than other commonly used rubber diaphragm materials, as shown through accelerated aging and TGA analysis. This provides a higher degree of longevity and more importantly, a higher factor of safety to building occupants, as AAV diaphragm failure is less likely to occur with silicone. Diaphragm failure can lead to gas intrusion into the structure. Note that we are pursuing changes to the referenced ASSE standards as well, however these are not complete in time for this code cycle and we feel that waiting three more years is counter to ensuring a higher degree of confidence in the performance of these products. Once the standard is altered, we would support removing the code language being proposed. This is also consistent with a proposed change to the IRC.
The attached data from moisture exposure test shows that silicone demonstrates less swelling than other commonly used rubber diaphragm materials.

Moisture exposure data

The photo shows a deformed EPDM diaphragm after long-term exposure to humidity, heat, and sewer gas.

EPDM diaphragm after long-term exposure to humidity, heat, and sewer gas

Cost Impact:

Part I: Will not increase the cost of construction
This will have no impact on cost, as silicone is no more expensive than other commonly used rubber diaphragm materials.

Part II: Will not increase the cost of construction
This will have no impact on cost, as silicone is no more expensive than other commonly used rubber diaphragm materials.

P 224-15 : 918.1-EARL4546

P 225-15

918.3.1

Proponent: James Richardson, Jr, representing City of Columbus Ohio (jarichardson@columbus.gov)

2015 International Plumbing Code

Revise as follows:

918.3.1 Horizontal branches. Individual and branch-type air admittance valves shall vent only fixtures that are on the same floor level and connect to a *horizontal branch drain*. Where the horizontal *branch* is located more than four branch intervals from the top of the stack, <u>or where the AAV is connected to a single fixture drain, </u>the horizontal *branch*<u> *or horizontal fixture drain*</u>shall be provided with a relief vent that shall connect to a vent stack or stack vent, or extend outdoors to the open air. The relief vent shall connect to the *horizontal branch drain* between the stack and the most downstream *fixture drain* connected to the *horizontal branch drain*. The relief vent shall be sized in accordance with Section 906.2 and installed in accordance with Section 905. The relief vent shall be permitted to serve as the vent for other fixtures.

Reason: 918.3.1 references individual and branch type AAVs connecting to a horizontal branch drain. The definition of a horizontal branch drain is: A drainage branch pipe extending laterally from a soil or waste stack or the building drain, with or without verticle sections or branches, that receives the discharge from two or more fixture drains or branches and conducts the discharge to the soil or waste stack or to the building drain. Based off of the definitions and the previous wording in the code section, it would appear the intent is for there to be some way to relieve positive pressures since the AAV can only relieve negative pressures. Without taking into consideration positive pressure, a contractor could connect two sinks off of a building drain on the same drainage lateral, creating a horizontal branch drain, and vent the fixtures with only an AAV. In doing so, positive pressures created by stack discharge could affect the operation of the fixtures and AAVs, or positive pressures in the sewer system could affect the AAVs.

Cost Impact: Will increase the cost of construction
There will be minimal addtional cost to provide the relief vent for a single fixture or a pair of fixtures.

P 225-15 : 918.3.1-RICHARDSON5685

P 226-15

Part I:
918.8
Part II:
P3114.8

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

Proponent: Guy McMann, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

Part I

2015 International Plumbing Code

Revise as follows:

918.8 Prohibited installations. Air admittance valves shall not be installed in nonneutralized special waste systems as described in Chapter 8 except where such valves are in compliance with ASSE 1049, are constructed of materials *approved* in accordance with Section 702.5 and are tested for chemical resistance in accordance with ASTM F 1412. Air admittance valves shall not be located in spaces utilized as supply or return air plenums. Air admittance valves without an engineered design shall not be utilized to vent sumps or tanks of any type. Air admittance valves shall not be installed on outdoor vent terminals for the sole purpose of reducing clearances to gravity air intakes or mechanical air intakes.

Part II

2015 International Residential Code

Revise as follows:

P3114.8 Prohibited installations. *Air admittance valves* shall not be used to vent sumps or tanks except where the vent system for the sump or tank has been designed by an engineer. Air admittance valves shall not be installed on outdoor vent terminals for the sole purpose of reducing clearances to gravity or mechanical air intakes.

Reason:

Part I: This type of installation is not consistent with the intent of use of AAVs. These are still mechanical devices with a shelf life and are subject to failure even if the correct AAV for outdoor use is installed. Failures will result in sewer gas making its way into building openings. The correct remedy is to move or raise the vent.

Part II: This type of installation is not consistent with the intended use of AAVs. These are still mechanical devices with a shelf life and are subject to failure even if the correct AAV for outdoor use is installed. Failures will result in sewer gas making its way into building openings. The correct remedy is to move or raise the vent.

Cost Impact:

Part I: Will not increase the cost of construction
There is no additional cost that would normally occur to correct a non-code compliant installation. This proposal attempts to circumvent the installation of a product against its' intended use as air admittance valves are a mechanical devices that will eventually fail.

Part II: Will not increase the cost of construction
There is no additional cost that would normally occur to correct a non-code compliant installation. This proposal attempts to circumvent the installation of a product against its' intended use as air admittance valves are a mechanical devices that will eventually fail.

P 226-15 : 918.8-MCMANN3592

P 227-15

918.8

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

918.8 Prohibited installations. Air admittance valves shall not be installed in nonneutralized special waste systems as described in Chapter 8 except where such valves are in compliance with ASSE 1049, are constructed of materials *approved* in accordance with Section 702.5 and are tested for chemical resistance in accordance with ASTM F 1412. Air admittance valves shall not be located in spaces utilized as supply or return air plenums. Air admittance valves ~~without an engineered design~~ shall not be ~~utilized~~used to vent sumps or tanks ~~of any type.~~except where the vent system for the sump or tank has been designed by an engineer.

Reason: The IRC already has this correction/clarification made in the last cycle and this proposal is for coordination with that IRC change.

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Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 227-15 : 918.8-SNYDER4076

P 228-15

Part I:
918.8
Part II:
P3114.8

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

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

Part I

2015 International Plumbing Code

Revise as follows:

918.8 Prohibited installations. Air admittance valves shall not be installed in nonneutralized special waste systems as described in Chapter 8 except where such valves are in compliance with ASSE 1049, are constructed of materials *approved* in accordance with Section 702.5 and are tested for chemical resistance in accordance with ASTM F 1412. Air admittance valves shall not be located in spaces utilized as supply or return air plenums. Air admittance valves without an engineered design shall not be utilized to vent sumps or tanks of any type. <u>Air admittance valves shall not be connected to waste piping where a slip joint connection is downstream of the air admittance valve connection.</u>

Part II

2015 International Residential Code

Revise as follows:

P3114.8 Prohibited installations. *Air admittance valves* shall not be used to vent sumps or tanks except where the vent system for the sump or tank has been designed by an engineer. <u>Air admittance valves shall not be connected to waste piping where a slip joint connection is downstream of the air admittance valve connection.</u>

Reason: This proposal is not an attempt to limit the use of Air Admittance Valves (AAVs) in any way. AAVs have been in the code for many code cycles and are understood to be a viable venting method where used in accordance with the provisions of the code. This proposal is attempting to prevent an "unintended consequence" of a specific arrangement of AAV installation. Consider the following (extremely common) application for an AAV: A lavatory in a toilet facility or bathroom. A quite common venting method used is the horizontal wet venting method where the vent for the lavatory serves as the venting for the water closets and bathtub/shower in the toilet facility or bathroom. An AAV can be used for the lavatory vent. There is not a problem with use of an AAV in this situation. However, where the AAV is part of a tubular waste assembly (with the AAV downstream of the trap and a slip joint downstream of the AAV connection), there is a possibility that the trap will be replaced with a non-AAV trap and no one will be the wiser. Unfortunately, this will leave the bathroom group without a vent.

It is just too easy for this type of AAV arrangement to be replaced. In a public toilet facility, vandalism can occur where trim and fixtures must be replaced. This type of AAV trap can "disappear" in the process as they are somewhat of a specialty item and certainly have a higher cost than a standard trap. Allowing AAV's into the code came with the code requirements intent that the presence of these devices would be apparent (review Sections 918.4 through 918.8). For example, where located in an attic, an AAV has to be above the insulation. Where stack type AAV's are used they have to be located 6 inches above the flood level rim of the served fixtures. Although AAV's can be concealed, the must be provided with access. In other words, you have to be able to see that there is a location for installation of the AAV. Removal of an AAV trap with a slip joint connection downstream doesn't leave any evidence that an AAV was there or was supposed to be there.

Again, this is not to say that a AAV cannot be used for venting a lavatory. To comply with the proposed limitation, the installer simply has to "hard pipe" for the AAV. In that manner, there is a fixed connection for the AAV that is not easily removable in the future

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 2.

Cost Impact:

Part I: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, there will be a few more pipe fittings and a slightly more labor required at set out (fixture installation) to facilitate the "hard piped" AAV connection. Because the AAV was already going to be used, there is no extra cost for an AAV.

Part II: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, there will be a few more pipe fittings and a slightly more labor required at set out (fixture installation) to facilitate the "hard piped" AAV connection. Because the AAV was already going to be used, there is no extra cost for an AAV.

P 228-15 : 918.8-SNYDER4077

P 229-15

1002.3 (New), 405.8, 706.2, 708.1.5, 901.2.1, 904.1, 1002.1, 1002.3, Chapter 14

Proponent: Angel Guzman Rodriguez, representing American Society of Mechanical Engineers

2015 International Plumbing Code

Add new text as follows:

1002.3 Inline sanitary waste valves Inline sanitary waste valves shall comply with ASME A112.18.8. The valves shall be installed only on fixture outlets having 1-1/4 inch (31.8mm) or 1-1/2 inch (38.1 mm) outside diameter tubular waste piping. Valves conveying the waste from a food waste disposer shall be installed only in a vertical orientation. The valves shall not be installed on the outlet of a urinal. The valves shall be installed in a vertical orientation or a horizontal orientation. Where installed in a horizontal orientation, the valve body shall be oriented with the ribs on the exterior of the valve body located on the bottom of the valve. The valves shall be provided with *access.*

Revise as follows:

405.8 Slip joint connections. Slip joints shall be made with an *approved* elastomeric gasket and shall only be installed on ~~the~~a trap outlet, a trap inlet~~ and~~, within the trap seal, and on the inlet and outlet of an inline sanitary waste valve. Fixtures with concealed slip-joint connections shall be provided with an *access* panel or utility space not less than 12 inches (305 mm) in its smallest dimension or other *approved* arrangement so as to provide *access* to the slip joint connections for inspection and repair.

706.2 Obstructions. The fittings shall not have ledges, shoulders or reductions capable of retarding or obstructing flow in the piping. Threaded drainage pipe fittings shall be of the recessed drainage type. This section shall not be applicable to tubular waste fittings used to convey vertical flow upstream of the trap seal liquid level of a fixture trap or upstream of an inline sanitary waste valve complying with Section 1002.3.

708.1.5 Cleanout size. Cleanouts shall be the same size as the piping served by the cleanout, except that cleanouts for piping larger than 4 inches (102 mm) need not be larger than 4 inches (102 mm).

Exceptions:

1. A removable P-trap with slip or ground joint connections can serve as a cleanout for drain piping that is one size larger than the P-trap size.
2. Where serving as a cleanout, a removable inline sanitary waste valve shall comply with Section 1002.3 and the drain piping served shall be not greater than one size larger than the size of such valve.
3. Cleanouts located on *stacks* can be one size smaller than the *stack* size.
4. The size of cleanouts for cast-iron piping can be in accordance with the referenced standards for cast-iron fittings as indicated in Table 702.4.

901.2.1 Venting required. Traps and trapped fixtures shall be vented in accordance with one of the venting methods specified in this chapter. Inline sanitary waste valves in accordance with Section 1002.3 shall not be required to be vented.

904.1 Required vent extension. The vent system serving each *building drain* shall have not less than one vent pipe that extends to the outdoors. Sanitary drainage systems that do not have traps and have only inline sanitary waste valves in accordance with Section 1002.3 shall be provided with at least one vent.

1002.1 ~~Fixture traps.~~Trap or inline sanitary waste valve required for each fixture. Each plumbing fixture shall be ~~separately trapped by~~independently discharge to a ~~liquid-seal trap,~~*trap* or an inline sanitary waste valve in accordance with Section 1002.3 except as otherwise permitted by this code. The vertical distance from the fixture outlet to the trap weir shall not exceed 24 inches (610 mm), and the horizontal distance shall not exceed 30 inches (610 mm) measured from the centerline of the fixture outlet to the centerline of the inlet of the trap. The height of a clothes washer standpipe above a trap shall conform to Section 802.4. A fixture shall not be double trapped.

Exceptions:

1. This section shall not apply to fixtures with integral traps.
2. A combination plumbing fixture is permitted to be installed on one trap, provided that one compartment is not more than 6 inches (152 mm) deeper than the other compartment and the waste outlets are not more than 30 inches (762 mm) apart.
3. A grease interceptor intended to serve as a fixture trap in accordance with the manufacturer's installation instructions shall be permitted to serve as the trap for a single fixture or a combination sink of not more than three compartments where the vertical distance from the fixture outlet to the inlet of the interceptor does not exceed 30 inches (762 mm) and the *developed length* of the waste pipe from the most upstream fixture outlet to the inlet of the interceptor does not exceed 60 inches (1524 mm).
4. Floor drains in multilevel parking structures that discharge to a building storm *sewer* shall not be required to be individually trapped. Where floor drains in multilevel parking structures are required to discharge to a combined *building sewer* system, the floor drains shall not be required to be individually trapped provided that they are connected to a main trap in accordance with Section 1103.1.

1002.3 Prohibited traps. The following types of traps are prohibited:

1. Traps that depend on moving parts to maintain the seal.
2. Bell traps.
3. Crown-vented traps.
4. Traps not integral with a fixture and that depend on interior partitions for the seal, except those traps constructed of an *approved* material that is resistant to corrosion and degradation.
5. "S" traps.
6. Drum traps.

   Exception: Drum traps used as solids interceptors and drum traps serving chemical waste systems shall not be prohibited.

For the purposes of this section, inline sanitary waste valves complying with ASME A112.18.8 shall not considered as a prohibited trap.

Add new standard(s) as follows:

ASME A112.18.8–2009 (R2014) In-Line Sanitary Waste Valves for Plumbing Drainage

Reason: Inline sanitary waste valves serve the same function as a liquid seal traps. The valve design has been tested and proven to maintain a gas tight seal when used in the application where a trap would be used. These valves have been mainly used in manufactured homes where the valve location is in areas that are small and there is limited space. The performance requirements for these valves are mentioned within the ASME A112.18.8 standard which includes a gas-tight seal test. This is an ANSI approved standard.
Section 1002.3 is the main section of interest of this proposal and provides the requirements and limitations for installation of the valves. All other sections of the code have been carefully revised to accomodate this type of device within the structure of the code.

A similar proposal was submitted by abother proponent to the IRC-P&M Committee in 2013 (Group B of 2012/2013/2014 code development cycle) and was approved by the Committee. However, the proposal was not approved at Final Action.

RP149-13

Committee Action: Approved as Submitted

Committee Reason: This proposal provides another option for a p-trap where conditions are not favorable for installation of a p-trap.

Assembly Action: None

Cost Impact: Will not increase the cost of construction
The use of in-line sanitary waste valves will not affect cost of construction. These waste valves are already being used and this code change will only require that the valves comply with the standard.

Analysis: A review of the standard proposed for inclusion in the code, ASME A112.18.8–2009 (R2014), with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 229-15 : 1002.3-GUZMAN RODRIGUEZ4977

P 230-15

1003.3

Proponent: Ken Loucks, representing Schier Products Company (ken.loucks@schierproducts.com)

2015 International Plumbing Code

Revise as follows:

1003.3 Grease interceptors. Grease interceptors shall comply with the requirements of Sections 1003.3.1 through ~~1003.3.5~~1003.3.7.

Reason: The 2015 language failed to include all of the relevent sections for grease interceptors in the requirements for grease interceptors under 1003.3 since it currently only requires interceptors to meet sections up to 1003.3.5 (leaving out 1003.3.6 and 1003.3.7). This has the effect of exempting gravity grease interceptors from requirements that should pertain to all grease interceptors without exception. Also, 1003.3.7 specifically requires grease interceptors to be directly connected to the sanitary drainage system, however this is confusing since this section is not mandated for compliance in 1003.3.

Cost Impact: Will not increase the cost of construction
There is no cost impact, since this only clarifies requirements already in the code but which are confusing as is.

P 230-15 : 1003.3-LOUCKS3822

P 231-15

413.1, 413.3, 1003.3.1

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing InSinkErator (JBENGINEER@aol.com)

2015 International Plumbing Code

Revise as follows:

413.1 Approval. Domestic food waste disposers shall conform to ASSE 1008. Domestic and commercial food waste disposers shall be listed and labeled in accordance with UL 430. Food waste disposers shall not increase the *drainage fixture unit* load on the sanitary drainage system.

413.3 Commercial food waste disposer waste outlets. Commercial food waste disposers shall be connected to a drain not less than $1^1/_2$ inches (38 mm) in diameter. Commercial food waste disposers shall be directly connected and trapped separately from any other fixtures or sink compartments.

1003.3.1 Grease interceptors and automatic grease removal devices required. A grease interceptor or automatic grease removal device shall be required to receive the drainage from fixtures and equipment with greaseladen waste located in food preparation areas, such as in restaurants, hotel kitchens, hospitals, school kitchens, bars, factory cafeterias and clubs. Fixtures and equipment shall include pot sinks, prerinse sinks; soup kettles or similar devices; wok stations; floor drains or sinks into which kettles are drained; automatic hood wash units and dishwashers without prerinse sinks. Commercial food waste disposers shall not be required to discharge to a grease interceptor or to an automatic grease removal device. Grease interceptors and automatic grease removal devices shall receive waste only from fixtures and equipment that allow fats, oils or grease to be discharged. Where lack of space or other constraints prevent the installation or replacement of a grease interceptor, one or more grease interceptors shall be permitted to be installed on or above the floor and upstream of an existing grease interceptor.

Reason: This change merely clarifies the requirements for commercial food waste disposers. Chapter 3 already requires food waste disposers to be listed and labeled. When UL 430 was added during the last code change cycle, it was only added as a reference to domestic food waste disposers. However, the standard also regulates commercial food waste disposers.
Food waste disposers are required to connect directly to the drainage system. There have been incidents whereby there was a misinterpretation of Chapter 8 and food waste disposers were required to discharge indirectly to the drainage system because they are located in a food handling establishment. By adding the word "directly" there will not be such misinterpretation.

Finally, there have been occasions where there has been a misinterpretation of Section 1003.3.1, whereby health inspectors required grease interceptors to discharge through a grease interceptor. By adding a sentence to this section, it clarifies that this is not required by this section. The added sentence could also be converted to an exception.

Cost Impact: Will not increase the cost of construction
This proposal adds clarity to the code. There is no change that impacts cost of installation.

P 231-15 : 1003.3.1-BALLANCO3808

P 232-15

1003.3.1

Proponent: Ken Loucks, Schier Products Company, representing Schier Products Company (ken.loucks@schierproducts.com)

2015 International Plumbing Code

Revise as follows:

1003.3.1 Grease interceptors and automatic grease removal devices required. ~~A~~One or more grease ~~interceptor~~interceptors or automatic grease removal ~~device~~devices shall be ~~required~~provided to receive the drainage containing fats, oils or grease from kitchen fixtures and food preparation equipment. Such fixtures and equipment ~~with greaseladen waste~~shall include pot sinks, prerinse sinks, soup kettles or similar devices, wok stations, floor drains, floor sinks, automatic hood wash units and dishwashers that are located in the food preparation areas~~,~~ of food-handling establishments such as ~~in~~ restaurants, hotel kitchens, hospitals, school kitchens, bars, factory cafeterias and clubs~~. Fixtures and equipment shall include pot sinks, prerinse sinks; soup kettles or similar devices; wok stations; floor drains or sinks into which kettles are drained; automatic hood wash units and dishwashers without prerinse sinks. Grease interceptors and automatic grease removal devices shall receive waste only from fixtures and equipment that allow fats, oils or grease to be discharged~~. Where lack of space or other constraints prevent the installation or replacement of a grease interceptor, one or more grease interceptors shall be permitted to be installed on or above the floor and upstream of an existing grease interceptor.

Reason: The current plumbing code and its interpretation does not provide adequate control of Fats, Oils, and Greases (FOG) from food service establishments (restaurants, delis, and commercial kitchens). FOG in the wastewater collection system causes blockages, increases utility costs and disrupts wastewater treatment plants[1].

The phrase, "A grease interceptor or automatic grease removal device shall be required to receive the drainagefrom fixtures and equipment with greaseladen waste..." is too ambiguous. Many people are not sure whether a fixture carries greaseladen waste and in many cases fixtures that are now know to carry at least some greaseladen waste routinely do not get routed to a grease interceptor. This leads to unanticipated bypass in violation of EPA mandates and NPDES requirements.

The presence of a prerinse sink should not preclude a dishwasher from being routed to an interceptor since the use of the prerinse sink is not a guarantee that food scraps and greasy residue will be removed from dishware prior to entering the dishwasher.

This proposal amends the 2015 IPC by mandating that all fixtures and equipment in food preparation areas be routed to an interceptor in support of federally mandated FOG abatement requirements[2].

Bibliography:
1. EPA Report to Congress, 833-R-04-001, US EPA, 2004, pages ES-1 through ES-4, 4-27 and 4-28
http://water.epa.gov/polwaste/npdes/cso/2004-Report-to-Congress.cfm

2. Fact Sheet National Pretreatment Program Controlling Fats, Oils, and Grease Discharges from Food Service Establishments, 40 CFR 403,US EPA, 2012, pages 1 through 5

http://www.epa.gov/npdes/pubs/pretreatment_foodservice_fs.pdf

Cost Impact: Will not increase the cost of construction
It is not possible to quantify actual costs because it is dependent on the specifics of a particular application, such as building type/size, design variables, construction methods and materials, however the associated costs for post construction changes to a grease interceptor system that fails to meet pretreatment compliance requirements can cost tens of thousands of dollars. These changes should not impact state agencies, units of local government, or the public either since building codes division's and local building departments already enforce the requirements of the plumbing code.

P 232-15 : 1003.3.1-LOUCKS3296

P 233-15

1003.3.2

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing InSinkErator (JBENGINEER@aol.com)

2015 International Plumbing Code

Revise as follows:

1003.3.2 Food waste disposers restriction. ~~Where~~A food waste ~~disposers connect to grease interceptors, a solids interceptor shall separate the discharge before connecting to the grease interceptor. Solids interceptors and grease interceptors shall be sized and rated for the discharge of the food waste disposers. Emulsifiers, chemicals, enzymes and bacteria~~disposer shall not discharge ~~into the food waste disposer.~~to a grease interceptor.

Reason: It has been well established that food waste from a disposer must not discharge through a grease interceptor. If food waste passes through a grease interceptor, it greatly reduces the efficiency of the interceptor. Food waste decomposition in a grease interceptor will dramatically increase the oxygen consumption. The food waste will also drop the pH, increase corrosion, and increase the hydrogen sulfide production. The only means of preventing this occurrence is to not have the food waste disposer discharge to the grease interceptor.
Using a solids interceptor before a grease interceptor is not a viable solution. The solids interceptor will continually fill up with food waste requiring maintenance. In a food handling establishment, this maintenance could be hourly.

A food waste disposer must discharge directly to the sanitary drainage system. This code change will result in such a requirement.

Cost Impact: Will not increase the cost of construction
This identifies a limitation on the discharge of food waste disposers through grease interceptor. By properly connecting the food waste disposer, the cost will be less because of material savings.

P 233-15 : 1003.3.2-BALLANCO3807

P 234-15

1003.3.2, 1003.3.3 (New)

Proponent: JEFFREY HUTCHER, cleanblu, representing Cleanblu (jhutcher@pacbell.net)

2015 International Plumbing Code

Revise as follows:

1003.3.2 Food waste disposers. Where food waste disposers connect to grease interceptors, a solids interceptor shall separate the discharge before connecting to the grease interceptor. Solids interceptors and grease interceptors shall be sized and rated for the discharge of the food waste disposers. ~~Emulsifiers, chemicals, enzymes and bacteria shall not discharge into the food waste disposer.~~

Add new text as follows:

<u>**1003.3.3** **Additives to grease interceptors.** Dispensing systems that dispense interceptor performance additives to grease interceptors shall not be installed except where such systems dispense microbes for the enhancement of aerobic bio remediation of grease and other organic material, or for inhibiting growth of pathogenic organisms by anaerobic methods. Such microbial dispensing systems shall be installed only where the grease interceptor manufacturer's instructions allow such systems and the systems conform to ASME A112.14.6. Systems that discharge emulsifiers, chemicals or enzymes to grease interceptors shall be prohibited.</u>

Reason: Section 1003.3.2 is outdated and ignores the advances of new technology. To include bacteria in the prohibition is not only ignoring science, it is akin to prohibiting electricity as an energy solution. bioremediation is the sole mechanism of ALL waste water treatment plants and natures way to handle waste. Enzymes and microbes are not the same. Enzymes are dead strings of protein that disperse grease and is a common additive in dish soap. Microbes are lifeforms that eat and digest waste. Microbes can be blended (not altered) to feed on grease, sulfur, while inhibiting the growth of pathogens and other harmful organisms. Waste water treatment depends on microbes and and would simply cease to function without them ; So would the human body. Yeast are microbes too. It makes our bread rise, they give us beer, wine and cheese. They are not additives. It's impossible not to have microbes in any establishment. Using Microbes in point source pollution control is enchancing already naturally occuring bacteria and introducing them to their food source. Just like yeast, the by-products are Carbon Dioxide and water. Systems designed to use aerobic Microbes are now listed and meet ASME A112.4.6, using the rigorous EPA test protocol 1664. There is no reason to exclude them in point source pollution control. Exclusion of microbial treatment would be irresponsible, unnatural and dangerous to human and animal health.

Cost Impact: Will not increase the cost of construction
The microbe dispensing systems are optional and therefore, there is no additional cost of material or labor. The new section simply allows these optional systems to be installed as long as they comply with the requirements indicated by the section.

P 234-15 : 1003.3.2-HUTCHER4455

P 235-15

1003.4.2.1

Proponent: James Richardson, Jr (jarichardson@columbus.gov)

2015 International Plumbing Code

Revise as follows:

1003.4.2.1 General design requirements. Oil separators shall have a depth of not less than 2 feet (610 mm) below the invert of the discharge drain. The outlet opening of the separator shall have not less than an ~~18inch~~18-inch (457 mm) water seal. Oil separators shall be provided with a local vent that extends, undiminished in size, to the outdoors. The local vent shall be independent from the venting system of a sanitary drainage system. Plumbing fixtures discharging to the oil separator and requiring a vent for the fixture trap, shall have the vent for the trap connected to the local vent or the vent for the trap shall extend to the outdoors, independent from the venting system of a sanitary drainage system. The termination of such vents shall be in accordance with Section 903.

Reason: General design requirements - Oil separators have always been designed with a local vent stack to allow for toxic and flammable vapors to be vented to a safe place and were always kept independent of the sanitary system. Since there is no requirement in the code for the local vent stack, many design professionals have not been designing these systems with the local vent stack. Without the requirement that it remain independent from the sanitary venting system, they are also designing systems interconnected allowing for the transfer of the toxic or flammable vapor to be transferred to the public sewer system, especially in larger systems where there can exists high positive pressures and high negative pressures.

Cost Impact: Will increase the cost of construction
As a separate vent piping system for oil separators and the fixtures connected to the oil separators must be installed, there will be a moderate cost for materials and labor for these venting systems to be installed. Knowledgable contractors have already be installing these separate venting systems so, as there will be only some contrators that will be asking for an upcharge to install these oil separator systems. The other contractors have been doing it correctly and charging appropriately all along.

P 235-15 : 1003.4.2.1-RICHARDSON6024

P 236-15

Table 1102.4, Chapter 14

Proponent: Shawn Coombs, Advanced Drainage Systems, Inc., representing Advanced Drainage Systems, Inc. (shawn.coombs@ads-pipe.com)

2015 International Plumbing Code

Revise as follows:

TABLE 1102.4
BUILDING STORM SEWER PIPE

MATERIAL	STANDARD
Polypropylene (PP) Pipe	CSA B182.13

(Portions of table not shown remain unchanged)

Add new standard(s) as follows:
CSA B182.13-2011 Profile Polypropylene (Pp) Sewer Pipe And Fittings For Leak-Proof Sewer Applications

Reason: This code change is proposed because there is currently an CSA Standard Specification for this pipe material. PP pipe has been used in gravity flow storm sewer applications (both watertight and soil tight) in Europe for over 25 years and is now being manufactured in the United States. AASHTO has approved the material under AASHTO Specification M330. The American Society Testing Materials (ASTM) has also approved PP pipe per ASTM F2881-11. The acceptance of the proposed change will enable manufacturers with products that meet the requirements of the ASTM Standard to have their products used. This change will also allow the authorities having jurisdiction to permit the use of products that meet this CSA standard.

Cost Impact: Will increase the cost of construction
Using PP will slightly increase the pipe material cost, but will fascilitate ease of installation, due to the stiffer nature of the pipe's wall.

Analysis: A review of the standard proposed for inclusion in the code, CSA B182.13-2011, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 236-15 : 1102.4-COOMBS4183

P 237-15

Table 1102.4, Chapter 14

Proponent: Shawn Coombs, Advanced Drainage Systems, Inc., representing Advanced Drainage Systems, Inc. (shawn.coombs@ads-pipe.com)

2015 International Plumbing Code

Revise as follows:

TABLE 1102.4
BUILDING STORM SEWER PIPE

MATERIAL	STANDARD
Polyethylene (PE) plastic pipe	<u>ASTM F667</u>; ASTM F 2306/F 2306M

(Portions of table not shown remain unchanged)

Add new standard(s) as follows:
<u>ASTM F667 - 12 "Standard Specification for 3 through 24 in. Corrugated Polyethylene Pipe and Fittings"</u>

Reason: This code change is proposed because the currently listed ASTM F2306 has a size range of 12" to 60". There are applications where the designer uses smaller diameter polyethylene pipe to convey storm water or other drainage from the end of the building drain to a public sewer, private sewer, individual sewage disposal system or other point of disposal. Proposed ASTM F667-06 is needed as it covers pipe sizes 3" to 24"
The acceptance of the proposed change will allow the authorities having jurisdiction to permit the use of this product in smaller diameters where required.

Cost Impact: Will not increase the cost of construction
The addition of this standard will allow more appropriately sized diameters of PE to be used, thus optimizing cost.

Analysis: A review of the standard proposed for inclusion in the code, ASTM F667, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 237-15 : T1102.4-COOMBS4123

P 238-15

Table 1102.4, Chapter 14

Proponent: Shawn Coombs, representing Advanced Drainage Systems, Inc. (shawn.coombs@ads-pipe.com)

2015 International Plumbing Code

Revise as follows:

TABLE 1102.4
BUILDING STORM SEWER PIPE

MATERIAL	STANDARD
Polyethylene (PE) plastic pipe	ASTM F 2306/F 2306M; <u>ASTM F2648/F2648M</u>

(Portions of table not shown remain unchanged)

Add new standard(s) as follows:
<u>ASTM F2648/F2648M-13 Standard Specification for 2 to 60 inch [50 to 1500 mm] Annular Corrugated Profile Wall Polyethylene (PE) Pipe and Fittings for Land Drainage Applications</u>

Reason: Section 503 Material Selection of the IGCC discusses the use of recyclable building materials and the use of indigenous materials on projects. This code change is proposed because ASTM F2648 allows the use of recycled materials to be used in the manufacture of High Density Polyethyene pipe. The addition of ASTM F2648 to Table 1102.4 is in support of the IGCC initiative. The acceptance of the proposed change will allow the authorities having jurisdiction to permit the use of this product on projects in direct support of the IGCC.

Cost Impact: Will not increase the cost of construction
The use of recycled materials in our products in most cases make the pipe more cost effective.

Analysis: A review of the standard proposed for inclusion in the code,ASTM F2648/F2648M, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 238-15 : T1102.4-COOMBS4173

P 239-15

Table 1102.4, Chapter 14

Proponent: Shawn Coombs, Advanced Drainage Systems, Inc., representing Advanced Drainage Systems, Inc. (shawn.coombs@ads-pipe.com)

2015 International Plumbing Code

Revise as follows:

TABLE 1102.4
BUILDING STORM SEWER PIPE

MATERIAL	STANDARD
Polypropylene (PP) Pipe	ASTM F2881

(Portions of table not shown remain unchanged)

Add new standard(s) as follows:
ASTM F2881-11 "Standard Specification for 12 to 60 in. [300 to 1500 mm] Polypropylene (PP) Dual Wall Pipe and Fittings for Non-Pressure Storm Sewer Applications"

Reason: This code change is proposed because there is currently an ASTM Standard Specification for this pipe material. PP pipe has been used in gravity flow storm sewer applications (both watertight and soil tight) in Europe for over 25 years and is now being manufactured in the United States. AASHTO has approved the material under AASHTO Specification M330. The Canadian Standards Association (CSA) has also approved PP pipe per CSA B182.13-11. The acceptance of the proposed change will enable manufacturers with products that meet the requirements of the ASTM Standard to have their products used. This change will also allow the authorities having jurisdiction to permit the use of products that meet this ASTM standard.

Cost Impact: Will increase the cost of construction
Using polypropylene pipe will slightly increase the pipe material cost, but will facilitate installation, due to the stiffer nature of the pipe's wall.

Analysis: A review of the standard proposed for inclusion in the code,ASTM F2881 , with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 239-15 : T1102.4-COOMBS4180

P 240-15

Table 1102.4

Proponent: Mike Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservnet.com)

2015 International Plumbing Code

Revise as follows:

TABLE 1102.4
BUILDING STORM SEWER PIPE

MATERIAL	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic pipe <u>in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall.</u>	ASTM D 2661; ~~ASTM D 2751;~~ ASTM F 628; <u>ASTM F 1488;</u> CSA B181.1; CSA B182.1
Cast-iron pipe	ASTM A 74; ASTM A 888; CISPI 301
Concrete pipe	ASTM C 14; ASTM C 76; CSA A257.1M; CSA A257.2M
Copper or copper-alloy tubing (Type K, L, M or DWV)	ASTM B 75; ASTM B 88; ASTM B 251; ASTM B 306
Polyethylene (PE) plastic pipe	ASTM F 2306/F 2306M
Polyvinyl chloride (PVC) plastic pipe (Type DWV, SDR26, SDR35, SDR41, PS50 or PS100) <u>in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall.</u>	ASTM D 2665; ASTM D 3034; ASTM F 891; <u>ASTM F 1488;</u> CSA B182.4; CSA B181.2; CSA B182.2
Vitrified clay pipe	ASTM C 4; ASTM C 700
Stainless steel drainage systems, Type 316L	ASME A112.3.1

Reason: ASTM D2751 has been withdrawn in 2014.
ASTM F1488, "Standard Specification for Coextruded Composite Pipe" is found in table 702.2, but not table 1102.4

Cost Impact: Will not increase the cost of construction
This proposal simply adds another option for piping material into the code and corrects others, and as such, the option is not requiring that this material be chosen. Thus the code with this proposal added will not cause the cost of construction to increase.

P 240-15 : T1102.4-CUDAHY4621

P 241-15

Table 1102.5, Chapter 14

Proponent: Shawn Coombs, Advanced Drainage Systems, Inc., representing Advanced Drainage Systems, Inc. (shawn.coombs@ads-pipe.com)

2015 International Plumbing Code

Revise as follows:

TABLE 1102.5
SUBSOIL DRAIN PIPE

MATERIAL	STANDARD
Polyethylene (PE) plastic pipe	ASTM F 405; <u>ASTM F667</u>; CSA B182.1; CSA B182.6; CSA B182.8

(Portions of table not shown remain unchanged)

Add new standard(s) as follows:
<u>ASTM F667 - 12 Standard Specification for 3 through 24 in. Corrugated Polyethylene Pipe and Fittings</u>

Reason: This code change proposal is proposed because the currently listed ASTM F405 is limited in size to only 3" to 6" diameter pipe. There are applications where larger diameters of perforated polyethylene pipe are required to collect subsurface water or seepage water and convey such water to a place of disposal. The proposed ASTM F667-06 is needed as it covers pipe sizes 3" to 24" diameters. The acceptance of the proposed change will allow the authorities having jurisdiction to permit the use of this product in larger diameters where required.

Cost Impact: Will not increase the cost of construction
The addition of this standard will allow more appropriately sized diameters of PE to be used, thus optimizing cost.

Analysis: A review of the standard proposed for inclusion in the code, ASTM F667 - 12 , with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 241-15 : T1102.5-COOMBS4182

P 242-15

1102.6, Chapter 14

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com)

2015 International Plumbing Code

Revise as follows:

1102.6 Roof Drains. Roof drains shall conform to ASME A112.6.4 or ASME A112.3.1. Roof drains shall be tested and rated in accordance with ASPE/IAPMO Z1034.

Add new standard(s) as follows:
ASPE/IAPMO Z1034 Test Method for Evaluating Roof Drain Performance

Reason: ASPE/IAPMO Z1034 is the new consensus standard for testing and rating roof drains for their flow rate. The current code requires the manufacturer to publish their flow rates. The flow rates are determined by testing to this standard.
The testing requirements in the standard are consistent with the results published in the ASPE Research Foundation Roof Drainage Research Report. The standard also allows flexibility in design to allow manufacturers to develop their own test rig for certifying their roof drains.

Cost Impact: Will not increase the cost of construction
While this testing will cost the manufacturers, such costs are not passed on to the construction costs. Testing and listing of products is a normal business expense for manufacturers.

Analysis: A review of the standard proposed for inclusion in the code, ASPE/IAPMO Z1034, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 242-15 : 1102.6-BALLANCO3657

P 243-15

1102.6, Chapter 14

Proponent: Billy Smith, American Society of Plumbing Engineers Legislative Committee, representing American Society of Plumbing Engineers Legislative Committee (bsmith@aspe.org)

2015 International Plumbing Code

Revise as follows:

1102.6 Roof Drains. Roof drains shall conform to ASME A112.6.4 or ASME A112.3.1. Roof drains shall be tested and rated in accordance with ASPE/IAPMO Z1034.

Add new standard(s) as follows:
ASPE/IAPMO Z1034-2015 Test Method for Evaluating Roof Drain Performance

Reason: ASPE/IAPMO Z1034 is the new consensus standard for testing and rating roof drains for their flow rate. The current code requires the manufacturer to publish their flow rates. The flow rates are determined by testing to this standard.
The testing requirements in the standard are consistent with the results published in the ASPE Research Foundation Roof Drainage Research Report. The standard also allows flexibility in design to allow manufacturers to develop their own test rig for certifying their roof drains.

Cost Impact: Will increase the cost of construction
There are already cost associated with testing of roof drains. However, this being a new consensus standard, cost could increase.

Analysis: A review of the standard proposed for inclusion in the code, ASPE/IAPMO Z1034-2015, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 243-15 : 1102.6-SMITH5403

P 244-15

1105.2

Proponent: MAX WEISS, Plumbing & Drainage Institute, representing Plumbing & Drainage Institute (max@weissresearch.net)

2015 International Plumbing Code

Revise as follows:

1105.2 Roof drain flow rate. The published roof drain flow rate, based on the head of water above the roof drain, shall be used to size the ~~storm drainage system in accordance with Section 1106~~roof drain. The flow rate used for sizing the storm drainage piping shall be based on the maximum anticipated ponding at the roof drain.

Reason: The effort to use the roof drain alone as a flow rate determiner ignores the ASPE data cited as support for the previous change. The ASPE data demonstrates the discharge piping configuration has a greater effect on system flow rate than either ponding depth or drain design. Therefore, while roof drain only flow rate, independent of discharge piping can be used as a flow quantifying element in the overall system design, it is not possible to use that element alone to determine the flow rate for the entire system. Piping configuration effect on flow must be calculated to obtain system flow accuracy.

Cost Impact: Will not increase the cost of construction
The proposal does not add or subtract material, elements, or method of construction. It simply amends the method of calculation.

P 244-15 : 1105.2-WEISS5758

P 245-15

1106.1, 1106.2, 1106.2.1 (New), Table 1106.2.1 (New), 1106.2.1.1 (New), 1106.2.1.2 (New), 1106.2.2 (New), 1106.2.2.1 (New)

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com)

2015 International Plumbing Code

Revise as follows:

1106.1 General. The size of the vertical conductors and leaders, building *storm drains*, building storm *sewers* and any horizontal branches of such drains or *sewers* shall be based on the 100-year hourly rainfall rate indicated in Figure 1106.1 or, on other rainfall rates determined from *approved* local weather data or, where an engineered roof drainage piping system is used, in accordance with the rainfall rates indicated in Section 1106.2.2.

1106.2 Size of storm ~~drain~~drainage piping. ~~Vertical and horizontal *storm drain*~~ Storm drainage piping shall be sized ~~based on the flow rate through the roof drain. The flow rate~~ in ~~*storm drain* piping shall not exceed that specified in Table 1106.2.~~accordance with Section 1106.2.1 or Section 1106.2.2.

TABLE 1106.2.1
ROOF DRAINAGE FLOW RATE

Roof Drainage Area (sq ft)	Drainage Flow Rate (gpm) Based on Rainfall Rates (in/hr)					
	1	2	3	4	5	6
500	5	10	16	21	26	31
1000	10	21	31	42	52	62
1500	16	31	47	62	78	94
2000	21	42	62	83	104	125
2500	26	52	78	104	130	156
3000	31	62	94	125	156	187
3500	36	73	109	145	182	218
4000	42	83	125	166	208	249
4500	47	94	140	187	234	281
5000	52	104	156	208	260	312
5500	57	114	171	229	286	343
6000	62	125	187	249	312	374
6500	68	135	203	270	338	405
7000	73	145	218	291	364	436
7500	78	156	234	312	390	468
8000	83	166	249	332	416	499
9000	94	187	281	374	468	561
10000	104	208	312	416	519	623
11000	114	229	343	457	571	686
12000	125	249	374	499	623	748

Add new text as follows:

1106.2.1 Roof drainage. The stormwater drainage flow rate from a roof surface shall be in accordance with Table 1106.2.1 using a rainfall rate of a 60 minute duration storm of 100 year return period and the horizontal projected area of the roof. Stormwater drainage flow from a roof surface through secondary (emergency) roof drainage means shall not be considered when determining the flow rate for the primary storm drainage piping system.

1106.2.1.1 Roof drain. The roof drain shall have a manufacturer's published flow rate greater than or equal to the stormwater drainage flow rate determined in Section 1106.2.1. The flow rate used for sizing the roof drainage system shall be the roof drain manufacturer's published flow rate based at a head height of 4 inches (102 mm) of water ponding. Roof drainage piping shall be sized in accordance with Table 1106.2.

1106.2.1.2 Elevation of secondary roof drainage means . The bottom of the opening for secondary (emergency) roof drainage means shall be not less than 2 inches (51 mm) and not more than 3 inches (76 mm) higher than the lowest opening of the primary roof drain served by the secondary (emergency) roof drainage means.

1106.2.2 Engineered roof drain flow rate. Vertical and horizontal storm drain piping shall be sized based on the flow rate through the roof drain. The flow rate through a roof drain shall be based on the maximum anticipated height of water ponding above the roof drain that serves a roof area subjected to a rainfall rate of a 60-minute duration storm of 100-year return period and a 5-minute duration storm of 10-year return period. The flow rate through a roof drain shall be determined from the specific roof drain manufacturer's published flow rate at the maximum anticipated height of water ponding. The size of storm drainage piping from the roof drains to the termination of the storm drainage piping system shall be not less than the sizes indicated in Table 1106.2. The maximum anticipated height of water ponding above a roof drain and the stormwater drainage flow from a roof surface shall not include the effects of storm water drainage through any secondary (emergency) roof drainage means.

1106.2.2.1 Elevation of secondary roof drainage means. The bottom of the opening for secondary (emergency) roof drainage means shall be not less than 2 inches (51 mm) higher that the lowest opening of the primary roof drain served by the secondary (emergency) roof drainage means.

Reason: ASPE Research Foundation and IAPMO cosponsored research on the performance of roof drains in storm drainage system. The code change further updates the code requirements based on the recommendations in the ASPE RF report. The research report states the problem and the justification for this change. The research report is included with the submittal and can be downloaded at no cost at www.aspe.org.
The only difference between this change and the recommendation in the ASPE RF report is the first methodology for sizing a storm drainage system in proposed Section 1106.2.1. These requirements were developed to provide a cook-book method of sizing rather than conducting a proper engineering design. As a result, this sizing method takes a very conservative approach to sizing the drainage piping. The drainage piping with be equal to or larger than the pipe size when using the engineered design.

The sizing of the storm drainage system still relies on the values published by the roof drain manufacturers. This data identifies the flow rate based on head height through the roof drain.

Another addition to the engineered sizing requirement is the evaluation of the roof drainage system for a microburst. While a 100 year storm may appear to be the most drastic storm for sizing a system, a microburst can overpower the storm drainage piping resulting in failure of the piping system. The microburst will typically not have a significant impact on the roof loading compared to a 100 year storm of 60 minute duration.

Bibliography: Storm Drainage System Research Project, Flow Through Roof Drains, Ballanco, 2012, Copyright American Society of Plumbing Engineers Research Foundation

Cost Impact: Will not increase the cost of construction
This change only adds an optional design method. While the new method will increase the cost of construction, it is not a mandated design. If the engineered design is selected, the cost remains neutral.

P 245-15 : 1106.1-BALLANCO3687

P 246-15

1106.5, 1108.3

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Plumbing Code

Revise as follows:

1106.5 Parapet wall ~~scupper location~~scuppers. ~~Parapet wall~~ Where scuppers are used for primary roof drainage ~~scupper~~or for secondary (emergency overflow) roof drainage or both, the quantity, size, location and ~~overflow scupper location shall comply with the requirements of Section 1503.4~~inlet elevation of the scuppers shall be chosen to prevent the depth of ponding water on the roof from exceeding the maximum water depth that the roof was designed for as determined by Section 1611.1 of the *International Building Code*. Scupper openings shall be not less than 4 inches (102 mm) in height and have a width that is equal to or greater than the circumference of a roof drain sized for the same roof area. The flow through the primary system shall not be considered when locating and sizing secondary scuppers.

1108.3 Sizing of secondary drains. Secondary (emergency) roof drain systems shall be sized in accordance with Section 1106 based on the rainfall rate for which the primary system is sized. Scuppers shall be sized to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section 1101.7. Scuppers shall have an opening dimension of not less than 4 inches (102 mm) in height and have an opening width equal to the circumference of the roof drain required for the area served, sized in accordance with Table 1106.2(1). The flow through the primary system shall not be considered when sizing the secondary roof drain system.

Reason: The current language in the IPC and IBC implies that scuppers are only approved for secondary roof drainage. However, there are many areas of the country where scuppers are used for the primary roof drain system with another set of scuppers (installed at a higher elevation) used for the secondary drainage system. Where scuppers are used for primary system, there needs to be method to equate the code required drain size to a scupper opening width. A simple design criteria of the scupper width equaling the circumference of the code required primary roof drain has worked very well in such areas such as Phoenix where buildings are subject to annual monsoon thunderstorms in the summer. Statement trailing the reason:
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 168.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

P 246-15 : 1106.5-SNYDER4082

P 247-15

1301.1.1 (New)

Proponent: Jeff Hugo, National Fire Sprinkler Association, representing National Fire Sprinkler Association (hugo@nfsa.org)

2015 International Plumbing Code

Add new text as follows:

1301.1.1 Fire Protection Systems The storage, treatment and distribution of nonpotable water to be used for fire protection systems shall be in accordance with the *International Fire Code.*

Reason: This proposal is to insert text to remind designers and users of the International Plumbing Code for nonpotable water systems that use of these systems in fire protection warrant further examination and design considerations. While many of these systems are used and governed by the International Plumbing Code, there are a fair amount of these systems used for fire protection systems. By referencing the International Fire Code, the user of International Plumbing Code has direct reference to the installation standards used for fire protection systems. Many of these installation standards have specific listing requirements and design considerations that must be incorporated into the nonpotable water systems of Sections 1301, 1302, 1303 and 1304.

Cost Impact: Will not increase the cost of construction
The reference to the IFC and the appropriate installation standards does not increase the cost of construction.

P 247-15 : 1301.1.1 (New)-HUGO5346

P 248-15

1301.2.1

Proponent: Troy Vassos, Golder Associates Ltd., representing self (tvassos@golder.com)

2015 International Plumbing Code

Delete without substitution:

~~**1301.2.1 Residual disinfectants.** Where chlorine is used for disinfection, the nonpotable water shall contain not more than 4 ppm (4mg/L) of chloramines or free chlorine when tested in accordance with ASTM D 1253. Where ozone is used for disinfection, the nonpotable water shall not contain gas bubbles having elevated levels of ozone at the point of use.~~

> ~~**Exception:** Reclaimed water sources shall not be required to comply with these requirements.~~

Reason:

1. The reference in the Code Section to "not more than 4 ppm (4 mg/L) of chloramines or free chlorine" is a drinking (potable) water standard intended to provide a safe margin for total body exposure over a lifetime of consuming water with this concentration and has no relevancy for a non-potable water standard - as the non-potable water will not be consumed,
2. US EPA drinking water criteria for maximum residual disinfectant level goals (MRDLG) references of 4 mg/L for chlorine and chloramine - based solely on possible health risks and exposure over a lifetime of water consumption at this concentration, with an adequate margin of safety.
3. The Code Section could be interpreted to allow a maximum total chlorine residual of 8 mg/L, as total chlorine is the sum of free chlorine (max 4 mg/L) and chloramine (max 4 mg/L) residuals - whereas the drinking water standard is based on either/or.
4. The list of disinfection residuals in the Code Section is incomplete. For example, chlorine dioxide and peracetic acid are not considered, both wastewater disinfectants that result in residual concentrations.
5. The presence of gas bubbles in an ozone application is not a measure of the ozone residual of the water.
6. The release of ozone in the air is likely a far more serious health concenr than the residual concentration of ozone in the water.
7. The Code Section does not state monitoring frequency - implying continuous monitoring and equipment cost.
8. Controlling a maximum disinfectant residual level could have significant cost (i.e chemcial neutralization or other means of residual destruction) versus.
9. Not clear whether the "intention" was health, environment or equipment protection related - but it appears the individual(s) who prepared this Code Section did not specifically reference a particular residual impact or they wouldn't have referenced the stated concentrations.
10. No consideration for environmental impacts of disinfectant residual concentrations - which also depend on the reuse application. Reuse water application for stream augmentation, or where the reuse water may flow into a surface body of water containing aquatic organisms. For example, chlorine or chloramine residual concentrations of less than 0.5 mg/L can be acutely toxic (lethal) to aquatic organisms. Canadian Federal legislation restricts maximum effluent chlorine residuals to 0.01 mg/L.

There are no alternative standards to reference, as the intention for the proposed residual concentrations has not been made clear (i.e. is it a health issue or an adverse material affect concern?)

Bibliography: http://water.epa.gov/drink/contaminants/basicinformation/disinfectants.cfm
[Disinfection of wastewater with peracetic acid: a review] [Environment International. Volume 30, Issue 1] Mehmet Kitis] [2004] [Page 47-55]

https://www.ec.gc.ca/eu-ww/default.asp?lang=En&n=71E71A86-1

Cost Impact: Will increase the cost of construction
There is no indication as to the frequency of measurement to verify the residual chlorine concentrations are less than the 4 mg/L indicated; therefore, this infers that real time measurement and controls are required to ensure the total chlorine or chloramine residual limit is not exceeded. This will result in cost to provide the instrumentation to monitor the residual chlorine levels (est. $5,000) and equipment to neutralize and limit the chlorine residual (est. $20,000 for chemical feed pumps and controls), plus an increased labour cost to carry out daily calibration checks & adjustments as well as chemical top-ups (estimated at $10 per day or about $3,500 per year).

P 248-15 : 1301.2.1-VASSOS4815

P 249-15

1301.4

Proponent: Karen Hobbs, Natural Resources Defense Council, representing Natural Resources Defense Council (khobbs@nrdc.org)

2015 International Plumbing Code

Revise as follows:

1301.4 Permits. Permits shall be required for the construction, installation, alteration and repair of nonpotable water systems. Construction documents, engineering calculations, diagrams and other such data pertaining to the nonpotable water system shall be submitted with each permit application.

Exceptions:

1. Rainwater systems that do not include storage and that supply water only for outdoor applications.
2. Nonpotable water systems collecting water only from a single clothes washer and supplying water only for outdoor applications where such outdoor discharges comply with the requirements of the jurisdication.

Reason: Permitting can be costly and time-consuming and therefore a deterrent for the reuse of onsite nonpotable water. Eliminating this requirement for simple reuse systems that pose little health risk can help to broaden the implementation of onsite reuse of nonpotable water. Additionally, states such as California (http://www.hcd.ca.gov/codes/shl/2007CPC_Graywater_Complete_2-2-10.pdf) and Arizona (http://www.harvestingrainwater.com/wp-content/uploads/Arizona_Greywater_Guidelines_in_English.pdf) have set precedents for not requiring permits for laundry to landscape graywater systems.

Cost Impact: Will not increase the cost of construction
No cost increase will result from this proposal; the proposal simply eliminates an unnecessary permit process for simple reuse sytems.

P 249-15 : 1301.4-HOBBS5298

P 250-15

1301.4

Proponent: Troy Vassos, representing self (tvassos@golder.com)

2015 International Plumbing Code

Revise as follows:

1301.4 Permits. Permits shall be required for the construction, installation, alteration, repair and ~~repair~~operation of nonpotable water systems. Construction documents, engineering calculations, diagrams and other such data pertaining to the nonpotable water system shall be submitted with each permit application.

Reason:

1. A permit or letter of authorization may also be required to operate a non-potable water treatment and distribution system or to use the non-potable water, or a water reuse system is permitted to operate subject to specific conditions. For example, the bibiography includes a reference to the province of British Columbia Municipal Wastewater Regulation that requires a letter of authorization from the local health jurisdiction to operate a water reuse system.

   http://www.bclaws.ca/civix/document/id/complete/statreg/87_2012

   Section 105 (1) .. a person must not provide reclaimed water unless the person .. receives authorization .. to provide reclaimed water for the proposed use, subject to the conditions specified by the health officer.

Bibliography: [http://www.bclaws.ca/civix/document/id/complete/statreg/87_2012]

Cost Impact: Will not increase the cost of construction
There is no cost implication to noting there may also be a jurisdiction requirement or permit to operate the reuse facility, just as there is likely to be a permit to construct or repair.

P 250-15 : 1301.4-VASSOS5801

P 251-15

1301.6

Proponent: David Cantrell, representing Joint Consensus Committee on Rainwater Collection System Design and Installation (IS-RCSDI) (dave.cantrell@kingcounty.gov)

2015 International Plumbing Code

Revise as follows:

1301.6 ~~Approved components~~Components and materials. Piping, plumbing components and materials used in collection and conveyance systems shall be ~~manufactured~~ of material approved by the manufacturer for the intended application ~~and compatible with any disinfection and treatment systems used~~.

Reason: Treatment and disinfection systems are not expected to affect permitted piping, plumbing components and materials. Since the section already specifies that materials must be "approved" this term has no value added by remaining in the section heading.

Cost Impact: Will not increase the cost of construction
This code change is for clarificaiton only and does not increase the specific provisions addressed in the code section.

P 251-15 : 1301.6-CANTRELL5178

P 252-15

1301.6

Proponent: Troy Vassos, representing self (tvassos@golder.com)

2015 International Plumbing Code

Revise as follows:

1301.6 Approved components and materials. Piping, plumbing components and materials used in collection and conveyance systems shall be manufactured of material approved for the intended application ~~and compatible with any disinfection and treatment systems used~~.

Reason:

1. The term compatible is not defined, but its use vaguely implies that treatment and disinfection systems could in some way damage commonly used plumbing components and materials used in collection and conveyance systems.
2. The nature of the "incompatibility" is unclear, so it is not possible to verify compatibility.
3. It is possible that the authors of the Code Section were referring to the effect of chemical disinfectants on plastic pipe, but as can be seen in the referenced report on this subject, the subject is far from being a well understood and defined subject. Further, the issue is addressed by many other standards that could be referenced by the code.

There are no incompatibility criteria related to disinfection and/or treatment technologies that can be referenced.

Bibliography: [http://hdpeoxidation.com/Carollo%20Study%20on%20HDPE-PVC%20Pipe%20-%20Disinfectant%20Oxidation%208-08.pdf]

Cost Impact: Will not increase the cost of construction
The requirement to ensure the plumbing conveyancing components are compatible with disinfection and/or treatment systems is not expected to have a cost impact, as it is expected that common plumbing materials used for conveying nonpotable water would be unaffected by disinfection and/or treatment systems.

P 252-15 : 1301.6-VASSOS5798

P 253-15

1301.9.1

Proponent: David Cantrell, representing Joint Consensus Committee on Rainwater Collection System Design and Installation (IS-RCSDI) (dave.cantrell@kingcounty.gov)

2015 International Plumbing Code

Delete without substitution:

~~**1301.9.1 Sizing.** The holding capacity of the storage tank shall be sized in accordance with the anticipated demand.~~

Reason: In the absence of providing more informed guidance, this section should be eliminated. For example, tank sizing for rainwater storage is based on anticipated demand patterns, rainfall characteristics, and cost, not just anticipated demand.

Cost Impact: Will not increase the cost of construction
Deleting this sizing section does not add more restrictive requirements to the installation.

P 253-15 : 1301.9.1-CANTRELL5182

P 254-15

1301.9.1

Proponent: Troy Vassos, representing self (tvassos@golder.com)

2015 International Plumbing Code

Delete without substitution:

~~**1301.9.1 Sizing.** The holding capacity of the storage tank shall be sized in accordance with the anticipated demand.~~

Reason:

1. Sizing of rainwater harvesting (non-potable) storage is done based on anticipated demand patterns, rainfall characteristics, and cost – not just anticipated demand.
2. Sizing of water reuse system storage (see bibliographic reference) may be considered in tandem with water treatment capacities and variations in demand. This is particularly true for treated wastewater which could be treated to meet the instantaneous non-potable water demands, or treated at a lower rate and stored to meet future demands.
3. In the absence of providing more comprehensive guidance on the sizing of storage, it is recommended that this section be deleted

Bibliography: [http://nepis.epa.gov/Adobe/PDF/P100FS7K.pdf]

Cost Impact: Will not increase the cost of construction
The removal of an incomplete design criteria for storage will not have an adverse economic impact.

P 254-15 : 1301.9.1-VASSOS5802

P 255-15

1301.9.2

Proponent: David Cantrell, representing Joint Consensus Committee on Rainwater Collection System Design and Installation (IS-RCSDI) (dave.cantrell@kingcounty.gov)

2015 International Plumbing Code

Revise as follows:

1301.9.2 Location. ~~Storage tanks shall be installed above~~Any storage tank or ~~below grade. Above-grade storage tanks~~ portion thereof that is above-grade shall be protected from direct exposure to sunlight ~~and shall be constructed~~by one of the following methods:

1. Tank construction using opaque, UV-resistant materials such as~~, but not limited to,~~ heavily tinted plastic, fiberglass, lined metal, concrete, wood, or painted to prevent algae growth~~, or shall have specially~~
2. Specially constructed sun barriers ~~including, but not limited to, installation~~.
3. Installation in garages, crawl spaces or sheds.

Storage tanks and their manholes shall not be located directly under soil piping, waste piping or any source of contamination.

Reason: The first sentence has no added value. The provisions of this and other sections dictate the necessary requirements for storage tanks based on their installation above or below grade. The methods used for protection from sunlight is easier in a list format as opposed to a single paragraph.

Cost Impact: Will not increase the cost of construction
This code change merely reorganizes the section without adding or deleting any existing provisions.

P 255-15 : 1301.9.2-CANTRELL5171

P 256-15

1301.9.2

Proponent: Troy Vassos, representing self (tvassos@golder.com)

2015 International Plumbing Code

Revise as follows:

1301.9.2 Location. Storage tanks shall be installed above, at or below grade. ~~Above-grade~~At or above-grade storage tanks shall be protected from direct sunlight and shall be constructed using opaque, UV-resistant materials such as, but not limited to, heavily tinted plastic, fiberglass, lined metal, concrete, wood, or painted to prevent algae growth, or shall have specially constructed sun barriers including, but not limited to, installation in garages, crawl spaces or sheds. Storage tanks and their manholes shall not be located directly under soil piping, waste piping or any source of contamination.

Reason:

1. Non-potable storage tanks could be installed fully buried, partially buried, at grade, or above grade (elevated). It is common to use elevated storage to generate water distribution pressure.

Cost Impact: Will not increase the cost of construction
The proposed change in wording does not have a cost impact.

P 256-15 : 1301.9.2-VASSOS5807

P 257-15

1301.9.6

Proponent: JEFFREY HUTCHER, Cleanblu, representing self

2015 International Plumbing Code

Revise as follows:

1301.9.6 Overflow. The storage tank shall be equipped with an overflow pipe having a diameter not less than ~~that shown in Table 606.5.4~~the tank inlet pipe diameter. The overflow pipe shall be protected from insects or vermin and shall discharge in a manner consistent with storm water runoff and sanitary drainage requirements of the jurisdiction. The overflow pipe from storm water and rainwater systems shall discharge at a sufficient distance from the tank to avoid damaging the tank foundation or the adjacent property. Drainage from overflow pipes shall be directed to prevent freezing on roof walkways. The overflow drain shall not be equipped with a shutoff valve. A cleanout shall be provided on each overflow pipe in accordance with Section 708. Overflow drains from gray water tank systems shall connect to the sanitary system downstream of the tank

Reason: The section fails to address overflow from Gray Water systems which cannot be discharged overland as Storm or Rainwater systems. Overflows from gray water tanks shall discharge to sanitary. Point source pollutant discharge is a violation of US code 33 which includes the Clean Water Act 1972. It also violates the National Pollution Discharge Elimination System (NPDES)

Cost Impact: Will increase the cost of construction
The proposal may increase the cost since it is now spelled out to allow the jurisdiction to require connections to sanitary for certain systems, but it will eliminate the confusion about Gray water and other non potable sources. Without the new wording, the possibilty exists for a jurisdiction to allow for an llicit discharge in in violation of the clean water act

P 257-15 : 1301.9.6-HUTCHER4404

P 258-15

1301.9.7

Proponent: David Cantrell, representing Joint Consensus Committee on Rainwater Collection System Design and Installation (IS-RCSDI) (dave.cantrell@kingcounty.gov)

2015 International Plumbing Code

Revise as follows:

1301.9.7 Access. Not less than one access opening shall be provided to allow inspection and cleaning of the tank interior. Access openings shall have an *approved* locking device or other approved method of securing access. Below-grade storage tanks, located outside of the building, shall be provided with a manhole either not less than 24 inches (610 mm) square or with an inside diameter not less than 24 inches (610 mm). Manholes shall extend not less than 4 inches (102 mm) above ground or shall be designed to prevent water infiltration. Finished grade shall be sloped away from the manhole to divert surface water. Manhole covers shall be secured to prevent unauthorized access. Service ports in manhole covers shall be not less than 8 inches (203 mm) in diameter and shall be not less than 4 inches (102 mm) above the finished grade level. The service port shall be secured to prevent unauthorized access.

> **Exception:** ~~Storage~~Water storage tanks for treated water that are less than 800 gallons (3028L) in volume and installed below grade shall not be required to be equipped with a manhole~~, but shall have~~ provided that the tank has a service port of not less than 8 inches (203 mm) in diameter.

Reason: Raw water storage tanks should have an easy access for cleaning (i.e. manhole access). The exception more appropriately applies to treated water storage tanks.

Cost Impact: Will not increase the cost of construction
This code change clarifies the appropriate access for treated water tanks. Such tanks are typically smaller than water storage tanks that store water prior to treatment.

P 258-15 : 1301.9.7-CANTRELL5180

P 259-15

1301.9.9

Proponent: David Cantrell, representing Joint Consensus Committee on Rainwater Collection System Design and Installation (IS-RCSDI) (dave.cantrell@kingcounty.gov)

2015 International Plumbing Code

Revise as follows:

1301.9.9 Draining of tanks. ~~Where tanks require draining for~~Tanks shall be provided with a means of emptying the contents for the purpose of service or cleaning~~, tanks~~. Tanks shall be drained by using a pump or by a drain located at the lowest point in the tank. The tank drain pipe shall discharge as required for overflow pipes and shall not be smaller in size than specified in Table 606.5.7. Not less than one cleanout shall be provided on each drain pipe in accordance with Section 708.

Reason: It is important for all water storage tanks to have a means for draining or emptying the tank for maintenance purposes and cleaning in order to protect the health and safety of users.

Cost Impact: Will not increase the cost of construction
This code change clarifies the methods for draining or emptying tanks, but does not add or increase any additional provisions for such.

P 259-15 : 1301.9.9-CANTRELL5176

P 260-15

1301.9.9

Proponent: JEFFREY HUTCHER, representing ARCSA (jhutcher@pacbell.net)

2015 International Plumbing Code

Revise as follows:

1301.9.9 Draining of tanks. ~~Where tanks require draining for service or cleaning, tanks~~
<u>Tanks</u> shall be <u>capable of being</u> drained by using a pump or by a drain located at the lowest point in the tank. The tank drain pipe shall discharge as required for overflow pipes and shall not be smaller in size than specified in Table 606.5.7. Not less than one cleanout shall be provided on each drain pipe in accordance with Section 708.

Reason: All tanks need to be cleaned and sometimes emptied for abandonment. The new language make it a requirement

Cost Impact: Will not increase the cost of construction
This should have no impact on cost. Professionals already know a provision for draining should be provided

P 260-15 : 1301.9.9-HUTCHER5154

P 261-15

1302.1, 1304.3

Proponent: Dru Meadows, theGreenTeam, Inc., representing Walmart (dmeadows@thegreenteaminc.com)

2015 International Plumbing Code

Revise as follows:

1302.1 General. The provisions of ASTM E2635 and Section 1302 shall govern the construction, installation, alteration and repair of on-site nonpotable water reuse systems for the collection, storage, treatment and distribution of on-site sources of nonpotable water as permitted by the jurisdiction.

1304.3 Reclaimed water systems. The design of the reclaimed water systems shall conform to ~~ASTM E 2635 and~~ *accepted engineering practice*.

Reason:
This proposal is intended to coordinate the scope of ASTM E2635 and its prior use in the IgCC, with the reorganization of IgCC Chapter 7 language to IPC Chapter 13.

There was some streamlining in the relocation of the language from IgCC Chapter 7 to IPC Chapter 13. That helped to clarify the difference between systems that use nonpotable water captured on-site, and systems that use nonpotable water capture off-site (i.e. nonpotable water delivered to the site, also called "reclaimed water" "municipal reclaimed water" or "recycled water").

Reference to ASTM E2635 seems to have ended up in the wrong subsection. In the IgCC, it addressed water reclaimed/reused on-site. In the IPC, it is located in a section that appears limited to water reclaimed off-site. It should be moved from Section 1304 to Section 1302.

The scope of ASTM E2635 – 14, Standard Practice for Water Conservation in Buildings Through In-Situ Water Reclamation, states:

> "This practice specifies limitations for use of reclaimed water in-situ. It is not intended for application to the use of reclaimed water delivered from an offsite municipal wastewater treatment facility."

Cost Impact: Will not increase the cost of construction
No new requirements are identified so there is not a change in the cost of construction.

P 261-15 : 1302.1-MEADOWS3620

P 262-15

1302.2

Proponent: Troy Vassos, representing self (tvassos@golder.com)

2015 International Plumbing Code

Revise as follows:

1302.2 Sources. On-site nonpotable water reuse systems shall collect waste discharge from only the following sources: bathtubs, showers, lavatories, clothes washers and laundry trays. ~~Water~~Where *approved* and as appropriate for the intended application, water from other ~~*approved*~~ nonpotable sources ~~including swimming pool backwash operations, air conditioner condensate, rainwater, cooling tower blow-down water, foundation drain water, steam system condensate, fluid cooler discharge water, food steamer discharge water, combination oven discharge water, industrial process water and fire pump test water~~ shall ~~also be permitted to~~ be collected for reuse by on-site nonpotable water reuse systems~~, as *approved* by the code official and as appropriate for the intended application~~.

Reason:

1. As approval of alternative sources of reuse water is required by the Code Section, it is unnecessary to provide an example list of alternative sources.
2. The list of alternative sources is not exhaustive, and other souces of reusable water could be considered.
3. Many of the alternative nonpotable wastewater sources have considerably different types of contaminants and levels of contamination than the greywater sources noted in the first sentence. Consequently, the type of treatment and treatment complexity is expected to be considerably different for many of the example non-potable water sources listed, than for the greywater sources noted. Non-potable water sources of particular concern in the alternative sources include cooling tower blow-down water, food steamer discharge water, and industrial process water.
4. Consequently, it is recommended that the example list of alternative non-potable water sources be deleted.

Cost Impact: Will not increase the cost of construction
The elimination of an example list of alternative non-potable water sources will not have a cost impact, and does not affect the intent of the section to recognize that jurisdictions may also consider other appropriate sources of non-potable water.

P 262-15 : 1302.2-VASSOS5808

P 263-15

1302.2.1

Proponent: Karen Hobbs, Natural Resources Defense Council, representing Natural Resources Defense Council (khobbs@nrdc.org)

2015 International Plumbing Code

Revise as follows:

1302.2.1 Prohibited sources. Waste water containing urine or fecal matter shall not be diverted to on-site nonpotable water reuse systems and shall discharge to the sanitary drainage system of the building or premises in accordance with Chapter 7. Reverse osmosis system reject water, water softener discharge water, kitchen sink waste water, dishwasher waste water and waste water discharged from wet-hood scrubbers shall not be collected for reuse in an on-site nonpotable water reuse system.

Exception: Where prohibited sources of water have been treated onsite by *approved* methods, the use of the treated water in on-site nonpotable water reuse systems shall be in accordance with the requirements of the jurisdication.

Reason: In some instances, the treatment and reuse of blackwater can be more cost-effective than dual plumbing to collect graywater sources separately from blackwater for reuse. Some cities, such as San Francisco (http://www.sfwater.org/index.aspx?page=686), have programs that not only allow the treatment and reuse of blackwater, they provide incentives. Given water scarcity in many parts of the country, as well as infrsatructure limitations, the IPC should not prohibit the use of blackwater for onsite nonpotable reuse, if local jurisdictions permit its use. The onsite reuse of blackwater can improve local reliability of water and reduce loads on sanitary sewer collection systems and treatment plants.

Cost Impact: Will not increase the cost of construction
No cost impact; this proposal would simply allow the use of blackwater if the local jurisdiction already permits its use.

P 263-15 : 1302.2.1-HOBBS5300

P 264-15

1302.2.1

Proponent: Troy Vassos, Golder Associates Ltd., representing self (tvassos@golder.com)

2015 International Plumbing Code

Revise as follows:

1302.2.1 Prohibited sources. ~~Waste water containing urine or fecal matter shall not be diverted to on-site nonpotable water reuse systems and shall discharge to the sanitary drainage system of the building or premises in accordance with Chapter 7.~~
Reverse osmosis system reject water, water softener discharg~~e water, kitchen sink waste water, dishwasher waste~~ water and waste water discharged from wet-hood scrubbers shall not be collected for reuse in an on-site nonpotable water reuse system.

Reason:

1. The treatment of mixed municipal or domestic (sanitary) wastewater containing urine and fecal matter is considered to be an acceptable practice in all jurisdictions that permit reuse water to be used to satisfy non-potable water demands.
2. There is no technical reason to exclude blackwater sources (e.g. toilet & urinal, kitchen sink and dishwasher sources, for example) for treatment and reuse. In preparing the Canadian Guidelines for Domestic Reclaimed Water for Use in Toilet and Urinal Flushing, Health Canada concluded there was no significant health risk difference associated with reuse water generated from mixed wastewater sources versus greywater sources. In fact, the type and concentration of contaminants have been shown to be very similar for the two groups of wastewater (i.e. mixed wastewater versus greywater).
3. Generating reuse water by only treating greywater sources would require the separate collection of greywater, and would incur increased costs for drainage.
4. The existing NSF/ANSI Standard 350 and 350-1, and CSA 128.3 -12 water reuse treatment system performance standards include mixed wastewater and greywater sources within the standards, as does the recent Australian EPA standard for water reuse package treatment plant performance.
5. The water reuse water quality standards for non-potable applications are based on treating mixed wastewater (e.g. US EPA, California Title 22, Florida, Washington State, etc.) and do not consider segregating or preferentially treating greywater sources to generate reuse water for non-potable use.

Bibliography: [Canadian Guidelines for Domestic Reclaimed Water for Use in Toilet and Urinal Flushing] [ISBN: 978-1-100-15665-1] [Health Canada] [2010]
[Guidelines for Water Reuse] [EPA/600/R-12/618] [US EPA] [2012]

Cost Impact: Will not increase the cost of construction
The inclusion of sanitary or blackwater sources will increase the amount of water available for reuse applications, and will decrease the associated cost of treatment as separate plumbing systems will not be required for blackwater and greywater sources and the inherent reduction in unit costs expected for increased scale treatment applications.

P 264-15 : 1302.2.1-VASSOS5810

P 265-15

1302.5

Proponent: Troy Vassos, Golder Associates Ltd., representing self (tvassos@golder.com)

2015 International Plumbing Code

Delete without substitution:

~~**1302.5 Filtration.** Untreated water collected for reuse shall be filtered as required for the intended end use. Filters shall be accessible for inspection and maintenance. Filters shall utilize a pressure gauge or other *approved* method to provide indication when a filter requires servicing or replacement. Filters shall be installed with shutoff valves immediately upstream and downstream to allow for isolation during maintenance.~~

Reason:

1. "Untreated" wastewater sources should not be filtered. The wastewater source (mixed wastewater or greywater) contains a high concentration of soluble biodegradable organic matter and suspended solids which will rapidly clog a filter. The soluble organics will result in bacterial growth within the filter, and clogging.
2. Established reuse water quality standards, such as those stated in NSF/ANSI Standard 350 & 350-1 and CSA B 128.3-12, as well as state and federal guidelines and regulatory standards for water reuse quality have stringent turbidity requirements (typically less than 2 NTU) that inherently can only be achieved with a high degree of filtration, **BUT ONLY FOLLOWING** biological oxidation (treatment). Stating that filtration is required for reuse water (i.e. treated wastewater) is unnecessary as it is addressed by the water quality or treatment equipment requirements of the jurisdication.

The requirement to filter untreated wastewater will result in increased costs due to filter clogging and high O&M.

Bibliography: [Canadian Guidelines for Domestic Reclaimed Water for Use in Toilet and Urinal Flushing] [ISBN: 978-1-100-15665-1] [Health Canada [2010]
[Guidelines for Water Reuse] [EPA/600/R-12/618] [US EPA] [2012]

[http://www.ecy.wa.gov/PROgrams/wq/reclaim/index.html]

Cost Impact: Will not increase the cost of construction
One less piece of equipment required will lower construction costs.

P 265-15 : 1302.5-VASSOS5813

P 266-15

1302.6, 1302.6.1, 1302.7.1, 1302.7.3, 1302.12.6

Proponent: Troy Vassos, Golder Associates Ltd., representing self (tvassos@golder.com)

2015 International Plumbing Code

Revise as follows:

1302.6 ~~Disinfection and treatment.~~Untreated gray water storage. ~~Where the intended application for nonpotable water collected on site for reuse requires disinfection or other treatment or both, it shall be disinfected as needed to ensure that the required water quality is delivered at the point of use.~~
Nonpotable water collected on site containing untreated gray water shall be retained in collection reservoirs for a maximum of 24 hours.

1302.6.1 Gray water used for fixture flushing. Gray water used for flushing water closets and urinals shall be ~~disinfected and treated~~treated as required by ~~an on-site water reuse treatment system complying with NSF 350.~~the jurisdiction.

Delete without substitution:

TABLE 1302.7.1
~~LOCATION OF NONPOTABLE WATER REUSE STORAGE TANKS~~

~~ELEMENT~~	~~MINIMUM HORIZONTAL DISTANCE FROM STORAGE TANK (feet)~~
~~Critical root zone (CRZ) of protected trees~~	~~2~~
-	-
~~Seepage pits~~	~~5~~
~~Septic tanks~~	~~5~~
~~Water wells~~	~~50~~
-	-
~~Water service~~	~~5~~
~~Public water main~~	~~10~~

For SI: 1 foot = 304.8 mm.

~~**1302.7.3 Outlets.** Outlets shall be located not less than 4 inches (102 mm) above the bottom of the storage tank and shall not skim water from the surface.~~

~~**1302.12.6 Water quality test.** The quality of the water for the intended application shall be verified at the point of use in accordance with the requirements of the jurisdiction.~~

Reason:

1. The water quality requirement including the method and degree of disinfection is determined by the jurisdiction, and can vary between jurisdictions. For example, the BC Municipal Wastewater Regulation that governs water reuse in the province of British Columbia has four water reuse water quality classifications, two of which can be used for water reuse applications with direct public access (i.e. high potential for body contact).
2. By definition, water reuse means "treated wastewater" and for the non-potable applications considered in the Code also typically requires a high level of disinfection.
3. The requirement for the point of compliance for water quality should be left to the jurisdiction.
4. It is recommended the first sentence be deleted and the title modified to refer to the storage of untreated greywater - however, the storage requirement is usually specified by the jurisdiction.
5. The water quality requirement for using treated greywater as a source of reuse water for fixture flushing should be left to the jurisdiction, as it may vary between jurisdictions.
6. NSF/ANSI Standard 350 & 350-1, and CSA B 128.3 are treatment performance standards and not water quality standards.
7. CSA B 128.3 should be referenced where NSF/ANSI Standard 350 is appropriate to be referenced.
8. There is no reasonable rationale to restrict the the proximity of storage containers for reuse water (i.e. treated and disinfected water suitable for non-potable reuse applications) and property lines, or surface water bodies.
9. The setback requirements are expected to vary between jurisdictions - therefore the table should be deleted and a reference made to jurisdiction.
10. The requirement for an outlet from a storage tank containing non-potable reuse water (by definition treated, low turbidity of less than 2 NTU, and disinfected) to be located not less than 4 inches (102 mm) above the bottom is unecessary and in contradicition with Section 1301 which requires non-potable water storage tanks to drain from the lowest point in the tank.
11. The location of where the reuse water quality is to be met can vary from jurisdiction to jurisdiction and should be left to the jurisdiction, so stating this is unecessary as the Code does not address water quality anyway - but leaves that to the jurisdiction.

.

Bibliography: NSF/ANSI 350 and 350-1: Onsite Water Reuse
CSA B 128.3-12 Performance of Non-Potable Water Reuse Systems

Cost Impact: Will not increase the cost of construction
The proposed changes do not have cost implications.

P 266-15 : 1302.6-VASSOS5817

P 267-15

1302.7.2

Proponent: Richard Grace, Fairfax County, VA, representing VA Plumbing and Mechanical Inspectors Association (VPMIA) and VA Building Code Officials Association (VBCOA) (richard.grace@fairfaxcounty.gov)

2015 International Plumbing Code

Delete without substitution:

~~**1302.7.2 Design and construction.** Storage tanks shall be designed and constructed in accordance with Chapters 16 through 22 of the *International Building Code* and in accordance with the following standards, as appropriate for the material of the storage tank: AWWA D100, AWWA D115, AWWA D120, UL 58, UL 1746, UL 1316, UL 142, API 12F or API 12D.~~

Reason: Section 1301.9 as referenced under section 1302.7 already gives specific design and construction information for tanks. The references given to the specific standards under section 1302.7.2 leave out many material and methods used to store nonpotable water and is very restrictive and cost prohibitive.

Cost Impact: Will not increase the cost of construction
By removing the referenced section th requirement for tanks to comply with the specific listed standards is removed which allows other materials and methods to be used.

P 267-15 : 1302.7.2-HARPER4521

P 268-15

1303.1, Chapter 14

Proponent: JEFFREY HUTCHER, representing ARCSA (jhutcher@pacbell.net)

2015 International Plumbing Code

Revise as follows:

1303.1 General. ~~The provisions of Section 1303~~ASPE/ARCSA/ANSI 63 and accepted engineering practice shall govern rainwater harvesting systems inciuding the design, construction, installation, alteration and repair of rainwater collection and conveyance systems ~~for~~including th~~e collection,~~ storage, treatment and distribution of rainwater for nonpotable applications, as permitted by the jurisdiction.

Add new standard(s) as follows:
ASPE/ARCSA/ANSI 63-2013 Rainwater catchment systems

Reason: The American Rainwater Catchment Systems Association developed the ANSI accredited ASPE/ARCSA 63 Standard. It is the most comprehensive standard developed for the safe collection and design of Rainwater harvesting systems. The ARCSA standard is already the backbone of the industry and installers and manufacturers follow this standard which has been developed by experts in the field.

Cost Impact: Will not increase the cost of construction
Having reliable standards that can be followed always reduces the cost of construction when the application is already in the Code. Clarification of prescriptive and performance requirements and designs can be found in the standard

Analysis: A review of the standard proposed for inclusion in the code,ASPE/ARCSA/ANSI 63, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

P 268-15 : 1303.1-HUTCHER4405

P 269-15

1303.2

Proponent: David Cantrell, representing Joint Consensus Committee on Rainwater Collection System Design and Installation (IS-RCSDI) (dave.cantrell@kingcounty.gov)

2015 International Plumbing Code

Revise as follows:

1303.2 Collection surface. Rainwater shall be collected only from above-ground impervious roofing surfaces constructed from approved materials and where *approved*, ~~materials. Collection of water from~~ vehicular parking or pedestrian ~~surfaces shall be prohibited except where the water is used exclusively for landscape irrigation. Overflow and bleed-off pipes from roof-mounted appliances including, but not limited to, evaporative coolers, water heaters, and solar water heaters shall not discharge onto rainwater collection~~walking surfaces.

Reason: Current rainwater harvesting practices include the collection of water from vehicular parking or pedestrian surfaces. While such restriction may be appropriate for collection of rainwater intended to be treated for potable use, this chapter address rainwater collection for nonpotable use. Rainwater harvesting technologies are able to safely accomodate collection from these surfaces. The change is required in order to allow the use of modern conservation techniques.

Cost Impact: Will not increase the cost of construction
This code section clarifies the type of collection surfaces and to a degree expands the use of such surfaces.

P 269-15 : 1303.2-CANTRELL5175

P 270-15

1303.3, 1303.4, 1303.15.2

Proponent: David Cantrell, representing Joint Consensus Committee on Rainwater Collection System Design and Installation (IS-RCSDI) (dave.cantrell@kingcounty.gov)

2015 International Plumbing Code

Revise as follows:

1303.3 Debris excluders. Downspouts and leaders shall be connected to~~ a roof washer and shall be equipped with ~~ a debris excluder or equivalent device that is designed to ~~prevent the contamination of collected rainwater with ~~remove leaves, sticks, pine needles and similar ~~material. Debris excluders and equivalent devices shall be self-cleaning.~~ debris to prevent such from entering the storage tank

1303.4 ~~Roof washer.~~First-flush diverter. ~~A sufficient amount of rainwater~~First-flush diverters shall ~~be diverted at the beginning of each rain event,~~operate automatically and~~ not allowed to enter the storage tank, to wash accumulated debris from the collection surface. The amount of rainfall to be diverted shall be field adjustable as necessary to minimize storage tank water contamination. The roof washer~~ shall not rely on ~~manually operated~~manually-operated valves or devices~~, and shall operate automatically~~. Diverted rainwater shall not be drained to the roof surface~~,~~ and shall be discharged in a manner consistent with the storm water runoff requirements of the jurisdiction. ~~Roof washers ~~First-flush diverters shall be accessible for maintenance and service.

1303.15.2 ~~Roofwasher~~First-flush diverter test. ~~Roofwashers ~~First-flush diverters shall be tested by introducing water into the ~~gutters~~collection system upstream of the diverter. Proper diversion of the first ~~quantity~~amount of water shall be in accordance with the requirements of Section 1303.4~~ shall be verified~~.

Reason: The intent of the provisions in these sections is to divert the initial runoff of water from a roof with its contaminants that may build up during a non-rain event so that it does not enter the storage tank. While the result is basically an initial washing of the roof area, the term "roof washer" is commonly mistaken for a mechanical device. Using the term "first-flush diverter" will allow for both the typical non-mechanical standpipe application or an approved manufacturered mechanical device. This code change deletes the mandate to install roof washers or first-flush diverters since such would not be necessary for a rainwater system serving outside landscape irrigation only or for the common practice of using rain barrels for irrigation purposes.

Cost Impact: Will not increase the cost of construction
This code change results in clarifying where non-mechanical diverters may be used, and would actually decrease the cost of installation for nonpotable reuse of rainwater.

P 270-15 : 1303.3-CANTRELL5183

P 271-15

1303.4

Proponent: JEFFREY HUTCHER, representing ARCSA (jhutcher@pacbell.net)

2015 International Plumbing Code

Delete without substitution:

1303.4 ~~**Roof washer.** A sufficient amount of rainwater shall be diverted at the beginning of each rain event, and not allowed to enter the storage tank, to wash accumulated debris from the collection surface. The amount of rainfall to be diverted shall be field adjustable as necessary to minimize storage tank water contamination. The roof washer shall not rely on manually operated valves or devices, and shall operate automatically. Diverted rainwater shall not be drained to the roof surface, and shall be discharged in a manner consistent with the storm water runoff requirements of the jurisdiction. Roof washers shall be accessible for maintenance and service.~~

Reason: Roof washer is an outdated term. There are numerous technologies such as vortex flitrations devices that not only capture contaminates, they also contain debris excluders that initiate the first flush. These devices are readily available and tested to achieve desired results. The roof washer term has caused confusion in the field where inspectors expect to see the entire roof washed before the rainwater. This is costly and unnecessary

Cost Impact: Will not increase the cost of construction
this will have no impact on construction costs except where confusion is avoided and money saved

P 271-15 : 1303.4 (New)-HUTCHER5125

P 272-15

1303.4

Proponent: JEFFREY HUTCHER, representing ARCSA (jhutcher@pacbell.net)

2015 International Plumbing Code

Revise as follows:

1303.4 ~~Roof washer.~~First flush. A sufficient amount of rainwater shall be diverted at the beginning of each rain event, and not allowed to enter the storage tank, to wash accumulated debris from the collection surface. The amount of rainfall to be diverted shall be field adjustable as necessary to minimize storage tank water contamination. The ~~roof washer~~ first flush device shall not rely on manually operated valves or devices, and shall operate automatically. Diverted rainwater shall not be drained to the roof surface, and shall be discharged in a manner consistent with the storm water runoff requirements of the jurisdiction. ~~Roof washers~~First flush devices shall be accessible for maintenance and service.

Reason: Roof washer is an outdated term that causes interpretation problems for inspectors and end users. the substitution with First flush Clarifies the section

Cost Impact: Will not increase the cost of construction
Adding clarity to the language to eliminate confusion always saves money

P 272-15 : 1303.4-HUTCHER5129

P 273-15

1303.5.2

Proponent: JEFFREY HUTCHER, representing ARCSA (jhutcher@pacbell.net)

2015 International Plumbing Code

Delete and substitute as follows:

1303.5.2 ~~Size~~Gutter and piping sizes. ~~Gutters and downspouts shall be installed and sized in accordance with Section 1106.6 and local rainfall rates.~~
The rainwater flow for the design of gutters and rainwater conveyance systems shall be in accordance with Section 1106.1. Where a rainwater conveyance system with gutter collection is designed for gravity flow of rainwater to the storage tank entirely by partially-full piping, the size of the roof gutters, leaders, conductors and horizontal drains shall be not less than as required by Section 1106. Where a rainwater conveyance system with gutter collection is designed for rainwater to flow to the storage tank whether partially or entirely by piping sections that are flooded with water, the size of the roof gutters, leaders, conductors and horizontal drains shall be not less than sizes determined by accepted engineering practice for preventing loss of rainwater at the gutters. The accepted engineering practice-determined sizes shall not be less than what is required by Section 1106.

Reason: Rainwater harvesting systems may be dry or wet conveyance. Wet conveyance systems typically use larger diameter piping on the downspouts to prevent flooding as the water rises from grade level to the tank inlet. Hydraulics, Head pressures and friction loss tables and formulas found in the ARCSA Manual are typically used by Rainwater Harvesting designers to calculate gutter and downspout size.

Cost Impact: Will not increase the cost of construction
Consistence and clarity always saves money and prevents costly mistakes. Piping that is too small can flood the gutters and render a collection system inefficient or useless in heavy rains. The new wording alerts the end user that chapter 11 may not be adequate for a wet conveyance system

P 273-15 : 1303.5.2-HUTCHER5153

P 274-15

1303.10.1

Proponent: Troy Vassos, Golder Associates Ltd., representing self (tvassos@golder.com)

2015 International Plumbing Code

Delete without substitution:

~~**1303.10.1 Location.** Storage tanks shall be located with a minimum horizontal distance between various elements as indicated in Table 1303.10.1.~~

Reason:

1. There is no reason to require horizontal setbacks for rainwater storage units.
2. Any setback requirements should be left to the discretion of the jurisdiction.

Cost Impact: Will not increase the cost of construction
The elimination of horizontal setbacks will not add to cost.

P 274-15 : 1303.10.1-VASSOS5819

P 275-15

1303.15.8, 1303.15.9 (New)

Proponent: David Cantrell, representing Joint Consensus Committee on Rainwater Collection System Design and Installation (IS-RCSDI) (dave.cantrell@kingcounty.gov)

2015 International Plumbing Code

Revise as follows:

1303.15.8 Water quality test. The quality of the water for the intended application shall be verified at the point of use in accordance with the requirements of the jurisdiction. ~~Except where site conditions as specified in ASTM E 2727 affect the rainwater, collected rainwater shall be considered to have the parameters indicated in Table 1303.15.8.~~

Delete without substitution:

~~TABLE 1303.15.8~~
~~RAINWATER QUALITY~~

~~PARAMETER~~	~~VALUE~~
~~pH~~	~~6.0-7.0~~
~~BOD~~	~~Not greater than 10 mg/L~~
~~NTU~~	~~Not greater than 2~~
~~Fecal coliform~~	~~No detectable fecal coli in 100 mL~~
~~Sodium~~	~~No detectable sodium in 100 mL~~
~~Chlorine~~	~~No detectable chlorine in 100 mL~~
~~Enteroviruses~~	~~No detectable enteroviruses in 100 mL~~

Add new text as follows:

1303.15.9 Collected raw rainwater quality. ASTM E2727 shall be used to determine what, if any, site conditions impact the quality of collected raw rainwater and whether those site conditions require treatment of the raw water for the intended end use or make the water unsuitable for specific end uses.

Reason: Table 1303.15.8 presents qualities that would wrongly be assumed to be typical of collected rainwater by many users of this code. The site conditions that affect collected rainwater quality vary significantly and often from one place to another. Directing the user to the ASTM standard alone without providing the table will result in a much better assesment of the collected rainwater quality and result in much better design of the required treatment and determination of suitablity for an intended use. It is currently unclear as to whether the second sentence of Section 1303.15.8 applies to the raw collected rainwater or the product (treated) water to be used for a specific purpose. Breaking Section 1303.15.8 into two separate and distinct sections will improve clarity and application.

Cost Impact: Will not increase the cost of construction
This code change merely describes what is involved in the water quality test. It does not add additional testing requirements.

P 275-15 : 1303.15.8-CANTRELL5165

P 276-15

1303.15.8

Proponent: JEFFREY HUTCHER, representing ARCSA (jhutcher@pacbell.net)

2015 International Plumbing Code

Revise as follows:

1303.15.8 Water quality test. The quality of the ~~water~~rainwater for the intended application shall be verified at the point of use in accordance with the requirements of the jurisdiction. ~~Except where site conditions as specified in ASTM E 2727 affect the rainwater, collected rainwater shall be considered to have the parameters indicated in Table 1303.15.8.~~

Reason: ASTM E 2727 does not address the differing regulations that govern water quality. Since Jurisdictions have different requirements, testing shall reflect the Jurisdictions guidelines for different intended uses. Testing to ASTM E 2727 guidelines may not be acceptable to the jurisdiction. In addition, ASTM E 2727 does not account for different intended uses, commercial or otherwise. The water quality standard for a residential subsurface irrigation system would not have the same treatment requirements as cooling tower make up water.

Cost Impact: Will not increase the cost of construction
Since jurisdictions have different protocols and requirements regarding rainwater quality, even using the data in ASTM E 2727 may not apply. It is up to the permittee to obtain the jurisdiction's requirements regardless.

P 276-15 : 1303.15.8-HUTCHER5157

P 277-15

Table 1303.15.8

Proponent: Troy Vassos, Golder Associates Ltd., representing self (tvassos@golder.com)

2015 International Plumbing Code

Delete without substitution:

TABLE 1303.15.8
~~RAINWATER QUALITY~~

~~PARAMETER~~	~~VALUE~~
~~pH~~	~~6.0-7.0~~
~~BOD~~	~~Not greater than 10 mg/L~~
~~NTU~~	~~Not greater than 2~~
~~Fecal coliform~~	~~No detectable fecal coli in 100 mL~~
~~Sodium~~	~~No detectable sodium in 100 mL~~
~~Chlorine~~	~~No detectable chlorine in 100 mL~~
~~Enteroviruses~~	~~No detectable enteroviruses in 100 mL~~

Reason:

1. Rainwater quality should be left to the jurisdiction as water quality requirments can vary from jurisdiction to jurisdiction.
2. BOD and chlorides are not apporpriate water quality parameters for rainwater.
3. pH range is too narrow and does not reflect the potential for acid rain (low pH). The range is more restrictive than wastewater effluent discharges

Cost Impact: Will not increase the cost of construction
No additional cost to eliminating WQ requirments for rainwater

P 277-15 : T1303.15.8-VASSOS5821

P 278-15

1304.3.1.3

Proponent: Troy Vassos, Golder Associates Ltd., representing self (tvassos@golder.com)

2015 International Plumbing Code

Revise as follows:

1304.3.1.3 Labeling and marking. Nonpotable ~~rainwater~~ distribution piping labeling and marking shall comply with Section 608.8.

Reason:

1. Reclaimed water is not rainwater. Reclaimed water is reuse water, or wastewater that has been treated to an acceptable water quality standard for nonpotable water applications.

Cost Impact: Will not increase the cost of construction
Rainwater should not be referenced in the section - this is a zero cost correction.

P 278-15 : 1304.3.1.3-VASSOS5818

PSD 1-15

505.13.1

Proponent: Pennie L Feehan, representing Copper Development Association (penniefeehan@me.com)

2015 International Private Sewage Disposal Code

Revise as follows:

505.13.1 Copper pipe or ~~copper-alloy~~ tubing to cast-iron hub pipe. Joints between copper pipe or ~~copper-alloy~~ tubing and cast-iron hub pipe shall be made with a ~~brass~~ copper-alloy ferrule or compression joint. The copper pipe or ~~copper-alloy~~ tubing shall be soldered to the ferrule in an approved manner, and the ferrule shall be joined to the cast-iron hub by a caulked joint or a mechanical compression joint.

Reason: This proposal cleans up the section and does not change the intent. This proposal will match IPC Section 705.16.1.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction as this change is only to update the name of a material that is already in the code.

PSD 1-15 : 505.13.1-FEEHAN3988

2015 GROUP A – PROPOSED CHANGES TO THE INTERNATIONAL PROPERTY MAINTENANCE/ZONING CODE

PROPERTY MAINTENANCE/ZONING CODE COMMITTEE

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Building Inspector/Code Enforcement Officer
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Senior Staff Engineer
International Code Council
Eastern Regional Office
Birmingham, AL

TENTATIVE ORDER OF DISCUSSION
2015 PROPOSED CHANGES TO THE
INTERNATIONAL PROPERTY MAINTENANCE CODE

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

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

PM1-15
PM2-15
PM3-15
PM4-15
PM5-15
PM6-15
PM7-15
PM8-15
PM9-15

PM 1-15

301.4 (New), [A] 110.1, 202 (New),

Proponent: Tom Leatherbee, Oklahoma Floodplain Managers Association, representing Oklahoma Floodplain Managers Association (tleatherbee@cityofdelcity.org); Rebecca Quinn, RCQuinn Consulting, Inc., representing on behalf of Federal Emergency Management Agency (rcquinn@earthlink.net); Gregory Wilson (gregory.wilson2@fema.dhs.gov)

2015 International Property Maintenance Code

Add new text as follows:

301.4 Structures located in flood hazard areas. For structures located in flood hazard areas as defined in the International Building Code, all costs of all repairs and improvements necessary to bring the exterior and interior of a structure, excluding exterior property, into compliance with the minimum standards of this code shall be included when determining substantial improvement, including all costs related to correcting cited violations.

Revise as follows:

[A] 110.1 General. The *code official* shall order the *owner* or owner's authorized agent of any *premises* upon which is located any structure, which in the *code official's* or owner's authorized agent judgment after review is (1) so deteriorated or dilapidated or has become so out of repair as to be dangerous, unsafe, insanitary or otherwise unfit for human habitation or occupancy, and such that it is unreasonable to repair the structure, to demolish and remove such structure; or (2) if such structure is capable of being made safe by repairs, to repair and make safe and sanitary, or to board up and hold for future repair or to demolish and remove at the *owner's* option; or (3) where there has been a cessation of normal construction of any structure for a period of more than two years, the *code official* shall order the *owner* or owner's authorized agent to demolish and remove such structure, or board up until future repair; or (4) where structures, if located in flood hazard areas established in the *International Building Code*, are determined to have incurred *substantial damage*, the *code official* shall order the owner to demolish and remove such structure, or board up until future repair. Boarding the building up for future repair shall not extend beyond one year, unless *approved* by the building official.

Add new definition as follows:

SECTION 202 DEFINITIONS

SUBSTANTIAL DAMAGE. Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure as of the date the code official issues an order pursuant to this code.

SECTION 202 DEFINITIONS

SUBSTANTIAL IMPROVEMENT. Any repair, reconstruction, rehabilitation, alteration, addition or improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started. If the structure has sustained substantial damage, as defined in the International Building Code or the International Existing Building Code, any repairs are considered substantial improvement regardless of the actual repair work performed. For the purpose of this code, the term does not include any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.

Reason: The broad scope and intent of the IPMC can create difficulties for code officials attempting to apply the code to dilapidated structures in flood hazard areas that when those structures are determined to not comply with IPMC provisions intended to ensure public health, safety and welfare. The flood provisions of the IBC, IRC, and IEBC apply to buildings in flood hazard areas if the code official determines that proposed improvements are "substantial improvement" and if the code official determines buildings have incurred "substantial damage. Both terms are defined in the IBC and IEBC and require comparison of costs to market value of the building. Substantial damage may be triggered by damage of any cause. Most damage results from sudden events, such as fire, tornado, earthquake, or flood.
When applied to structures that have been neglected and become dilapidated and unsafe over time, the basic substantial damage and substantial improvement requirements can be undermined by an existing provision in the IBC/IEBC definition of substantial improvement that allows exclusion of costs to correct identified code violations. Once a structure has been cited under the IPMC, it's conceivable that most if not all costs to correct cited conditions could be excluded.

Another aspect of the IBC/IEBC definition for substantial damage is problematic when applied to buildings that have been neglected and become dilapidated and unsafe over time, and that is the determination of market value of the building. When a building is damaged by a sudden event, it is relatively straightforward to determine the market value "before the damage occurred." It is not straightforward when the damage has occurred over time – what date should be used to determine the market value "before the damage occurred"?

This proposal has two objectives: (1) to specify, for substantial damage, the date of the market value is the date the code official issues an order pursuant to the IPMC; and (2) to remove the provision that allows excluding costs to correct cited violations from the substantial improvement determination when an owner proposes repairing a building pursuant to an order issued pursuant to the IPMC.

Section 110.1 is modified by including structures determined to have incurred substantial damage in the list of conditions that warrant an order of demolition or boarding up until future repair. If future repair is pursued by the owner, the substantial damage determination means the repairs would have to bring the building into compliance with the flood provisions in the IBC or IRC, as applicable. One result of this change is that many more owners are likely to consider demolition, in which case replacement structures would have to comply with all requirements of the IBC/IRC, resulting in all the benefits associated with compliance (resistance to all loads, improved fire safety, energy efficiency, etc.).

Section 202 is modified by adding definitions for Substantial Damage and Substantial Improvement; however, both definitions differ from those in the IBC and IEBC. The proposed definition of Substantial Damage makes clear that the market value of the structure is the date of the code official's order pursuant to the IPMC, avoiding an ambiguity. Without this clarification, an owner may claim the market value should be the value of the building before maintenance starting being neglected, which could be many years in the past (and typically not easy to determine). The proposal to specify the market value as of the date of an order is likely be a higher market value (thus raising the 50% threshold) than the market value as of the date an application for a permit to perform repairs is received (which may be a year or more after the citation is issued), as recommended in FEMA guidance in Section 4.5 of FEMA's Substantial Improvement/ Substantial Damage Desk Reference (FEMA P-758).

The proposed definition of Substantial Improvement removes the provision that allows exclusion of certain costs, thus requiring the costs of all work to be included in the calculation.

Section 301 is modified by adding a new section with plain language that makes it clear all interior and exterior costs are included when Substantial Improvement is determined, and emphasizes that all costs of all repairs and improvements necessary to correct existing cited violations must be included.

Without these amendments, dilapidated and unsafe buildings in flood hazard areas might not trigger the substantial improvement and substantial damage requirements, and thus could be repaired and remain vulnerable to future flooding. In many communities, many buildings that are cited under the IPMC are low income housing. If allowed to remain at-risk of flooding, people who have few resources to recover loss of personal property will remain exposed to flooding.

The combined result of these amendments is to strengthen the applicability of the IPMC as it relates to structures in flood hazard areas by identifying substantial damage as a trigger for a demolition order, removing ambiguity with regard to determining market value for substantial damage determinations, and eliminating an enforcement problem created by the exclusion of some repair costs from the substantial improvement calculation.

A real-life example illustrates the difficulties that will be easier to address if this proposal is approved. A code official was faced with ordering demolition of a dilapidated apartment complex that had been damaged by flooding and left unrepaired for several years (see Figure). The code official, pursuant to the IBC and the community's floodplain management regulations, determined that the structures were substantially damaged. The code official concurrently issued a demolition order pursuant to Section 110 of the IPMC, as the structures were unsafe, insanitary, and unreasonable to repair. This demolition order cited specific exterior and interior conditions in making these determinations. Subsequent application for a remodel permit was denied because the work proposed was determined to be substantial improvement, and the applicant did not propose bringing the building into compliance with the flood requirements. On appeal, the property owner challenged the substantial damage/substantial improvement determinations because virtually all of the proposed repairs would be to correct cited violations of the IPMC, and thus the applicant claimed those costs should be excluded from the determination.

Had the code official's order to demolish or bring the building into compliance been overturned, the apartment buildings could have been repaired in a manner that left them at continued risk for flooding, contrary to the intent of IBC 1612 and local flood damage prevention regulations. These specific buildings, as a result of a somewhat unrelated proceeding, were eventually demolished and the land redeveloped with commercial buildings that incorporate significant flood mitigation measures.

Figure. Interior Condition at Kristie Manor Apartments at time of Demolition Order and Substantial Damage Declaration. The buildings had flooded multiple times, each time experiencing further deterioration. Note the high water mark and mold. Had the apartment buildings been repaired without bringing it into compliance with the flood requirements, the structures and occupants would have remained at risk for this sort of damaging and life-threatening flooding due to their location in a floodway.

Bibliography: Substantial Improvement/Substantial Damage Desk Reference, FEMA P-758. Federal Emergency Management Agency. 2010. http://www.fema.gov/library/viewRecord.do?id=4160

Cost Impact: Will not increase the cost of construction
The effect on costs will vary on a case-by-case basis. There are scenarios where demolishing and rebuilding fully compliant will likely be less expensive than retrofitting or elevating an existing building to bring it into compliance with the flood requirements. Long-term maintenance and operations cost would also be less, and the cost of NFIP flood insurance will be considerably lower. Costs may increase in other scenarios, especially when Substantial Improvement is triggered because costs to correct existing cited violations are not subtracted, although the cost of NFIP flood insurance will be considerably lower than if the building remains at risk to flooding.

PM 1-15 : 301.4 (New)-LEATHERBEE4956

PM 2-15

202, 302.5, 302.5.1 (New), 302.5.2 (New), 309.1, 309.2, 309.5, B101 (New), B101.1 (New), B101.2 (New), B101.3 (New), B101.4 (New)

Proponent: Jonathan Wilson, National Center for Healthy Housing, representing National Center for Healthy Housing (jwilson@nchh.org)

2015 International Property Maintenance Code

Revise as follows:

SECTION 202 DEFINITIONS

INFESTATION. The noxious presence~~,~~ within or contiguous to~~,~~ a structure or *premises* of insects, rodents, vermin or other pests.

Add new definitions as follows:

INSECT. All species of classes of Arachnida and Insecta (Hexapoda) of the phylum Arthropoda including flies, mosquitoes, bed bugs, crickets, cockroaches, moths, bees, wasps, hornets, fleas, lice, beetles, weevils, gnats, ants, termites, mites, ticks, spiders, and scorpions.

PEST. Noxious insect, rodent, or other vermin.

RODENT. A member of the order Rodentia, including but not limited to field and wood mice, wood rats, squirrels, woodchucks, gophers, Norway rats (Rattus norvegicus), roof rats (Rattus rattus), and house mice (Mus musculus).

SANITARY. A condition that is free of infestation, pest residues, rotting material, uncontained sewage or animal waste, and accumulation of rubbish or garbage.

Revise as follows:

302.5 Rodent harborage. Structures and *exterior property* shall be kept free from rodent harborage and *infestation*. There shall be no accumulation of trash, paper, boxes, firewood, lumber, scrap metal, food, or other materials that support rodent harborage in or around any dwelling or premises. Stored materials shall be placed in boxes or stacked in stable piles elevated at least six inches (152 mm) above the ground or floor and at least six inches (152 mm) from the walls. There shall be no accumulation of stagnant water in or around any dwelling or premises. Where rodents are found, they shall be promptly ~~exterminated~~eliminated by *approved* processes that will not be injurious to human health. After pest elimination, proper precautions shall be taken to ~~eliminate rodent~~remove food and water sources or harborage ~~and~~to prevent reinfestation.

Add new text as follows:

302.5.1 Rodent prevention. There shall be no trees, shrubs, or other plantings in the soil within six inches (152 mm) of any dwelling.

302.5.2 Rodent exclusion. There shall be no holes or open joints in exterior walls, foundations, slabs, floors, or roofs that equal or exceed one-quarter inch (6 mm). The areas surrounding windows, doors, pipes, drains, wires, conduits, vents, and other openings that penetrate exterior walls shall be sealed.

Revise as follows:

309.1 Infestation. Structures shall be kept free from insect and rodent *infestation. Infestations*~~Structures in which insects or rodents are found~~ shall be promptly ~~exterminated~~eliminated by *approved* processes that will not be injurious to human health. After pest elimination, proper precautions shall be taken to prevent reinfestation.

309.2 Owner. The *owner* of any structure shall be responsible for pest elimination within the structure prior to renting or leasing the structure. The *owner* shall maintain the building and premises to keep pests from entering the building and dwelling units; inspect and monitor for pests; and investigate occupant reports of unsafe or unhealthy conditions; provide written responses to occupant reports; and make needed repairs in a timely manner

309.5 Occupant. The *occupant* of any structure shall be responsible for the continued rodent and pest-free condition of the structure. The *occupant* shall inspect and monitor for pests; report infestations to the owner; and cooperate with the owner's requests to ensure pest-free conditions.

Exception: Where the *infestations* are caused by defects in the structure, the *owner* shall be responsible for pest elimination.

Add new text as follows:

APPENDIX APPENDIX BINTEGRATED PEST MANAGEMENT

SECTION B101 General

B101.1 General. Integrated pest management (IPM) methods shall be used to maintain every dwelling free of infestation, openings that allow pest entry, conditions that harbor pests or provide them with food or water, and visible pest residue or debris.

B101.2 Integrated pest management defined. A systematic strategy for managing pests that consists of prevention, exclusion, monitoring, and suppression of pests. Where chemical pesticides are necessary, a preference is given to materials and methods that maximize safety and reduce environmental health risk. Methods to manage pests include eliminating their harborage places; removing or making inaccessible their food and water sources; routine inspection and monitoring; identification of evidence found; treatment that is scaled to and designed for the infestation; and using pesticides with the lowest toxicity in a manner with the least exposure to residents and the environment.

B101.3 Pest management professional. In multi-family housing, a pest management professional who is certified or trained in integrated pest management shall develop and manage the pest elimination program.

B101.4 Pesticide use. Only pesticides that are registered for use with the U.S. Environmental Protection Agency and the state's regulatory agencies may be used. Foggers and organic phosphates shall only be used by firms and individuals licensed by the state to apply these pesticides.

Reason: This proposal is designed to address a number of problems regarding the IPMC's existing pest-related provisions and to add an optional appendix regarding integrated pest management for jurisdictions seeking to eliminate pests more effectively and consistently. The primary objective of the proposal is to make the requirements clearer and easier to comply with for owners and operators as well as code officials who are not pest management professionals.

1. Proposed changes to terminology and definitions:

- **Extermination v. elimination:** The 2009 edition of the IPMC replaced the outdated term "extermination" with the outcome-focused term "pest elimination" and dropped descriptions of pest elimination such as "fumigation" and "poison spraying." However, sections 302.5 on rodent harborage and 309.1 on infestation retained the word "exterminated." The term is not defined. This proposal corrects that inconsistency by using "eliminated" instead.
- **Infestation and honey bees or crickets:** The term "infestation" is currently defined as "The presence, within or contiguous to, a structure or premises of insects, rats, vermin or other pests." It has a number of serious problems:
  - It is not a sentence. It essentially says, "The presence a structure or premises of pests." We propose deleting the commas before and after "within or contiguous" to make it grammatically correct.
  - It would call for the elimination of beneficial insects, such as honey bees and crickets outside, because they are insects under a common meaning of the term. We propose to add the word "noxious" to narrow the scope to those insects which are harmful to living things (the meaning of noxious[1]) and exclude beneficial or innocuous insects. We considered other terms, but, since noxious is already used in section 302.4 regarding weeds and section 403.4 regarding process ventilation, we wanted to avoid creating a new term for code officials to interpret. We put the word before "presence" to make clear that where an insect or animal is present makes a difference. A squirrel inside a home would be a noxious presence but outside it would not be one.
  - By adding the word "noxious," we think it is appropriate to replace "rats" with "rodents". Rodents such as squirrels are fine outside a structure, but if inside they are an infestation that needs to be eliminated. In addition, the term "rodents" is used 11 times in the code including in the definition of "pest elimination."
- **Define basic terms used throughout the code:** The code does not define four pest-related terms

(insect, rodent, pest, and sanitary) despite their use many places in the code. Without definitions for these terms, property owners, managers, and occupants may have very different understandings of what the code requires. As a result, their disputes may limit the effectiveness of the code and undermine its intent of protecting health and safety. It also burdens code officials who are called upon to intervene with their own interpretation.

  - "Insect" is used eight times. Sometimes the use means all insects such as for screens and doors, and other times more narrowly in conjunction with the term "infestation." The proposal defines it as the classes of Arachnida and Insecta in the phylum Arthopoda and gives common examples. While technically spiders (a member of Arachnida) are not insects, they are commonly considered insects.
  - "Rodent" is used 13 times. The proposal defines it as members of the order Rodentia and gives common examples.
  - "Pest" is used 11 times. The proposal defines it as "noxious insect, rodent, or other vermin." This definition is also important because federal law defines the term more broadly to include weeds, mold, and bacteria. In the structural setting, the common understanding of pests does not include these items. We recognize that the word "noxious" is somewhat redundant but think the clarity helps.
  - "Sanitary" is used 29 times. The proposal defines it as "a condition that is free of infestation, pest residues, rotting material, uncontained sewage or animal waste, and accumulation of rubbish or garbage." This definition captures our understanding of what the term means based on a review of the 29 uses. Each of these conditions can cause diseases or attract pests that undermine the occupant's health.

- **Harborage and exclusion:**
  - The term "harborage" is used four times in the code: in the definition of "pest elimination" and in section 302.5 regarding rodent harborage. However, the term is not defined and the section dealing with rodent harborage says the harborage must be eliminated but does not explain what it is or give any examples. Rather than create a definition, the proposal adds a description that gives examples of materials that can be harborage; explains that stored materials need to be 6" from the floor or walls to limit harborage; and says that there should not be an accumulation of stagnant water. Rodents need a ready source of water to survive, especially mice. Many experts call for 18", but we thought that was excessive.
  - The proposal adds two new sections under the rodent harborage section. Section 302.5.1 calls for plantings to be 6" from a dwelling to make it more difficult for rodents to access the dwelling since they do not want to be visible while seeking an opening to the structure. Section 302.5.2 calls for exterior openings to be less than 1/4" since mice can go through holes or cracks bigger than that amount.

2. Proposed clarification of owner and occupant responsibilities:

The proposal more clearly defines the relative responsibilities of the owner and the occupant in the rental setting. It requires the occupant to inspect and monitor for pests, report infestations to the owner, and cooperate with the owner's requests to ensure pest-free conditions. The owner would be required to maintain the exterior of the building, inspect and monitor for pests, investigate complaints, and provide feedback to occupants on the resolution of their complaints.

In a single-occupant or single-tenant structure, existing section 309.3 makes the occupant/tenant fully responsible.

By removing these ambiguities in the current code, code officials should be able to resolve disputes more easily and reduce the need to defend interpretations.

3. Proposed optional requirements in an appendix for integrated pest management:

The proposal adds an appendix that jurisdictions may elect to adopt if they want to require integrated pest management (IPM). This pest elimination has been shown to be more consistently effective, especially when someone with asthma may be in the structure. It uses a systematic strategy to prevent, exclude, monitor, and suppress pests. It also promotes the use of the least toxic pesticide in a manner with the least exposure to residents and the environment.

Proposed new section B101.2 would require that a pest management professional trained in IPM conduct the pest elimination in multi-family housing. In these situations, pest elimination is particularly difficult because of the shared control. The National Pest Management Association, which represents most of the country's firms, certifies firms who adopt and implement IPM under its GreenPro certification program.[2]

Proposed new section B101.4 would remind owners and operators that only pesticides approved by the state and federal government may be used. In addition, it would require a state-licensed firm to apply foggers and organophosphates because these pesticide applications are liable to be misused by an individual and result in dangerous exposures.

Bibliography:
[1] Noxious, Merriam-Webster Dictionary, Encyclopedia Britannica Company, accessed January 7, 2015 at http://www.merriam-webster.com/dictionary/noxious.
[2] GreenPro, National Pest Management Association, accessed January 7, 2015 at http://www.certifiedgreenpro.org/.

Cost Impact: Will not increase the cost of construction
The proposal will not increase the cost of construction. The requirement in the optional appendix to use an IPM-trained pest management professional to control pests may increase the labor rates charged by the firm, but these costs should be offset by the savings from more effective pest control.

PM 2-15 : 302.5-WILSON5124

PM 3-15

202, 302.7, 304.1, 304.4, 304.11, 305.1, 305.2, 306.1

Proponent: David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Subcommittee, National Council of Structural Engineers Associations (dbonowitz@att.net)

2015 International Property Maintenance Code

SECTION 202 DEFINITIONS

Delete without substitution:

~~**DETACHED.** When a structural element is physically disconnected from another and that connection is necessary to provide a positive connection.~~

~~**EQUIPMENT SUPPORT.** Those structural members or assemblies of members or manufactured elements, including braces, frames, lugs, snuggers, hangers or saddles, that transmit gravity load, lateral load and operating load between the equipment and the structure.~~

Revise as follows:

302.7 Accessory structures. Accessory structures, including *detached* garages, fences and walls, shall be maintained ~~structurally sound and~~ in good repair.

304.1 General. The exterior of a structure shall be maintained in good repair~~, structurally sound~~ and sanitary so as not to pose a threat to the public health, safety or welfare.

304.4 Structural members. Structural members shall be maintained free from *deterioration*~~, and shall be capable of safely supporting the imposed dead and live loads~~.

304.10 Stairways, decks, porches and balconies. Every exterior stairway, deck, porch and balcony, and all appurtenances attached thereto, shall be maintained ~~structurally sound,~~ in good repair, with proper anchorage~~ and capable of supporting the imposed loads~~.

304.11 Chimneys and towers. Chimneys, cooling towers, smoke stacks, and similar appurtenances shall be maintained~~ structurally safe and sound, and~~ in good repair. Exposed surfaces of metal or wood shall be protected from the elements and against decay or rust by periodic application of weathercoating materials, such as paint or similar surface treatment.

305.1 General. The interior of a structure and equipment therein shall be maintained in good repair~~, structurally sound~~ and in a sanitary condition. *Occupants* shall keep that part of the structure that they occupy or control in a clean and sanitary condition. Every *owner* of a structure containing a *rooming house*, *housekeeping units*, a hotel, a dormitory, two or more *dwelling unit*s or two or more nonresidential occupancies, shall maintain, in a clean and sanitary condition, the shared or public areas of the structure and *exterior property*.

305.2 Structural members. Structural members shall be maintained ~~structurally sound, and be capable of supporting the imposed loads.~~free from deterioration.

306.1 General. The components of a structure and equipment therein shall be maintained in good repair~~, structurally sound~~ and in a sanitary condition.

Reason: This proposal clarifies the scope of the IPMC with respect to structural maintenance, structural assessment, and structural repair. Sections 101.2 and 102.2 establish the scope and applicability of the IPMC as related to "light, ventilation, space, heating, sanitation, protection from the elements, ... fire and other hazards," but not structural damage or capacity loss. The IPMC Chapters clarify this further, as they cover weather effects and deterioration from various causes (Chapter 3), light and ventilation (4), plumbing (5), mechanical and electrical systems (6), and fire safety (7), but not structural assessment or adequacy. Thus, identification and remedy of structural capacity loss is outside the scope of the IPMC. Rather, structural capacity loss is already addressed fully by the IEBC in terms of intentional alteration, repair of damage, and attention to dangerous conditions.

This is appropriate. Indeed, if you have a structural problem, it's actually too late for maintenance of the types covered by the IPMC. Yes, structural elements can deteriorate, and do need maintenance, but (with the possible exception of mortared masonry), that maintenance is provided indirectly through weather tightness, drainage, pest control, etc. -- that is, by providing IPMC-compliant maintenance of roofing, flashing, drains, fireproofing, and sealants. The structural elements themselves, properly built and sealed, are the most durable parts of a building. If you have a structural deterioration problem, it is not because you failed to maintain the steel, concrete, masonry, or wood, but because you deferred maintenance on other NON-structural building components. Further, repair of any such structural damage, unlike MEP or roofing maintenance, usually requires engineering and is not done by a contractor alone.

This proposal therefore clarifies and removes various references to structural elements, loads, and capacities, as follows. (Note: The IPMC uses the term "structure" to mean anything built or constructed, not necessarily just the structural load-carrying members and systems. In most cases, "structure" in the IPMC means the same thing as "building," as defined in the IBC. This proposal accepts the IPMC's use of "structure," despite the possible confusion with "structural member," and does not make any changes that would affect this usage.)

Sections 304.4 and 305.2, as modified by this proposal, provide all that is necessary in the IPMC: Protect the structure from deterioration. But once that deterioration has advanced to the point of capacity loss (because the maintenance was not provided), it becomes damage and is subject to provisions for repair through the IEBC, not maintenance through the IPMC. This is consistent with IPMC Sections 101.3 and 102.3. Section 101.3 charges that "Existing structures and premises that do not comply with these provisions shall be altered or repaired ... ." Section 102.3 then clarifies that "Repairs ... or alterations ... shall be done in accordance with [the IBC or IEBC]."

The term "detached" is unnecessary because it is defined in the IPMC only in terms of structural elements and used only in provisions for unsafe buildings or, inconsistently, as "detached garage." Unsafe structures are already covered by the IEBC, where the definition of dangerous includes consideration of detachment of both structural and nonstructural components, but without the need to define this common English word.

The term "equipment support" refers to structural members and fasteners already covered by the IBC and IEBC. Further, neither this term nor its variants are used anywhere in the IPMC apart from this definition.

The phrase "structurally sound" (or similar) is deleted because it is undefined and unenforceable and has been removed from the IBC and IEBC for that reason over the last few cycles. More important, the IPMC uses this phrase in general charging language where it is unnecessary. Where the point is just to say that certain conditions must be maintained per the IPMC, it is enough to say, as the code does, that they be maintained "in good repair," which includes whatever is intended by "structurally sound." The details of how to do that are then provided in separate provisions for roofing, sealants, pest control, etc.

The phrase "capable of supporting loads" (or similar) is deleted because this is an engineering determination, not a maintenance task. Those implementing the IPMC should not be made responsible for checking structural adequacy. (If anything, they should be responsible for ensuring that the structure is not intentionally over-loaded or cut away, but it is unclear if the IPMC intends to address such actions. In any case, the judgment of whether an over-loaded or cut structural member is still adequate is again an engineering task, not a maintenance task.)

If approved, a coordinated proposal will be made in Group B to address related issues in Chapter 1.

Cost Impact: Will not increase the cost of construction
The proposal merely clarifies the scope of the IPMC with respect to the IEBC, removing duplication and potentially confusing overlaps.

PM 3-15 : 302.7-BONOWITZ5227

PM 4-15

304.1.1, 305.1.1, 306.1.1

Proponent: David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Subcommittee, National Council of Structural Engineers Associations (dbonowitz@att.net)

2015 International Property Maintenance Code

Revise as follows:

304.1.1 Unsafe conditions. ~~The following~~
Unsafe conditions ~~shall be determined as unsafe and~~ shall be repaired or replaced ~~to comply~~in compliance with the~~*International Building Code* or the~~ *International Existing Building Code*. ~~as required for existing buildings:~~

1. ~~The nominal strength of any structural member is exceeded by nominal loads, the load effects or the required strength;~~
2. ~~The *anchorage* of the floor or roof to walls or columns, and of walls and columns to foundations is not capable of resisting all nominal loads or load effects;~~
3. ~~Structures or components thereof that have reached their limit state;~~
4. ~~Siding and masonry joints including joints between the building envelope and the perimeter of windows, doors and skylights are not maintained, weather resistant or water tight;~~
5. ~~Structural members that have evidence of *deterioration* or that are not capable of safely supporting all nominal loads and load effects;~~
6. ~~Foundation systems that are not firmly supported by footings, are not plumb and free from open cracks and breaks, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects;~~
7. ~~Exterior walls that are not *anchored* to supporting and supported elements or are not plumb and free of holes, cracks or breaks and loose or rotting materials, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects;~~
8. ~~Roofing or roofing components that have defects that admit rain, roof surfaces with inadequate drainage, or any portion of the roof framing that is not in good repair with signs of *deterioration*, fatigue or without proper anchorage and incapable of supporting all nominal loads and resisting all load effects;~~
9. ~~Flooring and flooring components with defects that affect serviceability or flooring components that show signs of *deterioration* or fatigue, are not properly *anchored* or are incapable of supporting all nominal loads and resisting all load effects;~~
10. ~~Veneer, cornices, belt courses, corbels, trim, wall facings and similar decorative features not properly anchored or that are anchored with connections not capable of supporting all nominal loads and resisting all load effects;~~
11. ~~Overhang extensions or projections including, but not limited to, trash chutes, canopies, marquees, signs, awnings, fire escapes, standpipes and exhaust ducts not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects;~~
12. ~~Exterior stairs, decks, porches, balconies and all similar appurtenances attached thereto, including *guards* and handrails, are not structurally sound, not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects; or~~
13. ~~Chimneys, cooling towers, smokestacks and similar appurtenances not structurally sound or not properly *anchored*, or that are anchored with connections not capable of supporting all nominal loads and resisting all load effects.~~

Exceptions:

1. Where substantiated otherwise by an *approved* method.
2. Demolition of unsafe conditions shall be permitted where *approved* by the *code official*.

305.1.1 Unsafe conditions. ~~The following~~ Unsafe conditions ~~shall be determined as unsafe and~~ shall be repaired or replaced ~~to comply~~in compliance with ~~the *International Building Code* or~~ the *International Existing Building Code*. ~~as required for existing buildings:~~

1. ~~The nominal strength of any structural member is exceeded by nominal loads, the load effects or the required strength;~~
2. ~~The anchorage of the floor or roof to walls or columns, and of walls and columns to foundations is not capable of resisting all nominal loads or load effects;~~
3. ~~Structures or components thereof that have reached their limit state;~~

4. ~~Structural members are incapable of supporting nominal loads and load effects;~~
5. ~~Stairs, landings, balconies and all similar walking surfaces, including *guards* and handrails, are not structurally sound, not properly *anchored* or are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects;~~
6. ~~Foundation systems that are not firmly supported by footings are not plumb and free from open cracks and breaks, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects.~~

Exceptions:

1. Where substantiated otherwise by an *approved* method.
2. Demolition of unsafe conditions shall be permitted when *approved* by the *code official.*

306.1.1 Unsafe conditions. ~~Where any of the following conditions cause the component or system to be beyond its limit state, the component or system shall be determined as unsafe~~
Unsafe components and systems shall be repaired or replaced ~~to comply~~in compliance with ~~the *International Building Code* or~~ the *International Existing Building Code*. ~~as required for existing buildings:~~

1. ~~Soils that have been subjected to any of the following conditions:~~
   - 1.1. ~~Collapse of footing or foundation system;~~
   - 1.2. ~~Damage to footing, foundation, concrete or other structural element due to soil expansion;~~
   - 1.3. ~~Adverse effects to the design strength of footing, foundation, concrete or other structural element due to a chemical reaction from the soil;~~
   - 1.4. ~~Inadequate soil as determined by a geotechnical investigation;~~
   - 1.5. ~~Where the allowable bearing capacity of the soil is in doubt; or~~
   - 1.6. ~~Adverse effects to the footing, foundation, concrete or other structural element due to the ground water table.~~
2. ~~Concrete that has been subjected to any of the following conditions:~~
   - 2.1. ~~*Deterioration*;~~
   - 2.2. ~~*Ultimate deformation*;~~
   - 2.3. ~~Fractures;~~
   - 2.4. ~~Fissures;~~
   - 2.5. ~~Spalling;~~
   - 2.6. ~~Exposed reinforcement; or~~
   - 2.7. ~~*Detached*, dislodged or failing connections.~~
3. ~~Aluminum that has been subjected to any of the following conditions:~~
   - 3.1. ~~*Deterioration*;~~
   - 3.2. ~~Corrosion;~~
   - 3.3. ~~Elastic deformation;~~
   - 3.4. ~~*Ultimate deformation*;~~
   - 3.5. ~~Stress or strain cracks;~~
   - 3.6. ~~Joint fatigue; or~~
   - 3.7. ~~*Detached*, dislodged or failing connections.~~
4. ~~Masonry that has been subjected to any of the following conditions:~~
   - 4.1. ~~*Deterioration;*~~
   - 4.2. ~~*Ultimate deformation;*~~
   - 4.3. ~~Fractures in masonry or mortar joints;~~
   - 4.4. ~~Fissures in masonry or mortar joints;~~
   - 4.5. ~~Spalling;~~
   - 4.6. ~~Exposed reinforcement; or~~
   - 4.7. ~~*Detached,* dislodged or failing connections.~~
5. ~~Steel that has been subjected to any of the following conditions:~~
   - 5.1. ~~*Deterioration;*~~
   - 5.2. ~~Elastic deformation;~~
   - 5.3. ~~*Ultimate deformation;*~~
   - 5.4. ~~Metal fatigue; or~~
   - 5.5. ~~*Detached,* dislodged or failing connections.~~

6. ~~Wood that has been subjected to any of the following conditions:~~
   - ~~6.1. *Ultimate deformation;*~~
   - ~~6.2. *Deterioration;*~~
   - ~~6.3. Damage from insects, rodents and other vermin;~~
   - ~~6.4. Fire damage beyond charring;~~
   - ~~6.5. Significant splits and checks;~~
   - ~~6.6. Horizontal shear cracks;~~
   - ~~6.7. Vertical shear cracks;~~
   - ~~6.8. Inadequate support;~~
   - ~~6.9. *Detached,* dislodged or failing connections; or~~
   - ~~6.10. Excessive cutting and notching.~~

Exceptions:

1. Where substantiated otherwise by an *approved* method.
2. Demolition of unsafe conditions shall be permitted where *approved* by the *code official.*

Reason: This proposal corrects errors and removes duplication in the IPMC of provisions already covered more appropriately in the IBC and IEBC.
Unsafe conditions are rare and represent extreme situations. As such, they are outside the general scope (see Section 101.2) and intent (101.3) of the IPMC. Rather, they are more properly addressed by the IBC and IEBC, which already define unsafe conditions to include "inadequate maintenance" and provide remedial administrative procedures (IBC Section 116, IEBC Section 115). In fact, the IPMC relies on the IEBC definitions of unsafe and dangerous, as it does not provide its own definitions in Chapter 2.

Thus, unsafe conditions need only be mentioned in the IPMC to note that they are unacceptable and must be eliminated, which is what this proposal would say. Otherwise, the current listings of specific unsafe conditions are duplicative, often unenforceable, outside the scope of a maintenance code, and in many cases just wrong.

Consider the many references in these three sections to structural elements and their resistance to "nominal loads" and "all load effects." Nominal loads include full Wind and Earthquake loads. Applying these provisions as currently writen would cause every building more than about 20 years old to be labeled dangerous and unsafe even in the absence of deterioration or damage. Further, by referencing structural loads and capacities, simple implementation of the IPMC would require regular assessment by a structural engineer, which is certainly beyond the code's intent.

Consider the many references to structural "soundness." This term is undefined and unenforceable. Provisions requiring structurally sound conditions were removed from the IBC and IEBC for this reason over the last several code cycles.

Consider the several references to a component's "limit state." These references are inappropriate because, as defined in the IBC, there are multiple possible limit states. Merely exceeding a serviceability limit state (especially as contemplated by Section 306.1.1) almost never makes a building or component unsafe.

Consider the many references to deterioration. Deterioration is indeed a sign that maintenance is needed, but it is not a reason to label a building or component unsafe. Similarly, corrosion, elastic deformation, spalling, and cracks (especially as listed in Section 306.1.1) are often normal and are not of themselves reason to label a building or component unsafe. (The IEBC definition of unsafe includes "inadequate maintenance," meaning "not enough to maintain health, safety, and welfare," not merely non-compliant or imperfect maintenance.)

Despite the deletion of these long lists, the proposal results in no loss of substance. As noted, unsafe conditions are already defined and addressed in the IEBC. More specifically, each of the items proposed for deletion is already covered elsewhere in the IPMC. Considering the list in Section 304.1.1:

-- Items 1, 2, 3, 5, 6, and 7 address structural elements and thus are already covered by the IEBC and IBC definition of dangerous.

-- Item 4 is addressed in Section 304.6.

-- Item 8 is addressed in Section 304.7.

-- Item 9 does not even belong in Section 304 but is addressed in Section 305.4

-- Item 10 is addressed in Section 304.8.

-- Item 11 is addressed in Section 304.9.

-- Item 12 is addressed in Section 304.10.

-- Item 13 is addressed in Section 304.11.

Considering the list in Section 305.1.1: Items 1 through 6 address structural elements and thus are already covered by the IBC and IEBC definition of dangerous. Item 5 is additionally addressed by Section 305.4.

Considering the list in Section 306.1.1: Items 1 through 6 address components in terms of their structural materials and properties and thus are already covered by the IBC and IEBC definition of dangerous.

Finally, in addition to removing the inappropriate lists, the proposal requires compliance only with the IEBC, not the IBC, because the IPMC by definition relates to existing buildings, and the IBC no longer has existing building provisions for repair or removal of unsafe conditions.

If approved, a coordinated proposal will be made in Group B to address further duplication and overlap in IPMC Section 108.

Cost Impact: Will not increase the cost of construction
The proposal merely removes duplicate provisions already found in other applicable codes.

PM 4-15 : 304.1.1-BONOWITZ5207

PM 5-15

505.4, 505.5 (New), 505.6 (New), 505.7 (New), 505.8 (New)

Proponent: Ronald George, Plumb-Tech Design & Consulting, www.Plumb-TechLLC.com, www.ScaldPrevention.org, representing Self; Plumb-Tech Design & Consulting Services LLC; www.ScaldPrevention.org (Ron@Plumb-TechLLC.com)

2015 International Property Maintenance Code

Revise as follows:

505.4 Water heating facilities. Water heating facilities shall be properly installed, maintained and capable of providing an adequate amount of hot or tempered water to be drawn at every required sink, lavatory, bathtub, shower and laundry facility ~~at a minimum temperature of 110°F (43°C).~~. A gas-burning water heater shall not be located in any *bathroom*, *toilet room*, *bedroom* or other occupied room normally kept closed, unless adequate combustion air is provided. An *approved* combination temperature and pressure-relief valve and relief valve discharge pipe shall be properly installed and maintained on water heaters.

Add new text as follows:

505.5 Maximum Hot Water Temperatures

1. The maximum hot water temperature flowing from any kitchen sink faucet shall be 130 degrees Fahrenheit.
2. The maximum hot water temperature flowing from a lavatory faucet, shower head, bathtub filler faucet bathtub/shower combination, or whirlpool bathtub filler faucet shall be 120 degrees Fahrenheit (48.8 degreess Celcius).
3. The maximum temperature flowing from a bidet faucet shall be 110 degrees Fahrenheit (43 degrees Celcius)
4. The burner control thermostat on the water heater shall not be used to control the hot water distributiuon temperature for conformance to the above hot water temperature limit requirements.

505.6 Minimum Hot or Tempered Water Temperatures

1. The water temperature flowing from a lavatory shall be capable of reaching a minimum of at least 85 degrees Fahrenheit.
2. The water temperature flowing from a kitchen sink shall be capable off reaching a minimum of at least 120 degrees F.
3. The water temperature flowing from a shower, tub/shower, bathtub or whirlpool bathtub shall be capable of reaching a minimum of at least 110 degrees F.
4. The water temperature flowing from a shower, tub/shower, bathtub or whirlpool bathtub shall be capable of reaching a minimum of at least 110 degrees F.

505.7 Water Heater Replacement - Capacity When a water heater is replaced, it shall be replaced with a water heater of the same delivery capacity in gallons per hour. When Calculating gallons per hour the temperature rise shall be based on the same temperature rise as the prior heater. If no temperature rise is known, the temperature rise shall be based on a 100 degree rise.

Exception: Where the water heater manufacturer's sizing calculations or other published water heater sizing calculations show the first hour delivery capacity of the selected water heater is adequate for the installation.

505.8 Water Heater Replacement or system temperature changes When a water heater is added, replaced, serviced or adjusted or if a temperature actuated mixing vale serving the hot water distribution system is adjusted, the distribution system temperatures checked to verify the temperaturres do not exceed the limits prescribed in section 505.5 to minimize the risk of scalding.

The existing domestic hot water system shall be checked to verify if the existing shower valve and/or combination tub/shower valve has a code compliant pressure or temperature compensating type, anti-scald shower valve with a maximum temperature limit-stop adjuistment conforming to ASSE 1016/ASME A112.1016/CSA B125.16, Performance requirements for automatic compensating valves for individual showers and tub/shower combinations. After the water heater has been installed and the thermostat has been adjusted to the recommended temperature and allowed to heat up until the burner shuts off, or after a thermostatic mixing valve is adjusted to a new temperature, check and adjust the maximum temperature limit-stop on every shower and tub/shower combination valve to limit the hot water temperature to a maximum of 120 Fahrenheit for scald protection. Also,adjust the outlet temperature of each point-of-use, in-line temperature limiting valve serving bathtubs, whirlpool bathtubs, or lavatories in accordance with the manufacturer's installation instructions to limit the hot water temperature to a maximum of 120 Fahrenheit for scald protection.

The thermostat on the water heater shall not be used to control the hot water distribution temperature for scald protection.

If a non-code compliant shower or tub/shower valve is present, one of more of the following methods shall be provided in the domestic hot water system to minimize the risk of scalding:

1. Replace non-code compliant shower or tub/shower valves with a code compliant shower valve conforming to ASSE 1016/ASME A112.1016/CSA B125.16, Performance requirements for automatic compensating valves for individual showers and tub/shower combinations shall be installed with the temperature limit stop adjusted in accordance with the manufacturers installation instructions to limit the hot water temperature to a maximum of 120 degrees Fahrenheit to minimize the risk of scalding. or
2. Provide a Master Temperature Actuated Mixing Valve conforming to ASSE 1017 Temperature Actuated Mixing Valve for Hot Water Distribution Systems at the water heater to limit the hot water temperature to a maximum of 120 degrees Fahrenheit to minimize the risk of scalding.or
3. Provide a water temperature limiting valve at or near each fixture outlet used for bathing or showering in accordance with the requirements of ASSE 1070 Water Temperature Limiting Devices located near the non-code compliant bathtub/shower or bathtub fixtures to limit the hot water temperature to a maximum of 120 degrees Fahrenheit to minimize the risk of scalding. or
4. Provide a Temperature Actuated, Flow Reduction (TAFR) valve conforming to ASSE 1062 Temperature Actuated, Flow Reduction (TAFR) Valves for Individual Supply Fittings at the shower head and at the tub fillerspout where a combination tub/shower fixture is installed and for any other fixtures used for bathing or showering to limit the hot water temperature to a maximum of 120 degrees Fahrenheit to minimize the risk of scalding

Add new standard(s) as follows:

ASSE 1016-2011/ASME A112.1016-2011/CSA B125.16-2011 Automatic Compensating Valves for Individual Shower & Tub/Shower Combinations

ASSE 1017-2010 Temperature Actuated Mixing Valves for Hot Water Distribution Systems

ASSE 1062-2006 Temperature Actuated, Flow Reduction (TAFR) Valves for Individual Supply Fittings

ASSE 1070-2004 Water Temperature Limiting Devices

Reason: There is currently no provisions in the code to require unsafe existing plumbing installations to where scalding is a hazard. Hundreds of people are scalded each year where non-code compliant (Two-handle) shower valves are installed. This code change is iintended to address this and other hot water scald hazards in existing installations.

What are safe hot water temperatures?

By Ron George
President, Ron George Design & Consulting Services

Plumbing Engineer Magazine Aug 2009

I am often asked, "What is a safe hot water temperature for domestic hot water?" If you read the model codes, it states the maximum hot water temperature for a shower or bathtub is 120 degrees Fahrenheit. If you read the warning labels on the side of most water heaters the maximum hot water temperature is 120 degrees Fahrenheit on some labels and 125 degrees Fahrenheit on other labels. The 125 degree limit probably allows for some temperature loss before the hot water gets to the fixtures. Most water heater literature and warning labels mention the availability of thermostatic mixing valves or automatic temperature compensating valves and they recommend their use. If you look at many of the industry standards for shower mixing valves, they state the valves must have limit stops that are adjustable to limit the maximum hot water temperature to 120 degrees Fahrenheit. The testing in the standards gives test criteria for testing the shower valves to these limits.

I have served on the working groups for several plumbing industry standards committees for temperature actuated mixing valves and shower valves and it is generally agreed that 120 degrees is the maximum, safe hot water temperature. I also have served on hot water system design standards committees where the participants had agreed that maximum domestic hot water temperature from plumbing fixtures used for bathing and washing purposes should be 120 degrees Fahrenheit. There were a few exceptions for bidets, sitz baths and whirlpool tubs that had temperatures lower than 120 degrees Fahrenheit for the recommended maximum temperatures to prevent scalding. It also should be noted that some other uses like commercial dishwashers and laundries may need temperatures higher than 120 degrees Fahrenheit. There were two temperatures discussed for each fixture during the design standard meetings. One was the "use temperature" and the other was "the maximum temperature" to prevent scalding.

It's generally agreed that 120 degrees Fahrenheit is the maximum safe hot water temperature that should be delivered from a fixture. Therefore hot water above 120 degrees Fahrenheit can be considered hazardous. Model codes address this in various plumbing code sections...

...The codes generally agree if there is a hazardous condition or a condition that is unsafe or a nuisance to life, health and property it should be corrected but in the existing building code and property maintenance code there is little guidance. It is also generally agreed that water above 120 degrees Fahrenheit at fixtures for bathing and washing with a few exceptions for lower temperatures can be considered dangerous and proper precautions should be taken to prevent the hot water from being a scalding hazard by using the proper safety devices.

When I hear about people setting their water heater to 120 degrees Fahrenheit to prevent scalding, I know they have good intentions, but most people do not know you cannot accurately control the hot water temperature leaving a water heater with the thermostat dial.

Maximum Hot Water Temperature to Prevent Scalding

I have served on many industry committees dealing with hot water system code requirements, hot water system design standards and product standards related to domestic hot water systems devices for temperature control and scald prevention. There has been consensus in all of these committees that the maximum safe hot water delivery temperature for a shower or bathtub is 120 degrees Fahrenheit to prevent scalding with a few exceptions for lower temperatures for bidets and emergency eye wash fixtures. (See the attached Figure 1 - Hot Water Scald Burns – Time vs Temperature Relationship for Second and Third Degree Burns for Adults and Children)
There were discussions in a plumbing code ad-hoc committee on temperature limits for the hot water system where everyone agreed the maximum safe temperature was 120 F. The ASPE Hot water committee dealing with a proposed standard for temperature limits in hot water systems also agreed the maximum safe hot water temperature to prevent scalding is 120 Fahrenheit. Several ASSE working groups that I have served on dealing with hot water temperature controls have all have discussed the reaction time of bathers and they have taken into consideration that children, the elderly and people with disabilities usually take longer to get out of harm's way if the water suddenly gets hot and they agreed 120 Fahrenheit is the maximum safe hot water temperature that a valve should deliver. At 120 F it takes about 80 seconds to develop a second degree burn in a child and it takes about 8 minutes to develop a second degree burn in an adult. (See Figure 1) The 120 Degree F temperature limit gives bathers or users an adequate amount of time to get out of harm's way before an irreversible scald burn injury can occur. Each of these committees looked back to the data that was the result of burn studies done by Dr. Moritz and Dr. Henrique's at Harvard Medical College in the 1940s. The burn studies were done using baby pigs that had skin thicknesses similar to that of adult males. The studies exposed the pig's skin to various temperatures of hot water for various periods of time and the severity of the burns were studied and recorded. These were the studies used to develop the time and temperature exposure charts. There have been numerous white papers, seminars, and reports since then discussing the fact that burns can occur quicker than those recorded in the Moritz & Henrique's studies for adult males. The skin is thinner for children and the elderly and the amount of time to receive an irreversible 2nd degree burn injury is less because their skin is thinner. Many of the white papers use the Moritz and Dr. Henrique's original burn studies and they use a ratio of the skin thickness to come up with burn times for thinner skin of children and the elderly. Children, the elderly and handicapped are also slower to react because it takes them more time to realize what is happening and try to react to get out of harm's way. Someone once told me an apartment complex was not intended for children or the elderly. I said everyone grows old and children often come visit so we need to consider prevention of scalds to children, the elderly and people with disabilities more so than burns to adults because burns can occur quicker for those groups.

The PIEV Theory for Reaction Time

There is a PIEV theory relates to reaction time. The PIEV theory is most commonly used to address braking distance in automobile accidents. It addresses the amount of time it takes a driver to sense a problem and decide to react, then the reaction time is added to the braking time for the total distance that a car travels before stopping. The PIEV theory can also apply to reaction times for a bather with respect to hot water scalds.
PIEV relates to the amount of time it takes a person to react to a hazard. PIEV means - Perception, Intellection, Emotion and Volition. It is usually referred to as the PIEV theory. Before we recognize and react to a hazard, four specific areas of activity need to be processed by the brain for the muscles to react. Those processes are:

1. **Perception** - We need to perceive or gain a Perception of a hazard. There can be delays in the perception with limitation in sight, sound, feeling, or any other of our senses.

2. **Intellection** - We go through a period called, Intellection or the act or process of using the intellect by thinking or reasoning. The bather must determine if the hazard is legitimate and deciding either move out of the way of the hazard or eliminate the hazard by adjusting the controls or in some cases where the bather may be sitting out of the reach of the controls the bather may choose to pull the shower curtain in front of them. If the adjustment of the controls is the choice one must decide which control to turn and try to remember which way to turn each control to adjust the temperature or turn the water off in order to eliminate the hazard. If a wrong choice is made during this process it could compound the situation by making the water even hotter. I travel a lot and I often find that shower controls can be very confusing with respect to how to adjust the controls. I still find two handle shower controls that do not meet code requirements. This is critically important when there is no temperature limit on the shower controls. For example if the shower has a two-handle shower valve and 160 degree hot water is supplied to the system, then turning of the cold water first could lead to instant scalding injuries. Turning down the hot water to 120 F or below creates a system where it could incubate Legionella Bacteria to very high levels.

3. **Emotion** - There is an Emotion or evaluation factor which is defined as a conscious mental reaction (as anger or fear) subjectively experienced as strong feeling usually directed toward a specific object and typically accompanied by physiological and behavioral changes in the body with respect to deciding or assessing how we want to react. A person with reduced mental capacity or someone that is just very old will take longer to process this information and ultimately decide to react.

4. **Volition** - There is the physical Volition or deciding/choosing to act and acting. In the case of braking distance it is when the choice is made

to move the foot from the gas pedal to the brake pedal and pressing on the brake pedal. This can be related to the time the bather chooses to adjust the control, and they move their hand to the shower control valve, plus the time to rotate or re-adjust the shower valve plus the time from the adjustment until the water temperature changes coming out of the shower head. Often it can take as much as 3-5 seconds to re-adjust the shower head and another few seconds until the water temperature changes coming out of the shower head. For ultra-low-flow (ULF) showers the delay from the time of the adjustment of the shower valve until the water temperature changes coming out of the shower head can be even longer. So burns can become more severe with ULF shower heads. This is one more area where water conservations measures can unintentionally make plumbing systems less safe.

As the temperature of the water increases this PIEV reaction time becomes more important. Using a bathtub/shower controller with a single handle would reduce the mental processing time and reduce the possibility of making an error when turning off the water. As Figure 1 shows the higher the temperatures get, the quicker the burns can occur. within seconds or less and the degree and severity of the burn can be affected by this reaction time.

As you can see by the chart in Figure 1, if the water is at 140 F it will take about 0.8 seconds for a child to receive a 2nd degree irreversible burn injury and it will take about 5.6 seconds for an adult male to receive an irreversible burn injury at 140 degrees F. Everyone else will fall somewhere in between. An adult will often find it very difficult to react to a sudden change in temperature within five (5) seconds. If the shower head is an Ultra-Low-Flow (ULF) shower head the delay can be several seconds longer before the water temperature is reduced because the mixed water temperature must evacuate or flush out the hot water in the pipe riser from the shower valve to the shower head. There is basically very little or no time to react at higher temperatures. For a typical adult that is alert and aware the PIEV theory shows it can take well over five (5) seconds to react to a sudden burst of hot water in a shower. For an elderly person or a small child that is confused it could take several minutes or more before they are able to react and adjust the controls or get out of harm's way. There has been a lot of information that suggests reducing the domestic hot water temperature to 120 F or less as it flows from the fixtures will minimize scalding and allow most people to react or get out of harm's way before a scald injury occurs.

Reducing the water temperature flowing from the fixture can be done in several ways by:

1. Reducing the hot water temperature at the fixture by adjusting the maximum temperature limit-stop on the shower valve. (The best way)
2. Using local mixing valves conforming to ASSE 1070 to reduce the hot water temperature flowing from a faucet.
3. Reducing the temperature at the source (Water Heater) with the use of a master mixing valve or temperature actuated mixing valve conforming to ASSE 1017.
4. For existing non code compliant shower or tub/shower installations, Two handle tub/shower valves without a maximum temperature limit adjustment) an ASSE 1062 valve could be used. An ASSE 1062 valve is a Temperature Actuated Flow Reduction (TAFR) valve. It looks like a chrome pipe coupling and it screws on between the shower head and the shower arm. Other models screw into a tub spout or onto a sink faucet in place of the aerator. If the water flowing from fixture exceeds about 117-120 degrees Fahrenheit the TAFR valve will shut the flow of water down to just a trickle so that scalding hot water does not spray onto the bather. It can be reset by adjusting the fixture control valve to a cold water setting and when the cold water reaches the valve it will reset and begin flowing again. This can be a bit of a nuisance in buildings where the hot water temperature is erratic, but it is an inexpensive way to provide protection against scald injuries in older buildings without code compliant shower valves.

Water Heater Thermostats Do Not Control the Water Heater Outlet Temperatures

If you adjust the water heater thermostat for the burner or heating element on a water heater down to 120 degrees, it will not prevent scalding. Water heater thermostats cannot be relied upon to control the hot water temperature leaving a water heater. Water heater manufacturers recommend that installers set thermostats at 120 - 125 F, and most of them ship the water heaters at an even lower temperature setting. It is not possible to set a water heater thermostat at a given temperature and get a relatively constant temperature of hot water from a water heater. The thermostat can not accurately control the water heater outlet temperature with a water heater thermostat.

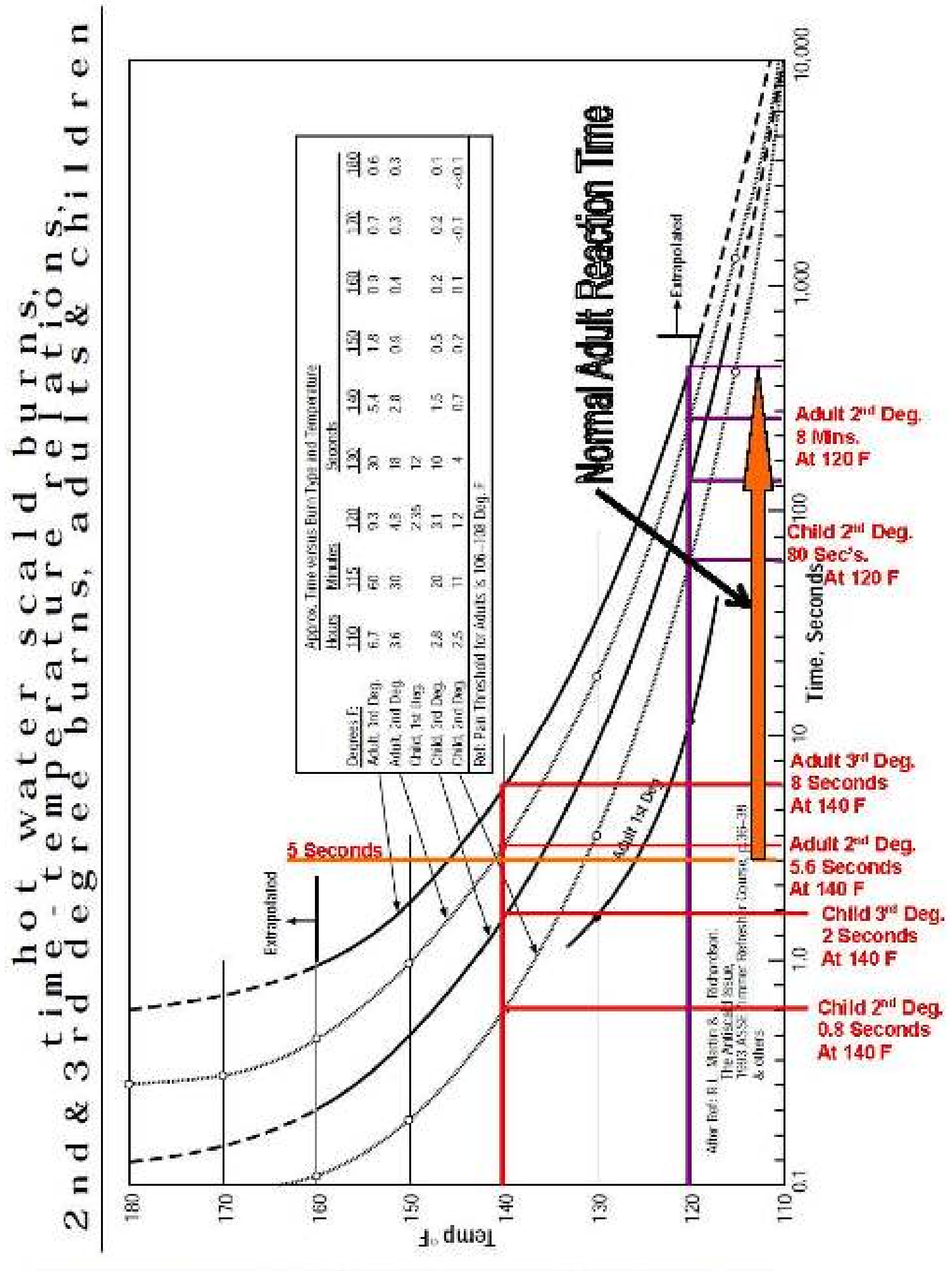
My experience has been that not many people know that water heater thermostats cannot control the outlet temperature of a water heater. This warrants an explanation of how a water heater thermostat works so everyone understands the dial on the water heater does not have the accuracy to control the outlet temperature of storage type heater.

Water heater thermostats do not provide precise temperature controls for hot water systems. For example: the thermostat dial calibration test of ANSI Z21.10.1-1998, which is the applicable standard for gas-fired water heaters, allows the temperature to vary 10 degrees above or below the thermostat setting. I have talked to water heater manufacturers that have indicated that the controls can vary as much as 15 to 18 degrees Fahrenheit above or below the set point of the thermostat. From my experience, I have recorded the temperature leaving the top portion of a water heater over a long period of time during intermittent uses and saw temperature swings over 40 degrees Fahrenheit leaving the water heater. The shower valve standards do not have this kind of temperature fluctuation included their testing for all types of shower valves. The significant temperature swings are because the thermostat is inserted into the lower portion of a water heater tank and turns the fuel supply to the heater on and off. Most new water heater thermostat dials have no way to know what the temperature in the tank is. There is rarely a fixed temperature indicated on the dial, however some manufacturers publish temperatures associated with various marks on the thermostat dial or in their literature even though the dial cannot not control the outlet temperature of the water heater, it only controls when the energy to the heater is turned "on" and "off" by sensing the cold water coming into the bottom of the heater.

Generally, if the water heater thermostat dial is set at 120 degrees Fahrenheit, the burner would come on when the temperature at the thermostat reaches about 105 degrees Fahrenheit. The burner stays on until the water around the thermostat which is near the bottom of the heater reaches about 135 degrees Fahrenheit. (The "burner off" temperature is about 30 degrees higher than when the burner came "on" and generally about 15 degrees above the theoretical set point of the thermostat).

Most people don't realize that the maximum temperature limit test of the ANSI Z21.10.1 Gas Water Heater Standard allows the outlet water temperature of the water heater to rise significantly above the thermostat setting. This provision in the standard accounts for the phenomenon known as "stacking" or "thermal layering". The hot water is less dense and rises to the top of the hot water tank. Just like hot air rises and lifts a hot air balloon, hot water rises to the top of the tank and the cooler water drops to the bottom of the tank. Stacking or thermal layering occurs when the hot water rises to the top of the heater due to recurring short duration heating cycles caused by a frequent number of small quantity hot water uses. Frequent short draws cause cold water to enter the bottom of the water heater where the thermostatic element senses the cold water from the turbulent flow stirring in the bottom of the heater. The cold water causes the water heater to cycle on. This phenomenon can occur in any type of storage water heater and generally is more significant in vertical heaters.

I have recorded temperatures as high as 150 to 166 degrees Fahrenheit at the top of water heaters that had the thermostats set between 120 to 125 degrees Fahrenheit. Temperatures over 151 degrees Fahrenheit are extremely high temperatures and can cause serious scald burns in only a two seconds of contact with the skin. (See Table 1 - Water Temperature Effects on Adult Skin) It should be noted that the time temperature relationships in Table 1 are based upon the thickness of the skin for adult males. Children and the elderly typically have a thinner layer of the skin or epidermis and the exposure times can be shorter or the same burns can occurs in a given time at slightly lower temperatures.
Source: http://www.plumbingengineer.com/aug_09



A Seminar and Technical Paper for the 25-28 Oct. 98 Annual ASPE Meeting at the Indianapolis Convention Center in Indianapolis, Indiana. Reprinted by Watts Regulator Company with permission of Dr. D. Bynum Jr.

Figure 1 – Hot Water Scald Burns – Time vs Temperature Relationship for Second and Third Degree Burns for Adults and Children.
(Notes By: Ron George, CPD, See: www.ScaldPrevention.org)

Bibliography: www.Plumb-TechLLC.com

www.ScaldPrevention.org

www.plumbingengineer.com

Cost Impact: Will increase the cost of construction
The cost impact is minimal. The health and safety impact is one of the most significant health and safety related code changes to existing buildings in years. This code change will save countless lives and prevent countless life altering, very painful scald injuries.

Analysis: A review of the standard proposed for inclusion in the code, ASSE 1016-2011/ASME A112.1016-2011/CSA B125.16-2011, ASSE 1017-2010, ASSE 1062-2006 and ASSE 1070-2004, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

PM 5-15 : 505.4-GEORGE5206

PM 6-15

505.5 (New), 505.5.1 (New)

Proponent: David Bridges, City of Martinsville, VA, representing City of Martinsville, VA

2015 International Property Maintenance Code

Add new text as follows:

505.5 Non-potable water reuse systems Nonpotable water reuse systems and rainwater collection and conveyance systems shall be maintained in a safe and sanitary condition. Where such systems are not properly maintained, the systems shall be repaired to provide for safe and sanitary conditions, or the system shall be abandoned in accordance with Section 505.5.1.

505.5.1 Abandonment of systems. Where a nonpotable water reuse system or a rainwater collection and distribution system is not maintained or the owner ceases use of the system, the system shall be abandoned in accordance with Section 1301.10 of the *International Plumbing Code*.

Reason: As the newly developed, approved water reclaimation systems are being added in the built environment, these systems need to be maintained so as to not cause hazards to structures or the public. The section is taken largely from chapter 13 of the 2015 IPC.

Cost Impact: Will not increase the cost of construction
This is a maintenance issue and should not have any impact on new construction.

PM 6-15 : 505.5 (New)-BRIDGES4801

PM 7-15

602.6 (New)

Proponent: Jeff Hugo, National Fire Sprinkler Associaton, representing National Fire Sprinkler Association (hugo@nfsa.org)

2015 International Property Maintenance Code

Add new text as follows:

602.6 Freeze Protection All areas and spaces of the building containing fire protection system piping with water or other agents susceptible to freezing, shall be maintained at or above 40 degrees Fahrenheit, or protected from freezing by other approved methods in accordance with Section 704.1.1.

Reason: Several fire protection installation standards, including but not limited to; NFPA 13, NFPA 13R, NFPA 14 require the water filled piping to be at, or above 40 degrees Fahrenheit. The other approved methods can be limited use of frost-proof casings, insulation and listed heat trace tape. A professional engineer is also permitted to prove through heat loss calculations that the piping will not freeze when the area or space is maintained below 40 degrees.
The IPMC already has reference to NFPA 25 (704.1.1) which requires these spaces to be maintained. However, it is a good measure to bring this out into the body of the IPMC for code officials to be aware of the temperature of the spaces that the fire protection piping is installed.

Cost Impact: Will not increase the cost of construction
Not a new technical requirement.

PM 7-15 : 602.6 (New)-HUGO4913

PM 8-15

603.1

Proponent: David Bridges, City of Martinsville, VA, representing City of Martinsville, VA

2015 International Property Maintenance Code

Revise as follows:

603.1 Mechanical equipment and appliances. Mechanical equipment, appliances, fireplaces, solid fuel-burning appliances, cooking appliances and water heating appliances shall be properly installed and maintained in a safe working condition, and shall be capable of performing the intended function.

Reason: currently section 603.1 adequately covers all mechanical appliances, but not the associated fuel conveyance piping, fuel gas systems, fuel oil storage, hangers, supports, etc.... By adding "equipment" it clarify's that items associated with mechanical equipment are also covered by the IPMC.

Cost Impact: Will not increase the cost of construction
This is a clarification of items covered by the IPMC and will not add to the cost of construction.

PM 8-15 : 603.1-BRIDGES5611

PM 9-15

Appendix B (New), Chapter 8

Proponent: Jonathan Wilson, National Center for Healthy Housing, representing National Center for Healthy Housing (jwilson@nchh.org)

2015 International Property Maintenance Code

Add new text as follows:

APPENDIX B
HEALTH STANDARDS

SECTIONB101
GENERAL

B101.1 Scope. The provisions of this chapter shall govern the minimum conditions and standards for the health of persons at residential premises.

B101.2 Approved agency. An approved agency is a government agency responsible for the health of a resident in a dwelling. In most jurisdictions, the approved agency is a health department.

B101.3 Findings. When a code official has evidence that a hazardous condition as described in section B102 is likely to exist, the code official is authorized to require the owner or occupant responsible for maintenance to remove the hazardous condition. The code official shall be permitte to rely on a report from an approved agency as evidence that the hazardous condition is likely to exist or that the condition has been removed and has been returned to compliance.

B101.4 Testing or inspection. The code official is authorized to require the property owner to conduct appropriate testing or inspection methods as evidence of compliance with this appendix. The code official may accept results from an approved agency or from an individual licensed in accordance with federal, state, or jurisdiction laws to conduct the testing or inspection. The testing or inspection results shall be deemed sufficient to establish whether a premises is in compliance with the requirements of this appendix. The property owner shall be responsible for the cost of testing or inspection.

SECTIONB102
HAZARDOUS CONDITIONS

B102.1 Lead-based paint hazards. Lead levels in dust or soil at or above federal regulatory limits pursuant to 40 CFR Section 745.65 is a hazardous condition. unless the jurisdiction has adopted more protective standards; in such a case, those more protective standards will apply.

B102.2 Friable asbestos-containing material hazards. Significantly damaged friable asbestos-containing material as defined by 40 CFR Part 763 is a hazardous condition unless the jurisdiction has adopted a more protective standard. Friable means that the material, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

B102.3 Radon. Radon present at levels at or above the level that the jurisdiction has designated as requiring reduction is a hazardous condition. If no designation has been made, then hazardous condition is four picocuries per liter of air (pCi/L) in the lowest habitable level of the dwelling.

Add new standard(s) as follows:
U.S. Environmental Protection Agency, 40 CFR 745.65 Lead-Based Paint Poisoning Prevention in Certain Residential Structures, 2012.

U.S. Environmental Protection Agency, 40 CFR 763 Asbestos-Containing Material in Schools, 1987

Reason: Three health hazards, lead, asbestos and radon, pose significant risk to many dwellings but go unmentioned in the IPMC. As a result, residents are not adequately protected for three reasons:

1. Residents are unlikely to know they are at significant risk because the hazards are not visible or are masked in dust and debris. While many retail hardware stores carry low-cost test kits to allow residents to measure the hazard, unless they know of the danger, residents may not use them until the harm has been done.
2. They are only likely to be found in a structure that is poorly maintained, repaired, or renovated. However, once created, they are unlikely to be addressed through standard maintenance and housekeeping.
3. Many government agencies, such as health departments are capable of assessing the hazard but often lack the authority provided by a property maintenance code to efficiently address the risk.

This proposal gives the jurisdiction the language it needs to address these all-too-common hazards. The jurisdiction would elect to adopt a new optional Appendix B to the IPMC that defines these hazardous conditions and gives the code official the authority to act. As with all appendices, if the jurisdiction does not affirmatively adopt the appendix, it will have no effect.

The requirements are designed to be triggered by section 101.3 when a government agency (defined as an approved agency) responsible for the health of a resident in a dwelling provides the code official with a report showing that one of the three hazardous conditions is likely to exist. Based on the report, the code official would require the owner or occupant to eliminate the hazardous condition and conduct the necessary testing and inspection to confirm the property has returned to compliance. The testing and inspection may be conducted by the government agency making the initial finding or by an individual licensee in accordance with federal, state, or local laws to perform the work.

The code official would be entitled to rely on the analysis performed by the approved agency--most likely the state or local health department. The code official would not be expected to have any specialized knowledge of the hazard or the hazardous condition and would only be authorized and not mandated to act.

Section 102.1 describes lead-based paint hazards and refers to 40 CFR 745.65 unless the jurisdiction has adopted a more protective standard. These levels in the regulation define the amount of lead in dust or soil that is likely to poison a child in the dwelling. The dangers associated with lead poisoning are well known: serious health effects, detrimental effects on cognitive and behavioral development, with serious personal and social consequences that may persist throughout their lifetime.[1] Lead affects a child's intelligence even at very low levels of exposure.

While there is no safe level of lead exposure for children, the U.S. Environmental Protection Agency (EPA) regulation provides levels that can be measured and reasonably achieved. The agency adopted this regulation in 2001 after extensive public notice and comment including conducting a cost-benefit analysis. The levels in that regulation are:

- Lead-based paint on an existing painted surface—0.5 percent by weight or 1.0 milligrams per square centimeter;
- Dust on floors—40 micrograms of lead per square foot of settled dust (µg/ft^2);
- Dust on interior window sills—250 µg/ft^2;
- Dust on window troughs (wells)—400 µg/ft^2;
- Bare soil in children's play areas—400 parts per million (ppm) of lead; and
- Bare soil in areas of the yard that are not children's play areas—1,200 ppm.

Many states have adopted these levels into their regulations to guide health departments and environmental agencies responsible for protecting children from lead-based paint hazards.

In most situations, lead-based paint hazards are the result of paint in a pre-1978 dwelling being deteriorated or being disturbed in a manner that generates dust contaminated with lead. Repairing the paint may limit making the hazardous condition worse, but it does not clean up the problem. Only through testing and inspection can one determine if the hazardous condition has been removed.

Section 102.2 describes asbestos hazards and references EPA's regulations at 40 CFR Part 763 unless the jurisdiction has adopted more protective standards. Those regulations protect people, especially children, from lung cancer, asbestosis, and mesothelioma. These regulations were adopted in 1987 after extensive public notice and comment and apply to asbestos-containining materials in schools. Many states have adopted regulations similar to these.

Asbestos-containing material is any material or product that contains more than one percent asbestos. It would only present a hazardous condition under this proposal if it was friable and was significantly damaged. Friable means that the material, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. A material is damaged if it has deteriorated or sustained physical injury such that the internal structure of the material is inadequate or, if applicable, which has delaminated such that its bond to the substrate (adhesion) is inadequate or which for any other reason lacks fiber cohesion or adhesion qualities. The damage is significant if it is extensive and severe.

If the asbestos is not significantly damaged, the hazardous condition would not exist. However, once significantly damaged, the asbestos is likely to have been released. Only through testing and inspection can one determine if the asbestos has been appropriately cleaned.

Section 102.3 describes radon, a naturally-occurring, odorless, tasteless, invisible gas over four picocuries per liter of air as a hazardous condition unless the jurisdiction has adopted a more protective level. At this level, radon poses a significant risk of lung cancer, second only to secondhand smoke, when it seeps into the home through cracks in the foundation from the soil.

EPA adopted this level in the 1980s, and three ANSI consensus standards by the American Association of Radon Scientists and Technologists (AARST) have adopted it. These consensus standards address how the levels should be measured, how the levels should be mitigated, and what testing and inspection is needed to confirm the hazardous condition has been eliminated.

Bibliography:

[1] CDC Response to Advisory Committee on Childhood Lead Poisoning Prevention Recommendations in "Low Level Lead Exposure Harms Children: A Renewed Call of Primary Prevention, Centers for Disease Control and Prevention, 2012, www.cdc.gov/nceh/lead/acclpp/cdc_response_lead_exposure_recs.pdf.

Cost Impact: Will not increase the cost of construction
The hazardous conditions described in the new optional Appendix B should not be present in a properly constructed and maintained home.

Analysis: A review of the standard proposed for inclusion in the code, 40 CFR 746.65 and 40CFR 763, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

PM 9-15 : APPENDIX B (New)-WILSON5130

2015 GROUP A – PROPOSED CHANGES TO THE INTERNATIONAL RESIDENTIAL CODE – PLUMBING/MECHANICAL

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TENTATIVE ORDER OF DISCUSSION
2015 PROPOSED CHANGES TO THE INTERNATIONAL RESIDENTIAL CODE (MECHANICAL)

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

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

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RM 1-15

M1305.1.4.2

Proponent: Guy McMann, Jefferson County Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Residential Code

Delete and substitute as follows:

M1305.1.4.2 **~~Excavations.~~** **Pit locations** ~~Excavations for *appliance* installations shall extend to a depth of 6 inches (152 mm) below the *appliance* and 12 inches (305 mm) on all sides, except that the control side shall have a clearance of 30 inches (762 mm).~~

Appliances installed in pits or excavations shall not come in direct contact with the surrounding soil and shall be installed not less than 6 inches (152 mm) above the pit floor. The sides of the pit or excavation shall be held back not less thanf 12 inches (305 mm) from the appliance. Where the depth exceeds 12 inches (305 mm) below adjoining grade, the walls of the pit or excavation shall be lined with concrete or masonry. Such concrete or masonry shall extend not less than 4 inches (102 mm) above adjoining grade and shall have sufficient lateral load-bearing capacity to resist collapse. Excavation on the control side of the appliance shall extend horizontally not less than 30 inches (762 mm). The appliance shall be protected from flooding in an *approved* manner.

Reason: The language in the IMC and IFGC is much more complete and concise. This modification completes this section and has all the information necessary for a code compliant installation and makes it consistent with the other codes

Cost Impact: Will not increase the cost of construction
This proposal is strictly editorial in nature and will not cause an increase is cost.

RM 1-15 : M1305.1.4.2-MCMANN3695

RM 2-15

M1305.1.4.2

Proponent: Guy McMann, Jefferson County Colorado, representing Colorado Association of Plumbing and Mechanical Officials (gmcmann@jeffco.us)

2015 International Residential Code

Delete without substitution:

~~**M1305.1.4.2 Excavations.** Excavations for *appliance* installations shall extend to a depth of 6 inches (152 mm) below the *appliance* and 12 inches (305 mm) on all sides, except that the control side shall have a clearance of 30 inches (762 mm).~~

Reason: This is legacy code language that appeared in 1984 and was incorporated into the 2000 edition of the Residention Code. There is no technical justification to dig a pit 6 inches below the bottom of any appliance. If there is a water issue in a pit an appliance should not be installed in it. This section mandates that a water heater be installed on a stand or be suspended above the floor of a pit. M1305.1.4.1 already takes care of the issue by requiring the appliance to be on a 3 inch pad which is perfectly acceptable provided there are no water issues. The bottom of the pit is still the ground and M1305.1.4.1 would still apply.

Cost Impact: Will not increase the cost of construction
This proposal will actully *decrease* the cost of construction by not requiring excessive digging. It will also not require the purchace or building of a stand to support the appliance. labor dollars could be saved by not being required to suspend an appliance.

RM 2-15 : M1305.1.4.2-MCMANN4827

RM 3-15

M1401.3

Proponent: Luis Escobar, representing Air Conditioning Contractors of America (luis.escobar@acca.org)

2015 International Residential Code

Revise as follows:

M1401.3 Equipment and appliance sizing. Heating and cooling *equipment* and *appliances* shall be sized in accordance with ACCA Manual S or other approved sizing methodologies based on building loads calculated in accordance with ACCA Manual J or other *approved* heating and cooling calculation methodologies.

> ~~**Exception:** Heating and cooling equipment and appliance sizing shall not be limited to the capacities determined in accordance with Manual S where either of the following conditions applies:~~
>
> ~~1. The specified equipment or appliance utilizes multistage technology or variable refrigerant flow technology and the loads calculated in accordance with the approved heating and cooling calculation methodology are within the range of the manufacturer's published capacities for that equipment or appliance.~~
> ~~2. The specified equipment or appliance manufacturer's published capacities cannot satisfy both the total and sensible heat gains calculated in accordance with the approved heating and cooling calculation methodology and the next larger standard size unit is specified.~~

Reason: The exceptions in the 2015 codes were initially introduced because it was not certain that Manual S would complete full revision prior to the 2015 code's publication. However, ACCA Manual S completed the ANSI consensus revision process in 2014 and is referenced in the 2015 code. This creates a severe contradiction between the IRC and the national consensus standard it references.
The Manual S revision committee that developed the sizing procedures and oversize limits included the manufacturers of multi-stage and variable refrigerant flow (VRF) equipment. Those limits were revised through the public review process and now allow a greater range of equipment to be installed for multi-stage and VRF applications. The published Manual S fully covers the proper procedures for multi-stage and VRF technology agreed upon by designers, manufacturers, and energy advocates.

A study published in September 2014 by the National Institute of Standards and Technology, entitled "Sensitivity Analysis of Installation Faults on Heat Pump Performance", found that the energy penalty for over-sizing HVAC equipment could lead to as much as 20% greater energy use in warm climates. Manual S-2014 however allows a new method of oversizing multi-stage and VRF equipment in cold climates to get the necessary heating performance, while still maintaining appropriate sizing limits for warm climates. BUT the current exceptions apply across the board and will lead to unjustifiable oversizing that cost energy and money.

Bibliography: [Sensitivity Analysis of Installation Faults on Heat Pump Performance][NIST Technical Note 1848][Domanski, Henderson, Payne][2014][www.acca.org/standards/quality]
[Understanding ACCA Manual S][ACCA Special Presentation][Luis Eescobar][2014][available upon request luis.escobar@acca.org]

[Residential Equipment Selection][ANSI/ACCA 3 Manual S - 2014][ACCA][2014][www.acca.org/standards/codes]

Cost Impact: Will not increase the cost of construction
See energy consumption results from NIST Study, specifically single fault: equipment sizing. Energy use can increase by up to 24% if oversizing is the only installation fault. The effects are greater with additional installation faults (duct leakage, indoor coil airflow, refrigerant under/over charging, etc.).

RM 3-15 : M1401.3-ESCOBAR5735

RM 4-15

M1411.1

Proponent: Mike Fischer, representing the Responsible Refrigerants Codes Council (mfischer@kellencompany.com)

2015 International Residential Code

Revise as follows:

M1411.1 ~~Approved refrigerants~~Refrigerants. Refrigerants used in ~~direct~~ refrigerating systems shall conform to the applicable provisions of ~~ANSI/ASHRAE 34.~~Section 1103 of the *International Mechanical Code*.

Reason: The current requirements of M1411.1 in the IRC Mechanical Chapter are not accurate and appropriate- the use of the word "approved" in the section heading is not necessary; the inclusion of the term "direct" leaves no guidance on refreigerants used in indirect systems, and the reference to ANSI/ASHRAE 34 is incomplete because ASHRAE 15 is not also referenced. the simplest solution to clean up this section of the code is to replace the existing text and refer to the IMC.

Cost Impact: Will not increase the cost of construction
The proposal is a clarification of existing requirements.

RM 4-15 : M1411.1-FISCHER5582

RM 5-15

M1411.6.1 (New)

Proponent: Howard Ahern, representing Airex Mfg. (howard@plumberex.com)

2015 International Residential Code

Add new text as follows:

<u>**M1411.6.1 Refrigerant line insulation protection** Refrigerant Piping insulation exposed to weather shall be protected from damage, including that caused by sunlight, moisture, equipment maintenance and wind. Adhesive tape shall not be considered as a means of protection.</u>

Reason: This code change clarifies that the Refrigerant vapor (suction) line insulation complying with M1411.6 needs to be protected when it is exposed outdoors. There has been confusion from Builders, inspectors and contractors that manufactures marking U.V. on the pipe insulation was all that was needed to protect outdoor Refrigerant vapor (suction) line insulation. The majority of Pipe Insulation Manufactureres for Refrigerant vapor (suction) line insulation already have stated in their technical papers or installation instructions that when using their insulation outdoors it must be protected from UV, weather and other damage such as rodents and birds and that they offer only a limited UV resistance. No elastomeric foam is truly UV resistant.
The damage can also be caused by not only U.V, moisture, wind and damage from equipment maintenance but also oxidation. All these factors will permanently damage the insulations external surface permeability and seriously impact the insulation thermal conductivity which will impact the heating or cooling systems efficiency and resulting in higher electrical cost as the compressor must work harder to compensate for the temperature difference which can lead to a shorter life span of the equipment.

Adhesives break down due to bacteria and moisture, removal of Adhesives tape would destroy the external surface permeability of the insulation required in M1411.6

Cost Impact: Will not increase the cost of construction
This code change will not increase cost of construction in jurisdictions that have adopted the 2102 or the 2015 IECC. Most jurisdictions by 2018 should have adopted one of the IECC codes. This would only be a cost increase to jurisdictions that have not adopted the 2102 or the 2015 IECC. The majority of pipe insulation manufactures already state in their technical papers or instructions that when using their insulation outdoors it must be protected from weather.

RM 5-15 : M1411.6.1 (New)-AHERN5275

RM 6-15

M1411.7.1 (New), Chapter 44

Proponent: Howard Ahern, representing Airex Mfg. (howard@plumberex.com)

2015 International Residential Code

Add new text as follows:

M1411.7.1 Exterior wall penetration. Refrigerant piping shall be isolated by a vibration isolator and supported at exterior wall penerations. Vibration isolators shall comply with ASTM E331.

Add new standard(s) as follows:

ASTM E331- 00(2009) Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference

Reason: This code change is needed to create consistency for installation with this code and Equipment Manufactureres installation instructions for isolation of refrigerant piping to prevent vibration damage. Refrigerant piping must be isolated and supported to eliminate vibration transfer to the exterior wall specifically from the penetration of refrigerant piping. The majority of Equipment Manufactureres Installation Instructions have for the last 4 years already required isolation of the refrigerant piping in their installation instructions to prevent vibration damage and for noise reduction. Isolation of the piping is also needed to prevent damage to the piping from contact with hard surfaces and to eliminate stress from vibration which can cause piping and joint fatigue that could lead to leaking refrigerant.
The Exterior wall penetration is a critical space due to its close proximity to the equipment and that it is the first wall penetrated by refrigerant piping in the vast majority of installations.

The only sure way to cut off the path of problematic vibration and eliminate the transference of vibration to the structure is with a Vibration Isolator with the piping supported at the point of penetration to avoid any contact with wall building materials.

Vibration will take the path of least resistance. If the piping is not isolated, then unwanted vibration will transfer through to the wall. Vibration Isolators contain resilient material that absorb the vibration energy and isolate the piping. There are already many materials and products being used in construction for piping isolation.

Trying to repair or retrofitting for vibration problems after complaints arise, is often far more expensive than an original installation.

The exterior wall penetration is often overlooked as a vibration path. Substantial acoustic energy can pass through a small opening in a wall. Reciprocating compressors mainly cause this vibration energy. From a distributing rattle or asking "why is my wall buzzing" every time the equipment starts to occupants perturbed by a "humming " noise, the problems with vibration transmission to the wall from refrigerant lines can be a constant problem for occupants.

Installation of these isolators when installed must not allow water penetration into the exterior wall and must meet ASTM E331 Standard Test Method for Water Penetration ____

Reference R703.1.1 Exterior wall coverings

R703.1.1 Water resistance. The exterior wall envelope shall be designed and constructed in a manner that prevents the accumulation of water within the wall assembly by providing a water-resistant barrier behind the exterior veneer as required by Section R703.2 and a means of draining to the exterior water that enters the assembly. Protection against condensation in the exterior wall assembly shall be provided in accordance with Section R702.7 of this code.

Exceptions: A weather-resistant exterior wall envelope shall not be required over concrete or masonry walls designed in accordance with Chapter 6 and flashed in accordance with Section R703.4 or R703.8.

Compliance with the requirements for a means of drainage, and the requirements of Sections R703.2 and R703.4, shall not be required for an exterior wall envelope that has been demonstrated to resist wind-driven rain through testing of the exterior wall envelope, including joints, penetrations and intersections with dissimilar materials, in accordance with ASTM E 331 under the following conditions

Exterior wall envelope test assemblies shall include at least one opening, one control joint, one wall/eave interface and one wall sill. All tested openings and penetrations shall be representative of the intended end-use configuration.

Exterior wall envelope test assemblies shall be at least 4 feet by 8 feet (1219 mm by 2438 mm) in size.

Exterior wall assemblies shall be tested at a minimum differential pressure of 6.24 pounds per square foot (299 Pa).

Exterior wall envelope assemblies shall be subjected to the minimum test exposure for a minimum of 2 hours. The exterior wall envelope design shall be considered to resist wind-driven rain where the results of testing indicate that water did not penetrate control joints in the exterior wall envelope, joints at the perimeter of openings penetration or intersections of terminations with dissimilar materials.

____

*"An isolation system is the best inexpensive insurance against unwanted vibration."

The International Mechanical Code and Uniform Mechanical Code both recognize the problems associated with piping vibration.

*Vibration Isolation by Robert Simmons, P.E., ASHRAE Journal 2009

Cost Impact: Will increase the cost of construction
Negligible cost increase, as The International Mechanical Code and the Uniform Mechanical Code already require designing and installing refrigerant piping to address vibration. A major percentage of any increased cost has already been absorbed by this requirement. The majority of Equipment Manufactureres already require isolation of the refrigerant piping in their installation instructions to prevent vibration. Again, any increased cost has already been absorbed by the aforementioned installation requirement.
There are many products on the market that can be installed for this requirement. Many Builders have already been installing products for vibration isolation and many Contractors building with pressure testing (blower door) have been addressing this penetration area with better installation including isolation. As there are a variety of isolating materials and systems to provide isolation, it is a minor increase in construction cost but it is a significant savings to Home Owners and Builders, as trying to repair vibration problems after complaints is often very costly.

Analysis: A review of the standard proposed for inclusion in the code, ASTM E331, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

RM 6-15 : M1411.7.1 (New)-AHERN4794

RM 7-15

M1416 (New), M1416.1 (New)

Proponent: Mark Metzner, representing Self (markmetzner@shaw.ca); Muktha Tumkur (muktha.tumkur@csagroup.org)

2015 International Residential Code

Add new text as follows:

SECTION M1416
GROUND SOURCE HEAT PUMP SYSTEMS

M1416.1 **Design and installation.** The design and installation of ground source heat pump systems shall conform to ANSI/CSA C448.

Reason: The CSA C448 is an ANSI designated bi-national consensus Standard for the design and installation of ground source heat pump systems. The Standard includes performance based criteria that provide a consistent application of requirements and best practices throughout the United States and Canada. This Standard will ensure that stakeholders in the ground source heat pump systems market sector will supply and receive heating / cooling systems that perform to design efficiency expectations and deliver tru, long-term value. This Standard has been developed by a bi-national Technical Committee which comprised of the industry's leaders and it provides a strong foundation for increased market penetration of this technology into the HVAC market.
The Standard harmonizes the differences between existing resources, simplifies referencing in regulations and contracts, incorporates the latest advancements, clarifies compliance using standards language, and provides credibility through an accredited neutral standards development process.

This Standard includes performance based minimum requirements for industrial, commercial, institutional and residential applications and addresses the following items related to ground source heat pump systems:

- equipment and material selection
- site survey - geological and hydrogeological

open and closed loop ground source heat pump system design / engineering

- direct expansion (DX) systems
- installation
- testing and verification
- documentation
- commissioning and decommissioning

The Standard will apply to all ground source heat pump systems using external building heat exchangers as a thermal source or sink for heating and cooling, with or without a supplementary heating or cooling source. External building heat exchangers that will be covered by this Standard include:

- ground heat exchangers - vertical and horizontal;
- open-loop systems - drilled well and surface water;
- submerged closed loop systems - fresh water and sea water;
- standing colum wells

This Standard applies to new and retrofit installations in industrial, commercial, institutional and residential applications and includes thermal energy storage systems.

The bi-national Committee consisted of representatives from the following industry associations:

- American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)
- Geothermal Exchange Organization (GEO)
- International Ground Source Heat Pump Association (IGSPHA)
- International Ground Source Heat Pump Association Canada (IGSPHA - Canada)
- National Ground Water Association (NGWA)
- Plastics Pipe Institute (PPI)
- Geothermal National & International Initiative (GEONII)
- Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI)

Cost Impact: Will not increase the cost of construction
The code change proposal will not increase the cost of constructin of ground source heat pump systems.

Justification:

Currently, a US standard for the design and installation of ground source heat pump systems, similar to the C448, does not exist. The C448 is a system for the design and installation of ground source heat pump systems and it inlcudes requirements and best practices related to the installation of these systems. The systems would include pumps, pipe, grout etc., which most likely have manufacturing requirements and certification requirements within other standards, but that is not within our scope. The C448 is not a certification standard for any manufactured goods.

The C448 is generally a performance based standard which contains design requirements and best practices typically accepted and used currently by US and Canadian designers. Ground source heat pump systems that adhere to C448 will be properly designed and installed to the expectation of the owner or end user and as such will represent the minimum baseline performance of such systems. In most cases, alternate materials and installation methods are allowed. Also, in some cases, alternate innovative materials are allowed if reviewed and approved by an engineer.

RM 7-15 : M1416 (New)-METZNER5517

RM 8-15

M1502.3 (New)

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies, Inc (JBENGINEER@aol.com)

2015 International Residential Code

Add new text as follows:

M1502.3 Make-up air for tight construction. Make-up air shall be provided for clothes dryers where the air infiltration rate is known to be less than 0.4 air changes per hour (ACH). Make-up air shall be provided by a duct that communicates with the outdoors, a ventilated crawl space, or a ventilated attic space and such duct shall have a cross sectional area not less than that of a 4 inch round duct. The make-up air duct shall open into the room in which the clothes dryer is located. Make-up air duct inlets shall be provided with a screen having a mesh size not less than ¼ inch and not greater than ½ inch. The make-up air inlet shall be equipped with an air admitting damper that opens during the operation of the clothes dryer.

Exception: Condensing dryers shall not require make-up air.

Reason: Today homes are much more tightly constructed, creating an inadequate condition for the proper operation of a clothes dryer. The exhaust rate for a residential dryer ranges from 125 to 200 cfm with newer dryers favoring 200 cfm.
When the air infiltration rate drops to less than 0.4 air changes per hour, this creates a condition of inadequate make-up for the clothes dryer. When there is inadequate ambient air to pull from, the dryer is starved and not capable of efficiently drying the clothes any longer. This extends the length of time for the dryer cycle wasting energy. It also reduce the life of the dryer since the fan is attempting to exhaust air that is not available.

Many clothes dryers are located in the basement of a home. When located in the basement, they have the available air in the basement as make-up air for exhausting the moisture. If a basement in 25 feet by 25 feet with an 8 foot ceiling, there is 5,000 cubic feet of available air. However, with an air exchange rate of 0.4, the available air for exhaust is 2000 cubic feet. That translates to 33.3 cfm of air. This means that the dryer has to draw air from other locations in order to properly operate, potentially pulling it from other unsafe sources.

Outside air is normally required by combustion air when the air infiltration rate is less than 0.4 as identified in Section G2407.5. This code change is consistent by requiring make-up air when the air exchange rate is below this value. The amount of air required for combustion air is normally less than the amount of make-up air for a dryer exhaust. An 80,000 Btu/hr furnace only requires between 16.6 and 26.6 cfm for combustion air, whereas the dryer requires between 125 and 200 cf

With a 4 inch duct, the make-up air can be provided at an acceptable rate. Furthermore, the fan in the clothes dryer would draw the make-up air through the make-up air duct.

A screened air admitting damper or equivalent device is necessary to prevent outside air from entering the home when the clothes dryer is not in use. The screen dimension are taken from Table 401.5 of the IMC for residential occupancies. The air admitting damper also prevents the loss of conditioned air when the dryer is not in use.

Cost Impact: Will increase the cost of construction
There will be an increase cost to install a make up air duct.

RM 8-15 : M1502.3 (New)-BALLANCO3701

RM 9-15

M1502.3

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com)

2015 International Residential Code

Revise as follows:

M1502.3 Duct termination. Exhaust ducts shall terminate on the outside of the building. Exhaust duct terminations shall be in accordance with the dryer manufacturer's installation instructions. If the manufacturer's instructions do not specify a termination location, the exhaust duct shall terminate not less than 3 feet (914 mm) in any direction from openings into buildings. Exhaust duct terminations shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination. <u>Exhaust duct penetrations of exterior wall and roof assemblies shall be sealed air-tight to prevent the dryer exhaust from re-entering the building.</u>

Reason: This change clarifies that the dryer exhaust must vent to the outside without the possibility of having the dryer exhaust return to the building. In some regions, friction-fitting a ducts' end into a roof cap appears to still be acceptable. This change adds the language to require a positive leak-proof assembly that will prevent the dryer exhaust from reentering the building. The high humidity of the dryer exhaust can cause all sorts of problems within the building elements if the dryer exhaust can reenter the building. Humidity control is an important part of any building design. As such, humid lint-laden air should never be given a path to enter the building after being exhausted.

Cost Impact: Will not increase the cost of construction
This change clarifies the intent of the code.

RM 9-15 : M1502.3-BALLANCO4119

RM 10-15

M1502.3

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com)

2015 International Residential Code

Revise as follows:

M1502.3 Duct termination. Exhaust ducts shall terminate on the outside of the building. Exhaust duct terminations shall be in accordance with the dryer manufacturer's installation instructions. If the manufacturer's instructions do not specify a termination location, the exhaust duct shall terminate not less than 3 feet (914 mm) in any direction from openings into buildings. Exhaust duct terminations shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination. <u>Dryer exhaust duct terminations shall, by design, provide access for cleaning the exhaust duct.</u>

Reason: The routine cleaning of the dryer exhaust ducts minimizes the potential for a fire in the duct as well as increasing the efficiency of the appliance. Duct cleaning services now provide this service for dryer exhaust ducts using a wand and brush. Many duct cleaning service companies enter the dryer exhaust duct through the duct termination. This offers an easy access to the dryer exhaust duct system. If a proper dryer exhaust terminal is not provided that allows ease of access, some companies have been known to wrongly remove the termination lid or cover creating a potential leak situation.

Examples of vent caps that duct cleaners wrongly disassemble to gain access.

Examples of vent caps that duct cleaners wrongly disassemble to gain access.

Cost Impact: Will increase the cost of construction
The exhaust terminal may cost more.

RM 10-15 : M1502.3-BALLANCO4122

RM 11-15

M1502.3.1 (New)

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com)

2015 International Residential Code

Add new text as follows:

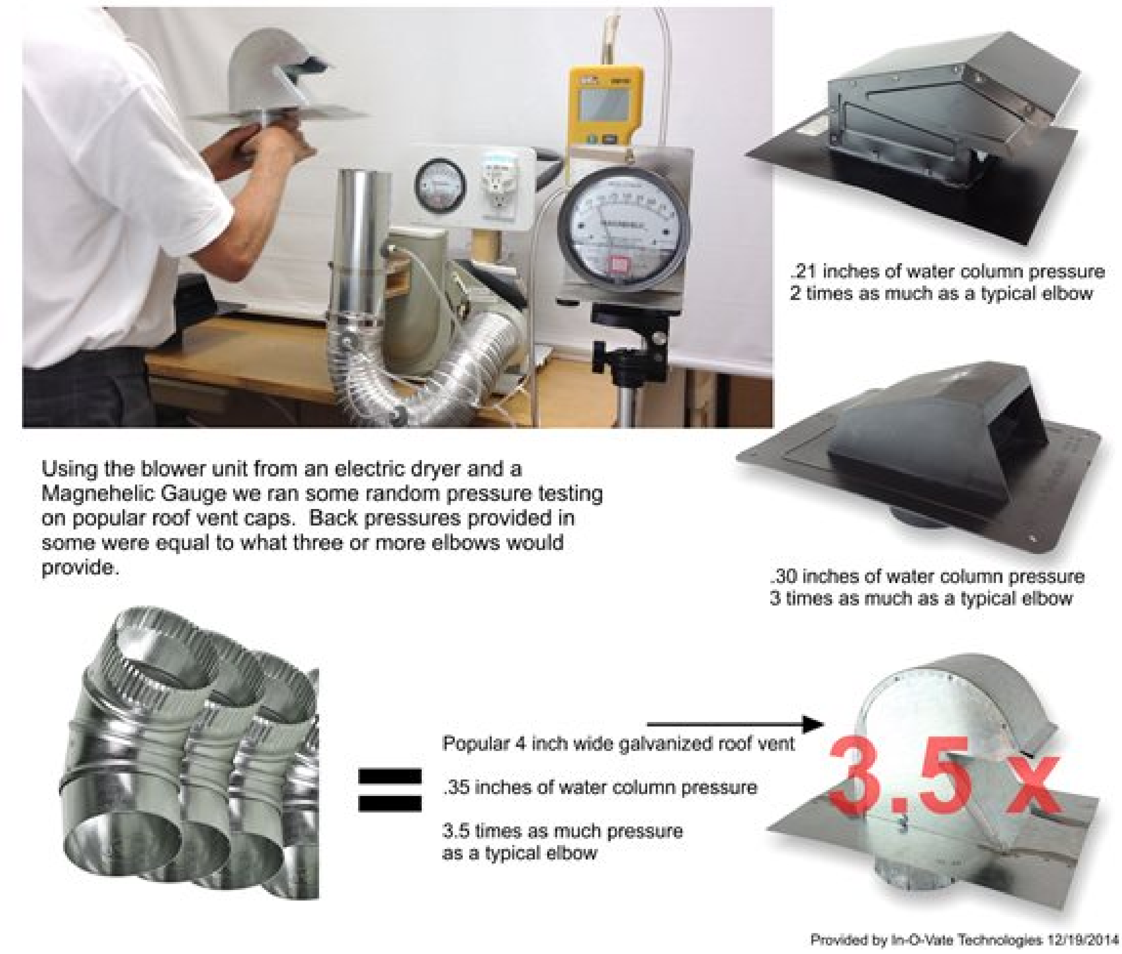
M1502.3.1 Exhaust termination outlet and passageway size. The passageway of dryer exhaust duct terminals shall be undiminished in size and shall provide an open area of not less than 12.5 square inches (8,065 sq mm).

Reason: The allowable (calculated) length of the dryer exhaust duct is based on an open (non-restrictive) exhaust terminal. Some exhaust terminals increase resistance due to their inherent design characteristics (path and final opening size). This results in the dryer exhaust duct having to be reduced in length. However, there is no allowance for a reduction in length for a highly resistant vent cap. Short of requiring testing standards for every vent termination, the code must require a minimum open area of 12.5 sq. inches which equates to a 4" round duct. The code is very sensitive and detailed as it relates to 90 degree elbows and their respective friction loss but does not prohibit or penalize for termination hoods that grossly create back pressure, reducing the efficiency of the dryer.
The dimension used for the opening in the interior area of the 4 inches duct is rounded to an even number (12.5"). By maintaining the same opening area throughout the vent terminal, the friction resistance in vent caps can be greatly reduced.

Video Links:

www.youtube.com/watch?v=5KnRp3eXNbk

http://youtu.be/ZL2zV1-GjdI?t=50s



Cost Impact: Will increase the cost of construction
The cost of the vent terminal may be higher.

RM 11-15 : M1502.3.1-BALLANCO4125

RM 12-15

M1502.4.2

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com)

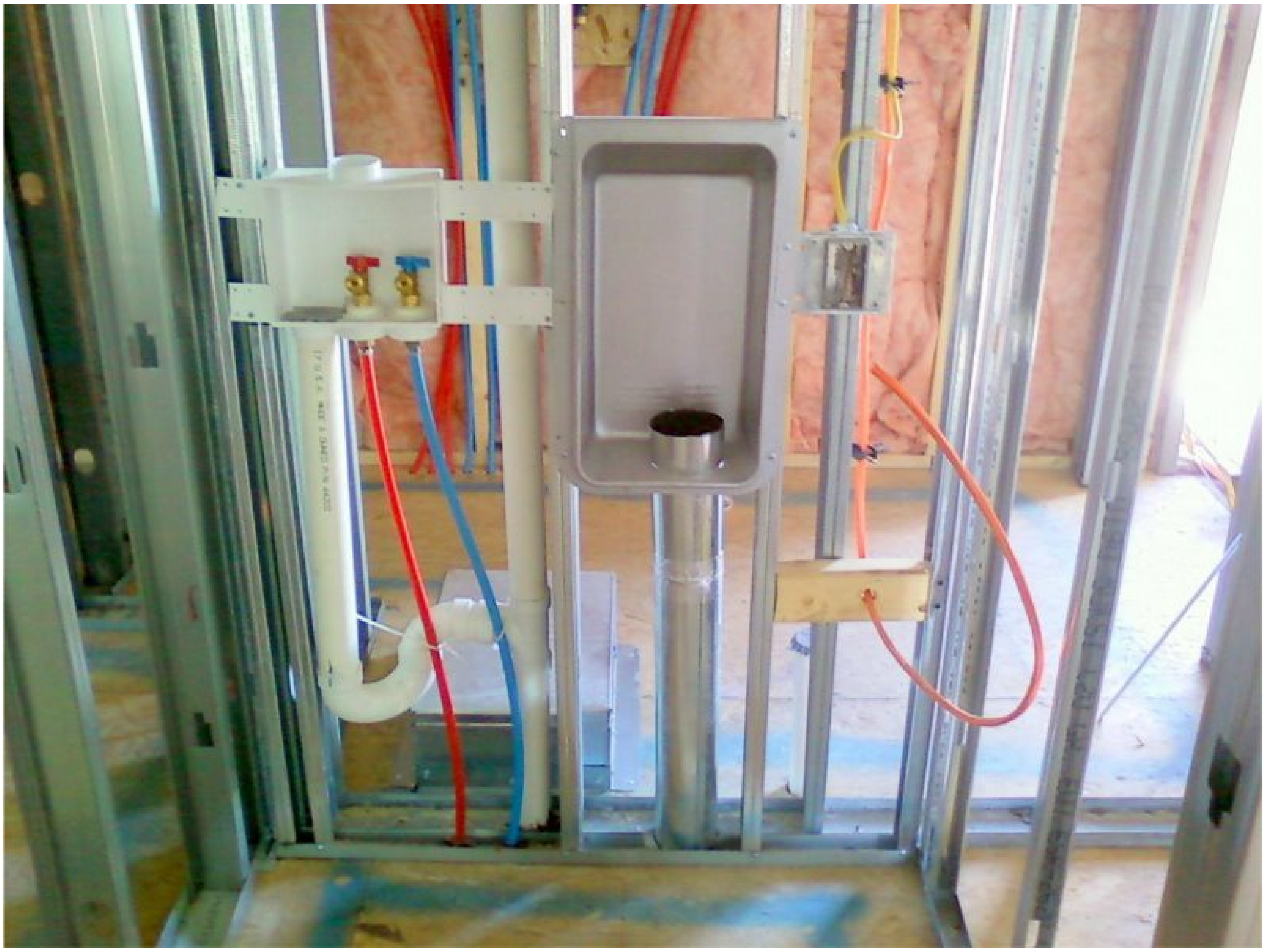
2015 International Residential Code

Revise as follows:

M1502.4.2 Duct installation. Exhaust ducts shall be supported at intervals not to exceed 12 feet (3658 mm) and shall be secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Exhaust duct joints shall be sealed in accordance with Section M1601.4.1 and shall be mechanically fastened. Ducts shall not be joined with screws or similar fasteners that protrude more than $^1/_8$ inch (3.2 mm) into the inside of the duct. <u>Where dryer exhaust ducts are enclosed in wall or ceiling cavities, such cavities shall have a least dimension of not less than 4.25 inches (108 mm). Round ducts shall not be deformed.</u>

Reason: The dryer exhaust duct must remain round in shape to reduce friction loss in the duct system. The length of the duct and termination are based on friction loss for round duct, not oval duct. The length of the dryer exhaust duct would have to be reduced if the 4 inch duct was oval in shape. In addition to the reduction in efficiency, the oval pipe creates a difficult connection for the consumer to make to the dryer exhaust transition hose.

A 1 inch furring strip (1x2) can be added to a 2 x 4 stud providing the 4.25 inches of space. In most cases, this "mechanical" wall is busy with other trades (plumbing drainage and vent stacks, gas piping, electric service, laundry services and water piping). A 4.25 inch space will benefit all of the trades working within that space. The minimum space required to keep the dryer exhaust duct round is 4.125 inches. This dimension could also be referenced here, however, most contractors




MOVIE

Examples of "mechanical walls" showing the abundance of utilities in this wall, demonstrating the need to provide more than 3.5"

Cost Impact: Will increase the cost of construction
There is an added cost for furring strips on a 2 x 4 wall.

RM 12-15 : M1502.4.2-BALLANCO4117

RM 13-15

M1502.4.2.1 (New)

Proponent: Rick Harpenau, In-O-Vate Technologies, representing In-O-Vate Technologies (rick@dryerbox.com)

2015 International Residential Code

Add new text as follows:

M1502.4.2.1 Exhaust termination pathways. . Dryer exhaust duct terminal pathways that cause a change in direction of air flow between 45 and 90 degrees shall have an area not less than 20 percent larger that the cross sectional area of the exhaust duct served. Dryer exhaust duct terminal pathways that cause a change in direction of air flow greater than 90 degrees shall have an area not less than 30 percent larger than the cross sectional area of the exhaust duct served. Exhaust duct terminal passageways shall maintain throughout an area of not less than 12.5 square inches (8,065 sq mm).

Reason: The code is very sensitive and detailed as it relates to 90 degree elbows and their respective friction loss but does not prohibit or penalize for termination hoods that grossly create back pressure, reducing the efficiency of the dryer. There are wall vents and roof vents on the market that with minimal testing equipment show clearly they create as much back pressure as 3 and 4 elbows. Short of requiring testing standards for every vent termination, the council should consider language whereby the passageway increases in size to make up for the friction causing bends. If this addition to the codes makes sense, actual calculations can be provided. Bottom line, treat terminations the same as elbows and run lengths.
Video Links:

www.youtube.com/watch?v=5KnRp3eXNbk

http://youtu.be/ZL2zV1-GjdI?t=50s

Cost Impact: Will increase the cost of construction
The increase size may result in a higher cost.

RM 13-15 : M1502.4.2.1 (New)-HARPENAU4553

RM 14-15

M1503, M1503.1 (New), M1503.2 (New), M1503.2.1 (New), M1503.1, M1503.2, M1505, M1505.1

Proponent: Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

2015 International Residential Code

Revise as follows:

SECTION M1503
~~RANGE HOODS~~DOMESTIC COOKING EXHAUST EQUIPMENT

Add new text as follows:

M1503.1 General. Domestic cooking exhaust equipment shall comply with the requirements of this section.

M1503.2 Domestic cooking exhaust. Where domestic cooking exhaust equipment is provided it shall comply with one of the following:

1. Overhead range hoods and downdraft exhaust equipment not integral with the cooking appliance shall be listed and labeled in accordance with UL 507.
2. Domestic cooking appliances with integral downdraft exhaust equipment shall be listed and labeled in accordance with UL 858 or ANSI Z21.1.
3. Microwave ovens with integral exhaust for installation over the cooking surface shall be listed and labeled in accordance with UL 923.

M1503.2.1 Open top broiler exhaust. Domestic open-top broiler units shall be provided with a metal exhaust hood, having a thickness of not less than 0.0157-inch (0.3950 mm) (No. 28 gage). Such hood shall be installed with a clearance of not less than 1 /4 inch (6.4 mm) between the hood and the underside of combustible material and cabinets. A clearance of not less than 24 inches (610 mm) shall be maintained between the cooking surface and combustible material and cabinets. The hood width shall be not less than the width of the broiler unit and shall extend over the entire unit.

> **Exception**: Broiler units that incorporate an integral exhaust system, and that are listed and labeled for use without an exhaust hood, shall not be required to have an exhaust hood.

Revise as follows:

~~M1503.1~~M1503.3 ~~General~~Exhaust discharge. ~~Range hoods~~ Domestic cooking exhaust equipment shall discharge to the outdoors through a duct. The duct ~~serving the hood~~ shall have a smooth interior surface, shall be air tight, shall be equipped with a back-draft damper and shall be independent of all other exhaust systems. Ducts serving range hoods shall not terminate in an attic or crawl space or areas inside the building.

> **Exception:** Where installed in accordance with the manufacturer's instructions, and where mechanical or natural *ventilation* is otherwise provided, *listed* and *labeled* ductless range hoods shall not be required to discharge to the outdoors.

~~M1503.2~~M1503.4 Duct material. Ducts serving ~~range hoods~~ domestic cooking exhaust equipment shall be constructed of galvanized steel, stainless steel or copper.

> **Exception:** Ducts for domestic kitchen cooking *appliances* equipped with down-draft exhaust systems shall be permitted to be constructed of schedule 40 PVC pipe and fittings provided that the installation complies with all of the following:
> 1. The duct is installed under a concrete slab poured on grade.
> 2. The underfloor trench in which the duct is installed is completely backfilled with sand or gravel.
> 3. The PVC duct extends not more than 1 inch (25 mm) above the indoor concrete floor surface.
> 4. The PVC duct extends not more than 1 inch (25 mm) above grade *outside of the building.*
> 5. The PVC ducts are solvent cemented.

Delete without substitution:

~~SECTIONM1505 OVERHEAD EXHAUST HOODS~~

~~**M1505.1 General.** Domestic open-top broiler units shall have a metal exhaust hood, having a minimum thickness of 0.0157-inch (0.3950 mm) (No. 28 gage) with $^{1}/_{4}$ inch (6.4 mm) clearance between the hood and the underside of combustible material or cabinets. A clearance of not less than 24 inches (610 mm) shall be maintained between the cooking surface and the combustible material or cabinet. The hood shall be not less than the width of the broiler unit, extend over the entire unit, discharge to the outdoors and be equipped with a backdraft damper or other means to control infiltration/exfiltration when not in operation. Broiler units incorporating an integral exhaust system, and *listed* and *labeled* for use without an exhaust hood, need not have an exhaust hood.~~

Reason: This proposal accomplishes the following:

1. Changes the name of Section M1503 from Range Hoods to Domestic Cooking Exhaust Equipment, which more accurately reflects the duct, makeup air, and exhaust air requirements in the section.
2. Adds a charging paragraph for the Section to M1503.1.
3. Describes the listing standards used to investigate the various types of exhaust equipment in Section M1503.2.
4. Relocates Section M1505.1 for open top broilers to section M1503.2.1.
5. Makes editorial revisions for clarity.

Cost Impact: Will not increase the cost of construction
It is primarily editorial in nature.

RM 14-15 : M1503-ROBERTS5726

RM 15-15

M1503.4, M1503.4.1, M1503.4.2 (New)

Proponent: Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport Ventures (mmoore@newportventures.net)

2015 International Residential Code

Revise as follows:

M1503.4 Makeup air required. ~~Exhaust hood systems~~Where one or more gas-, liquid-, or solid-fuel- burning appliance that is neither direct -vent nor uses a mechanical draft venting system is located within a dwelling unit's air barrier, each exhaust system capable of exhausting in excess of 400 cubic feet per minute (0.19 m^3/s) shall be mechanically or ~~naturally~~ passively provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with not less than one damper complying with Section M1503.4.2. ~~Each damper shall~~

> **Exception:** Makeup air is not required for exhaust systems installed for the exclusive purpose of space cooling and intended to be ~~a gravity damper~~operated only when windows or ~~an electrically operated damper that automatically opens when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any~~ other ~~ducts not connected to the damper being inspected, serviced, repaired or replaced.~~air inlets are open.

M1503.4.1 Location. Kitchen exhaust makeup air shall be discharged into the same room in which the exhaust system is located or into rooms or *duct systems* that communicate through one or more permanent openings with the room in which such exhaust system is located. Such permanent openings shall have a net cross-sectional area not less than the required area of the makeup air supply openings.

Add new text as follows:

M1503.4.2 Makeup air dampers Where makeup air is required by Section M1503.4, makeup air dampers shall comply with this section. Each damper shall be a gravity damper or an electrically operated damper that automatically opens when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced. Gravity or barometric dampers shall not be used in passive makeup air systems except where the dampers are rated to provide the design makeup airflow at a pressure differential of 0.01 in. w.c. (3 Pa) or less.

Reason:

Backdrafting of combustion appliances typically presents the greatest danger associated with depressurizing a space. Field tests have confirmed that naturally vented combustion appliances (i.e., those that are not mechanically vented or direct-vent) are the most susceptible to depressurization, and measures should be taken to provide makeup air (MUA) for large exhaust appliances when such appliances are located within the dwelling unit's air barrier. ASHRAE 62.2, the consensus standard for Ventilation and Acceptable Indoor Air Quality in residential dwelling units, does not require MUA when combustion appliances are mechanically vented or are direct-vent. The ASHRAE 62.2 committee recently reviewed the 62.2 section requiring MUA, and the general consensus (no vote taken) was a reaffirmation that the MUA requirement should not apply to mechanically vented or direct-vent combustion appliances, due to lack of data to substantiate their susceptibility to backdrafting.

This proposal would relax the MUA requirement in the IRC by aligning it more closely with ASHRAE 62.2. Similar changes have been made to this section in Florida's and Virginia's adoptions of the IRC.

The proposal introduces a new section to address MUA dampers specifically, moving the text from M1503.4 to M1503.4.2 and introducing one new requirement for gravity or barometric dampers. It makes no sense to design a system to provide MUA if the damper does not open before the combustion appliance starts spilling. So, the new requirement is intended to ensure that when MUA is required, any gravity or barometric damper used to provide MUA shall engage at the pressure differential above which naturally drafted combustion appliances can be expected to backdraft (3 Pa, based on an acceptable 5%-20% failure rate across all outdoor conditions)[1]. This proposed requirement only applies to gravity or barometric dampers in "passive" MUA systems, which are those that provide MUA without the assistance of a fan. Gravity or barometric dampers in "active" MUA systems are excluded from this requirement because we assume that the fan will create a sufficient pressure differential to open the damper.

A companion proposal has been submitted to the IMC.

Bibliography:

1. Bohac, D., et al. (2002). Ventilation and Depressurization Information for Houses Undergoing Remodeling. Accessed on Dec 5, 2014 at: http://www.mncee.org/getattachment/eedb1afc-f50e-4833-b450-d52233f58ce0/.

Cost Impact: Will not increase the cost of construction
This proposal is expected to reduce construction costs by reducing the number of scenarios requiring makeup air for kitchen exhaust.

RM 15-15 : M1503.4-MOORE4878

RM 16-15

M1503.4

Proponent: Janine Snyder, City of Thornton, Colorado, representing Colorado Association of Plumbing & Mechanical Officials (CAPMO) (Janine.Snyder@cityofthornton.net)

2015 International Residential Code

Revise as follows:

M1503.4 Makeup air required. Exhaust ~~hood~~ systems capable of exhausting in excess of 400 cubic feet per minute (0.19 m^3/s) shall be mechanically or naturally provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with not less than one damper. Each damper shall be a gravity damper or an electrically operated damper that automatically opens when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced.

Reason: The proposed change allows the code to capture down draft systems as well and not just apply to hoods.

Cost Impact: Will not increase the cost of construction
This will allow consistency with all exhaust systems.

RM 16-15 : M1503.4-SNYDER4454

RM 17-15

M1503.4

Proponent: Janine Snyder, City of Thornton, Colorado, representing Colorado Association of Plumbing & Mechanical Officials (CAPMO) (Janine.Snyder@cityofthornton.net)

2015 International Residential Code

Delete and substitute as follows:

M1503.4 Makeup air required. ~~Exhaust hood systems capable of exhausting in excess of 400 cubic feet per minute (0.19 m^3/s) shall be mechanically or naturally provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with not less than one damper. Each damper shall be a gravity damper or an electrically operated damper that automatically opens when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced.~~

<u>Exhaust hood systems capable of exhausting in excess of 400 cubic feet per minute (0.19 m^3/s) shall be mechanically or naturally provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with not less than one damper. Each damper shall be an electrically operated damper that automatically opens when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced.</u>

Reason: By practice they just don't work unless installed running downhill in the duct which can create a faulty seal within the duct allowing additional leakage. The whole intent is to have the electronic connection between the hood and damper. Volume dampers are subject to not fully closing when installed in the horizontal run due to wind and interior vs exterior pressure diffentials. Additionally, they can create an unintended opening in the building envelope which is a prohibition in the energy code.

Cost Impact: Will increase the cost of construction
This will slightly increase the cost of construction by returning to practices. However, the energy cost impact of having an opening into a conditioned structure from the exterior mitigates the increased construction cost.

RM 17-15 : M1503.4-SNYDER5667

RM 18-15

M1503.4

Proponent: Donald Surrena, National Association of Home Builders, representing National Association of Home Builders (dsurrena@nahb.org)

2015 International Residential Code

Revise as follows:

M1503.4 Makeup air required. Exhaust hood systems capable of exhausting in excess of 400 cubic feet per minute (0.19 m^3/s) shall be mechanically or naturally provided with makeup air at a rate approximately equal to the exhaust air rate that is in excess of 400 cubic feet per minute. Such makeup air systems shall be equipped with not less than one damper. Each damper shall be a gravity damper or an electrically operated damper that automatically opens when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced.

Exception:

1. Makeup air provisions are not required for dwellings that do not contain naturally vented appliances or solid fuel- burning appliances.
2. Makeup air provisions are not required for kitchen exhaust systems that are capable of exhausting not greater than 600 cubic feet per minute (0.28 m3/s) provided that one or more of the following conditions is met.
3. The floor area within the air barrier of a dwelling unit is not less than 1500 square feet (139 m2), and natural draft type and mechanical draft type space-heating or water-heating appliances are not located within the air barrier.
4. The floor area within the air barrier of a dwelling unit is not less than 3000 square feet (279 m2), and natural draft type space-heating or water-heating appliances are not located within the air barrier.

Reason: This proposal makes two functional changes to the makeup air requirements. First, it reduces the makup air requirement to only be the amount in excess of 400 cfm rather than the entire amount of ehxaust. Second, the change includes exceptions to allow higher exhaust rates for larger homes.
As orginially written in the 2015 IRC, section M1503.4 allows range hoods up to 400 cfm to be installed without makup air. It would be consistent to require makeup air equaling the excess of 400 cfm for larger capacity fans. Essentially, there would be no difference between the effect a 400 cfm fan has on a hous and a 600 cfm fan with 200 cfm of makup air. This would also improve the feasibility and acceptance of this code section as well as reduce wasted energy and potential occupant discomfort caused by needlessly introducing excessive amounts of unconditioned air.

This will ultimately improve the feasibility and acceptance of this code section as well as cut down on the amount of wasted energy and potential occupant discomfort caused by needlessly introducing excessive amounts of unconditioned air.

Cost Impact: Will not increase the cost of construction
Houses meeting the exception will reduce construction cost by at least $150. This savings include not installing an outdoor air supply duct and a gravity damper in addition to the ongoing energy savings to the home owner.

RM 18-15 : M1503.4-SURRENA5020

RM 19-15

M1504.1, M1901.1, M1901.2

Proponent: Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

2015 International Residential Code

Delete without substitution:

~~**M1504.1 Installation of a microwave oven over a cooking appliance.** The installation of a *listed* and *labeled* cooking *appliance* or microwave oven over a *listed* and *labeled* cooking *appliance* shall conform to the terms of the upper *appliance'slisting* and *label* and the manufacturer's installation instructions. The microwave oven shall conform to UL 923.~~

Revise as follows:

M1901.1 Clearances. Freestanding or built-in ranges shall have a vertical clearance above the cooking top of not less than 30 inches (762 mm) to unprotected combustible material. Reduced clearances are permitted in accordance with the *listing* and *labeling* of the range hoods or ~~*appliances*. The installation of a listed and labeled cooking appliance or~~ microwave ~~oven over a listed and labeled cooking appliance shall be in accordance~~ovens with ~~Section M1504.1. The clearances for a domestic open-top broiler unit shall be in accordance with Section M1505.1.~~integral exhaust.

M1901.2 Cooking appliances. Cooking *appliances* shall be *listed* and *labeled* for household use and shall be installed in accordance with the manufacturer's instructions. The installation shall not interfere with *combustion air* or access for operation and servicing. Electric cooking appliances shall comply with UL 1026 or UL 858. Solid-fuel-fired fireplace stoves shall comply with UL 737. Microwave ovens shall comply with UL 923.

Reason: This proposal clarifies installation criteria for microwave ovens with integral exhaust fans that are installed above cooking surfaces. It does this as follows:

1. Deletes Section M1504.1. Those requirements primarily deal with clearances, which is covered by Section M1901.1.
2. Section M1901.1 was revised to clarify that reduced clearances to combustible material can be done in accordance with the listing and labeling of the microwave oven with integral exhaust.
3. The reference to microwave ovens complying with UL 923 was moved from deleted Section M1504.1 to Section M1901.2.

Cost Impact: Will not increase the cost of construction
Editorial changes only.

RM 19-15 : M1504.1-ROBERTS5767

RM 20-15

M1506.3, R303.5, R303.5.1, R303.5.2

Proponent: Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport (mmoore@newportventures.net)

2015 International Residential Code

Revise as follows:

M1506.3 Exhaust openings. ~~Air exhaust openings shall terminate not less than 3 feet (914 mm) from property lines; 3 feet (914 mm) from operable and nonoperable openings into the building and 10 feet (3048 mm) from mechanical air intakes except where the opening is located 3 feet (914 mm) above the air intake.~~
Openings shall comply with Sections R303.5.2 and R303.6.

R303.5 Opening location. Outdoor intake and exhaust openings shall be located in accordance with Sections R303.5.1 and R303.5.2.

R303.5.1 Intake openings. Mechanical and gravity outdoor air intake openings shall be located not less than 10 feet (3048 mm) from any hazardous or noxious contaminant source, such as vents, chimneys, plumbing vents, streets, alleys, parking lots and loading docks.

For the purpose of this section, the exhaust from *dwelling* unit toilet rooms, bathrooms, kitchens, and ~~kitchens~~other living space shall not be considered as hazardous or noxious.

~~**Exceptions:**~~

1. ~~The 10-foot (3048 mm) separation is not required where the intake opening is located 3 feet (914 mm) or greater below the contaminant source.~~
2. ~~Vents and chimneys serving fuel-burning appliances shall be terminated in accordance with the applicable provisions of Chapters 18 and 24.~~
3. ~~Clothes dryer exhaust ducts shall be terminated in accordance with Section M1502.3.~~

R303.5.2 Exhaust openings. Exhaust air shall not be directed onto walkways. Air exhaust openings shall terminate not less than 3 feet (914 mm) from property lines; 3 feet (914 mm) from operable and nonoperable openings into the building; and 10 feet (3048 mm) from mechanical air intakes.

Exceptions:

1. The 10-foot (3048 mm) separation between intake and exhaust openings is not required where the intake opening is located 3 feet (914 mm) or greater below the contaminant source.
2. Vents and chimneys serving fuel-burning appliances shall be terminated in accordance with the applicable provisions of Chapters 18 and 24.
3. Clothes dryer exhaust ducts shall be terminated in accordance with Section M1502.3.
4. Where a combined exhaust and intake terminal is used to separate intake air from exhaust air originating in living space other than kitchens, a minimum separation distance between these two openings is not required provided that the exhaust air concentration within the intake air flow does not exceed 10%, as established by the manufacturer of such terminal.

Reason:
Combined exhaust/supply terminations are regularly installed with heating and energy recovery ventilators (H/ERVs). Their use reduces building penetrations, labor, and associated system costs. By reducing the number of penetrations, air leakage can also be reduced, resulting in space conditioning energy savings. Further, the durability of the structure can be improved through reducing entry pathways for bulk water. Combined terminations are regularly approved and installed in single family and multifamily dwelling units across the country, and manufacturer tests have demonstrated that minimum cross-contamination of airflow results from these terminations. There is currently no industry standard by which to test these units, so we have simply proposed that their performance be verified by the manufacturer, as is the practice in other areas of the code (M2002.5, R502.7, R502.8.2, R703.11.1.1, R802.7.2, R905.2.6, R1003.15.1, R1003.15.2, G2405.3, etc.). The 10% cross contamination metric is based on language in ASHRAE 62.1 that limits cross contamination of exhaust and supply streams to 10% for "air with moderate contaminant concentration, mild sensory-irritation intensity, or mildly offensive odors"; a similar exception exists in the IMC, Section 514.4. In both the IMC and ASHRAE 62.1, no standard is cited for determining cross-contamination, presumably because none yet exists. All exceptions were moved to the exhaust openings section because two of the four exceptions address only exhaust openings; the other two exceptions apply to both intake and exhaust openings, so could feasibly be located in either section.

Cost Impact: Will not increase the cost of construction

This proposal is expected to reduce construction costs by eliminating the need for a second wall cap and extra ducting that would otherwise be required to separate intake and exhaust airstreams.

RM 20-15 : M1506.3-MOORE4871

RM 21-15

M1506.3

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Residential Code

Delete and substitute as follows:

M1506.3 Exhaust openings. ~~Air exhaust openings shall terminate not less than 3 feet (914 mm) from property lines; 3 feet (914 mm) from operable and nonoperable openings into the building and 10 feet (3048 mm) from mechanical air intakes except where the opening is located 3 feet (914 mm) above the air intake. Openings shall comply with Sections R303.5.2 and R303.6.~~
Air exhaust openings shall terminate as follows:

1. Not less than 3 feet (914 mm) from property lines.
2. Not less than 3 feet (914 mm) from gravity air intake openings, operable windows and doors..
3. Not less than 10 feet (3048 mm) from mechanical air intakes openings except where the exhaust opening is located not less than 3 feet (914 mm) above the air intake opening. Openings shall comply with Sections R303.5.2 and R303.6.

Reason: This section has been misinterpreted because of its poor language and structure. It reads much better in a list format and the necessary clarifiers "not less than" were added where the code appeared to be requiring an exact distance of 3 or 10 feet. The terms "operable and nonoperable openings" are ambiguous because they could be referring to windows that don't open (inoperable) or grilles and louvers that have no means of closure. The intent, of course, is simply to regulate the distance to air intake openings, doors and operable windows. A fixed glass panel can be viewed as an opening, but there is no reason to limit the distance to an exhaust opening from a fixed glass panel. The last requirement relative to mechanical air intakes confused the words "opening" and "intakes," both of which are openings. The revised text cleans up this section with no change in intent.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

RM 21-15 : M1506.3-SNYDER3285

RM 22-15

M1507.2

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Residential Code

Revise as follows:

M1507.2 Recirculation of air. Exhaust air from bathrooms and toilet rooms shall not be recirculated within a residence or circulated to another *dwelling unit* and shall be exhausted directly to the outdoors. Exhaust air from bathrooms ~~and~~, toilet rooms and kitchens shall not discharge into an *attic*, crawl space or other areas inside the building. This section shall not prohibit the installation of ductless range hoods in accordance with the exception to Section M1503.1.

Reason: This section fails to include kitchen exhaust. The code should not allow kitchen exhaust to discharge to another dwelling unit or to an attic, crawl space, etc. any more than it should allow the same for toilet and bathroom exhaust. The new added last sentence makes sure that ductless range hoods are not prohibited because such simulated exhaust devices are allowed by Section M1503.1 as long as other ventilation is provided for the kitchen.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction in those cases where the kitchen exhaust would have been recirculated or discharged to a location other than outdoors.

RM 22-15 : M1507.2-SNYDER3286

RM 23-15

M1507.3 (New)

Proponent: Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport (mmoore@newportventures.net)

2015 International Residential Code

Add new text as follows:

M1507.3 Ventilating equipment. Exhaust equipment serving single dwelling units shall be listed and labeled as providing the minimum required air flow in accordance with ANSI/AMCA 210-ANSI/ASHRAE 51.

Reason:
Industry experience and research have shown that "for advertised airflows that are not certified, the actual installed airflow can be a small fraction of the advertised value".[1] Without a code minimum requirement for listing and labeling flows in accordance with an ANSI standard, there is nothing in place to stop a manufacturer from reporting an airflow under whatever conditions they please (e.g., the condition with no duct work attached). Requiring listing and labeling of ventilating equipment per ANSI/AMCA 210 - ANSI/ASHRAE 51 is the first step in ensuring that fans perform to expectations. In 2015, the IRC adopted a requirement for fans to be tested per ANSI/AMCA 210 - ANSI/ASHRAE 51 when using prescriptive duct sizing Table M1506.2 (see footnote "a"). This proposal would simply elevate that requirement from a footnote to a place where it can actually be seen within the code.

Listing and labeling of products tested to this standard is maintained by the Home Ventilating Institute, which has been in operation for decades. Verification of listing and labeling to this standard can be accomplished by visually inspecting the equipment for an HVI sticker or by looking up the equipment in the on-line database.[2] Certification by HVI in accordance with ANSI/AMCA 210 - ANSI/ASHRAE 51 is already required by ASHRAE 62.2, ENERGY STAR for Homes, and the State of California, among other groups. Roughly 12,000 ventilating equipment products are listed, labeled, and can be referenced in the HVI directory.

Bibliography:
1. Singer, B. C., Delp, W. W., Apte, M., & Price, P. N. (2011). Performance of Installed Cooking Exhaust Devices. LBNL-5265E. Berkeley, CA: Lawrence Berkeley National Laboratory.
2. Home Ventilating Institute. HVI-Certified Products Directory. http://hvi.org/proddirectory/index.cfm . Accessed December 10, 2014.

Cost Impact: Will increase the cost of construction
Over 12,000 ventilating equipment products are labeled and listed in the HVI directory. These fans are tested for airflow in accordance with ANSI/AMCA 210-ANSI/ASHRAE 51. For these products, there will be no incremental cost associated with this change. For equipment that is not currently tested, listed, and labeled, the incremental costs are highly dependent upon volume of the specific products sold.

Analysis: A review of the standard proposed for inclusion in the code, ANSI/AMCA 210- ANSI/ASHRAE 51 , with regard to the ICC criteria for referenced
standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

RM 23-15 : M1507.3 (New)-MOORE4899

RM 24-15

M1507.3, M1507.3.1, M1507.3.2, M1507.3.3, Table M1507.3.3(1), Table M1507.3.3(2), M1507.3.4 (New), Table M1507.4.4, M1507.3.5 (New), M1507.4, Table M1507.4

Proponent: Craig Conner, representing self (craig.conner@mac.com); Joseph Lstiburek, representing self (joe@buildingscience.com)

2015 International Residential Code

Revise as follows:

M1507.3 Whole-house mechanical ventilation system. Whole-house mechanical ventilation systems shall be designed in accordance with Sections M1507.3.1 through ~~M1507.3.3~~ M1507.3.6.

M1507.3.1 System design. *No change to text.*

M1507.3.2 System controls. *No change to text.*

M1507.3.3 Mechanical ventilation rate. The whole-house mechanical ventilation system shall provide outdoor air at ~~a continuous~~ an average rate of not less than that determined ~~in accordance with~~ by Equation 15-1 or ~~TableM1507.3.3(1)~~ Table M1507.3.3.

$$Q_r = (0.01 \times A_{floor}) + [7.5 \times (N_{br} + 1)] \qquad \textbf{(Equation 15-1)}$$

where:

Q_r =ventilation flow rate, cubic feet per minute (cfm)

A_{floor} = floor area in square feet (ft^2)

N_{br} = number of bedrooms, not less than one

~~Exception: The whole-house mechanical system is permitted to operate intermittently where the system has controls that enable operation for 25-percent of each 4-hour segment and the ventilation rate prescribed in Table M1507.3.3(1) is multiplied by the factor determined in accordance with Table M1507.3.3(2).~~

TABLE M1507.3.3 ~~(1)~~
~~CONTINUOUS~~ WHOLE-HOUSE MECHANICAL VENTILATION ~~SYSTEM~~ AIRFLOW RATE ~~REQUIREMENTS~~

DWELLING UNIT FLOOR AREA (square feet)	NUMBER OF BEDROOMS				
	0 – 1	2 – 3	4 – 5	6 – 7	> 7
	Airflow in CFM				
<1,500	30	45	60	75	90
1,501 – 3,000	45	60	75	90	105
3,001 – 4,500	60	75	90	105	120
4,501 – 6,000	75	90	105	120	135
6,001 – 7,500	90	105	120	135	150
> 7,500	105	120	135	150	165

For SI: 1 square foot = 0.0929 m^2, 1 cubic foot per minute = 0.0004719 m^3/s.

Delete without substitution:

~~TABLE M1507.3.3(2)~~

~~INTERMITTENT WHOLE-HOUSE MECHANICAL VENTILATION RATE FACTORS~~~~[a, b]~~

Portions of table not shown for clarity

~~a. For ventilation system run time values between those given, the factors are permitted to be determined by interpolation.~~

~~b. Extrapolation beyond the table is prohibited.~~

Add new text as follows:

M1507.3.4 Ventilation quality adjustment The required whole house ventilation rate from Section M1507.3 shall be adjusted by the system coefficient in Table 1507.3.4 based on the system type using Equation 15-2.

$Q_v = Q_r \times C_{system}$ **(Equation 15-2)**

where:

Q_r = ventilation rate in cubic feet per minute from Equation 15-1

C_{system} = system coefficient from Table M1507.3.4

TABLE M1507.3.4
SYSTEM COEFFICIENT

SYSTEM TYPE	**DISTRIBUTED**[a]		**NOT DISTRIBUTED**[a]	
	MIXED[b]	**NOT MIXED**[b]	**MIXED**[b]	**NOT MIXED**[b]
Balanced[c]	0.75	1.0	1.0	1.25
Not Balanced[c]	1.0	1.25	1.25	1.5

a. "Distributed" shall apply where outdoor ventilation air is supplied directly to each bedroom and the largest common area; otherwise "not distributed" shall apply.

b. " Mixed" shall apply where not less than 70% of the whole building air volume is recirculated each hour by one or more mechanical systems, otherwise "not mixed" shall apply. Where a central heating or cooling air handler fan is used to provide the mixing, the design heating or cooling airflow rate shall be used to determine the operation time setting required.

c. "Balanced" shall apply where two or more fans simultaneously supply outdoor air and exhaust air at approximately the same rate; otherwise "not balanced" shall apply. Where outdoor air is supplied by a central forced air system, "balanced" shall apply only where the fan for such system operates simultaneously with the exhaust fan(s) .

M1507.3.5 Intermittent operation Systems controlled to operate intermittently shall operate for not less thant one hour in each four hour period. The ventilation rate provided by systems controlled to operate intermittently shall be computed as the average ventilaton provided including both times of operation and non-operation.

Revise as follows:

~~M1507.4~~M1507.3.6 Local exhaust rates. Local exhaust systems shall ~~be designed to~~ have the capacity to exhaust the minimum air flow rate ~~determined~~ in accordance with Table ~~M1507.4~~M1507.3.6. Fans required by this section shall be provided with controls that enable manual override, such as an on and off switch. Fan controls shall be provided with ready access from the room served by the fan.

~~TABLE M1507.4~~ TABLE M1507.3.6
MINIMUM ~~REQUIRED~~ LOCAL EXHAUST RATES ~~FOR ONE- AND TWO-FAMILY DWELLINGS~~

AREA TO BE EXHAUSTED	EXHAUST RATES
Kitchens	100 cfm ~~intermittent or 25 cfm continuous~~
Bathrooms-Toilet Rooms	~~Mechanical exhaust capacity of~~ 50 cfm ~~intermittent or 20 cfm continuous~~

Reason: This proposed change adds the equation to compute minimum ventilation rates, adjusts airflow rates based on the effectiveness of the ventilation system type, more clearly states that the occupants shall have controls to adjust the ventilation, and makes several changes to clarify the ventilation section.
The equation on which Table M1507.3.3 is based is added explicitly as Equation 15-1. The equation is an alternative to the ventilation rates in Table M1507.3.3. The rate computed by Equation 15-1 is often lower than the table because the rates in the table have been rounded up to the largest floor area and highest number of bedrooms for each cell in the table.

Some types of ventilation work better than others. The proposal adds a ventilation quality adjustment (new M1507.3.4) based on the type of ventilation system.

This change improves on the code language; for example, although Section M1507.3.3 says the requirement is for a continuous rate, it is clear the section also allows intermittent ventilation. Unneeded words are eliminated. For example the existing Table M1507.3.3(2) and the discussion on "intermittent" in the exception is a long-winded ways of saying rates that are averaged over 4 hour periods also work.

This change makes it clear that occupants can control kitchen and bath fans, allowing them to increase the ventilation when needed. For example, increasing the ventilation if food is burned in the kitchen, or odors in the bathroom suggest higher levels of ventilation.

Some argue ventilation rates need to be substantially increased, but they do not provide evidence that existing rates are inadequate. The existing ventilation rates in the IRC have been used in many programs over the past two decades: Environments for Living program, Engineered for Life program, Energy and Environmental Building Association (EEBA) building recommendations, DOE Building America program experience, Canada's R-2000 program and Canada's Energy Star program.

Excess ventilation causes problems. Excess ventilation causes part load humidity problems in humid climates, which can lead to mold. Excess ventilation causes buildings to get overly dry during the winter leading to problems with wood finishes and furniture. Excess ventilation can cause discomfort to occupants leading to the installation of humidifiers which can be sources of indoor pollutants, leading the occupants to turn off the ventilation system which defeats the purpose of providing ventilation. Finally excessive ventilation leads to big energy costs.

Cost Impact: Will not increase the cost of construction
Overall costs should not increase. The required ventilation airflow rates are based on the same equation as the existing code. Ventilation rates required by the Equation 15-1 option are the same or slightly less than in the existing Table M1507.3.3(1). There will be some increases or decreases in cost depending on the system type, with the code change encouraging the use of the more effective systems. Some options, such as providing ventilation air through a central forced air system, are an inexpensive way to provide ventilation that is both "distributed" and "mixed". Most builders are already using the larger fans in Table M1507.3.6. Operating costs should go down due to encouraging the use of more effective ventilation system types and letting the occupant control ventilation to use it when most needed.

RM 24-15 : M1507.3-CONNER5337

RM 25-15

M1507.3.2

Proponent: Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport (mmoore@newportventures.net)

2015 International Residential Code

Revise as follows:

M1507.3.2 System controls. The whole-house mechanical ventilation system shall be provided with controls that enable manual override. Such controls shall be provided with text or a symbol that indicates the control's function.

Reason:
Tight homes are being outfitted with code-mandated whole-house mechanical ventilation systems. These systems are often simply a bathroom exhaust fan expected to run continuously. The problem is that without a label indicating the system's function, homeowners have no idea of the purpose of these systems and are likely to turn them off – thereby increasing the rate of accumulation of harmful indoor pollutants without their knowledge. At a minimum, these systems should be labeled to indicate that they are different than a typical bath fan.

Cost Impact: Will increase the cost of construction
This proposal is expected to have minimal cost impacts, as it simply involves labeling equipment for its intended purpose. This label could either be supplied from manufacturers (incremental cost would probably be <$0.10) or field-applied.

RM 25-15 : M1507.3.2-MOORE4894

RM 26-15

M1507.3.3, Chapter 44

Proponent: Robby Schwarz, EnergyLogic, Inc., representing EnergyLogic, Inc. (robby@nrglogic.com)

2015 International Residential Code

Revise as follows:

M1507.3.3 Mechanical ventilation rate. The whole-house mechanical ventilation system shall provide outdoor air at a continuous rate ~~of not less than that~~ as determined in accordance with Table M1507.3.3(1) or in accordance with Equation 15-1.

Equation 15-1
Ventilation rate =(0.01 CFM x total square foot area of house) + [(number of bedrooms +1) x 7.5 CFM]

> **Exception:** The whole-house mechanical ventilation system is permitted to operate intermittently where the system has controls that enable operation for not less than 25-percent of each 4-hour segment and the ventilation rate prescribed in Table M1507.3.3(1) is multiplied by the factor determined in accordance with Table M1507.3.3(2).

Add new standard(s) as follows:
ASHRAE 62.2 - 2010 Ventilation and Acceptable Indoor Air Quaility in Low-Rise Residential Buildings

Reason: Many Builders and Designers would like to be more precise in the specification of the air that is utilized to ventilate a home. The table is good to ensure that ventilation is occurring in a home and for a quick guide for the quantity of air that is needed for whole house mechanical ventilation, but the formula is more precise especially for homes that are on the small side in the floor area chart.

M1507.3.3 Mechanical ventilation rate. The whole-house mechanical ventilation system shall provide outdoor air at a continuous rate of not less than that determined in accordance with Table M1507.3.3(1).

Exception: The whole-house mechanical ventilation system is permitted to operate intermittently where the system has controls that enable operation for not less than 25-percent of each 4-hour segment and the ventilation rate prescribed in Table M1507.3.3(1) is multiplied by the factor determined in accordance with Table M1507.3.3(2).

TABLE M1507.3.3(1)
CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE REQUIREMENTS

DWELLING UNIT FLOOR AREA (square feet)	NUMBER OF BEDROOMS				
	0 – 1	2 – 3	4 – 5	6 – 7	> 7
	Airflow in CFM				
< 1,500	30	45	60	75	90
1,501 - 3,000	45	60	75	90	105
3,001 - 4,500	60	75	90	105	120
4,501 - 6,000	75	90	105	120	135
6,001 - 7,500	90	105	120	135	150
> 7,500	105	120	135	150	165

For SI: 1 square foot = 0.0929 m^2, 1 cubic foot per minute = 0.0004719 m^3/s.

TABLE M1507.3.3(2)
INTERMITTENT WHOLE-HOUSE MECHANICAL VENTILATION RATE FACTORS[a, b]

RUN-TIME PERCENTAGE IN EACH 4-HOUR SEGMENT	25%	33%	50%	66%	75%	100%
Factor[a]	4	3	2	1.5	1.3	1.0

a. For ventilation system run time values between those given, the factors are permitted to be determined by interpolation.
b. Extrapolation beyond the table is prohibited.

M1507.3.3 Mechanical ventilation rate. The whole house mechanical ventilation system shall provide outdoor air at a continuous ~~rate of not less than that~~as determined in accordance with Table M1507.3.3(1) or the ASHRAE 62.2 formula (0.01 CFM x total sqft of house) + ((number of bedrooms +1) x 7.5CFM) .

Rational Statement:

Many Builders and Designers would like to be more precise in the specification of the air that is utilized to ventilate a home. The table is good to ensure that ventilation is occurring in a home and for a quick guide for the quantity of air that is needed for whole house mechanical ventilation, but the formula is more precise especially for homes that are on the small side in the floor area chart.

TABLE M1507.3.3(1)

CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE REQUIREMENTS

DWELLING UNIT FLOOR AREA (square feet)	NUMBER OF BEDROOMS				
	0 – 1	2 – 3	4 – 5	6 – 7	> 7
	Airflow in CFM				
< 1,500	30	45	60	75	90
1,501 – 3,000	45	60	75	90	105
3,001 – 4,500	60	75	90	105	120
4,501 – 6,000	75	90	105	120	135
6,001 – 7,500	90	105	120	135	150
> 7,500	105	120	135	150	165

- Ventilation can't be greater than what is calculated by formula

Fan flow (CFM) = 0.01 CFM x your floor area + 7.5 x (your number of bedrooms + 1)

- For a 1,510 square foot 4-bedroom home,

(0.01 X 1510) + (7.5 times 5)

(15.1) + (37.5)

Formula Result: 52.6 CFM

Chart Result: 75 CFM

Cost Impact: Will not increase the cost of construction
No cost increase. Possible cost reductions by using more accurate ventilation requirements

Analysis: A review of the standard proposed for inclusion in the code, ASHRAE 62.2, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

RM 26-15 : M1507.3.3-SCHWARZ4944

RM 27-15

M1507.4 (New)

Proponent: Craig Conner, representing self (craig.conner@mac.com); Craig Drumheller (CDrumheller@nahb.org); Shaunna Mozingo (smozingo@coloradocode.net)

2015 International Residential Code

Add new text as follows:

M1507.4 Venting and depressurization. Each fuel-fired furnace, boiler and water heater shall comply one or more of the following:

1. It shall be a direct-vent, fan-assisted or power-vented type.
2. Where of the natural draft type, it shall be located in a dwelling unit that has only supply or balanced ventilation systems.
3. It shall be located outside of the dwelling unit's air barrier.
4. It shall be located in a mechanical room and provided with combustion air that is supplied entirely from ducts to the outdoors or from direct openings to the outdoors.

Exceptions:

1. This section shall not apply to dwelling units having a tested air tightness of greater than 3 ACH50.
2. This section shall not apply to dwelling units having depressurization test results that are within the limits specified by an approved depressurization standard.

Reason: This proposal provides clear and practical requirements which limit the types of whole house mechanical ventilation systems which can be installed with naturally vented appliances in order to minimize the potential for back drafting. This proposal addresses the most likely scenarios where back drafting could occur and allows the whole house mechanical ventilation to assist in preventing back drafting rather than becoming a contributing factor. The requirements are consistent with Table RA301.1(1) in informative Appendix RA in the 2015 IECC where recommended depressurization limits in houses are defined. All configurations in the table with depressurization limits less than -5 Pa will no longer be able to use exhaust only whole house ventilation.

Bibliography: (1) Russell, Marion, Max Sherman and Armin Rudd (2005). "Review of Residential Ventilation Technologies." LBNL Report 57730, Ernest Orlando Lawrence Berkeley National Laboratory, Berkeley. California. http://www.buildingscience.com/documents/guides-and-manuals/gm-review-residential-ventilation-technologies

Cost Impact: Will increase the cost of construction
This code change proposal will increase the cost of construction for certain construction configurations. In a house with a naturally vented combustion appliances where exhaust-only ventilation was the preferred method of whole house ventilation, there will be an increase in cost to change to a supply type system. According to a 2005 study(1) the additional cost to go from a single-point exhaust system to a central-fan integrated supply system (without exhaust) will be roughly $155.

RM 27-15 : M1507.4 (New)-CONNER5309

RM 28-15

M1507.4

Proponent: Anthony Floyd, City of Scottsdale, representing City of Scottsdale (afloyd@scottsdaleaz.gov)

2015 International Residential Code

Revise as follows:

M1507.4 Local exhaust ~~rates~~system. Local exhaust systems shall be designed to have the capacity to exhaust the minimum air flow rate determined in accordance with Table M1507.4. Except where functioning as a component of a whole house ventilation system, exhaust fans shall be controlled by a humidity control. Humidity controls shall be capable of adjustment between a relative humidity range of 50 to 80 percent. A humidity control shall utilize manual or automatic means of adjustment and shall be a separate component or an integral component of the exhaust fan.

Reason: Bathroom exhaust fans are often underutilized by occupants. Properly operated exhaust fans removes moisture and odors thereby improving the functionality of the space and contributing to a healthy and sanitary environment. Unless functioning as a component of a whole house ventilation system, effective moisture and odor removal is achieved by humidity sensor controls. Humidity controls ensure the exhaust system operates when the bathroom is in use and for a period of time after the occupant has left the room.
During a bath or shower, the humidity level in a bathroom can be a perfect breeding ground for mold, mildew and microorganisms that can impact your health. Excess moisture has tremendous potential for damaging a home. It cracks and peels paint, ruins gypsum wallboard, causes exterior paint failure, warps doors and rusts cabinets and fixtures. Without control, it can even cause deterioration of joists and framing. As it condenses on windows, walls, ceilings and cabinets, it attracts dirt. It encourages mildew on tile grout and generally provides an environment for increased bacterial growth.

Depending on the size of the bathroom, an intermittent exhaust fan needs to run at least 20 minutes after each shower to ensure that moisture levels are reduced. Both intermittent and continuous bathroom exhaust systems reduce the risk of mold growth which is a significant health concern in homes. Moisture sensor controlled exhaust fans are far more effective than a timed or manually operated fan or an operable window that is usually left closed during the winter and summer months of the year.

Bibliography: Home Ventilating Institute - http://www.hvi.org/publications/HowMuchVent.cfm
GreenCodePro/CALGreen - http://greencodepro.com/code-summaries/california-green-building-standards-code/4-506-1-bathroom-exhaust-fans

LEED for Homes Reference Guide, 2008. p. 301-302.

Cost Impact: Will increase the cost of construction
Exhaust fan costs range from $106 for an 80 cfm with humidity sensor control to $251 for an 80 cfm with humidity sensor control, motion sensor, and quiet sound rating. The minimum cost for a roof vent kit with flex duct is $23. Moisture controlled bathroom exhaust fans minimizes the potential for building damage, saving the cost of making repairs to correct problems that could have been easily avoided.

RM 28-15 : M1507.4-FLOYD3605

RM 29-15

M1601.1.1

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com)

2015 International Residential Code

Revise as follows:

M1601.1.1 Above-ground duct systems. Above-ground *duct systems* shall conform to the following:

1. *Equipment* connected to *duct systems* shall be designed to limit discharge air temperature to not greater than 250°F (121°C).
2. ~~Factory-made~~Listed factory-made ducts shall ~~be listed and labeled in accordance~~comply with UL 181~~ and installed in accordance with the manufacturer's instructions~~.
3. Fibrous glass duct construction shall conform to the SMACNA *Fibrous Glass Duct Construction Standards* or NAIMA *Fibrous Glass Duct Construction Standards*.
4. Field-fabricated and shop-fabricated metal and flexible duct constructions shall conform to the SMACNA HVAC *Duct Construction Standards—Metal and Flexible* except as allowed by Table M1601.1.1. Galvanized steel shall conform to ASTM A 653.
5. The use of gypsum products to construct return air ducts or plenums is permitted, provided that the air temperature does not exceed 125°F (52°C) and exposed surfaces are not subject to condensation.
6. *Duct systems* shall be constructed of materials having a flame spread index of not greater than 200.
7. Stud wall cavities and the spaces between solid floor joists to be used as air plenums shall comply with the following conditions:
    7.1. These cavities or spaces shall not be used as a plenum for supply air.
8. These cavities or spaces shall not be part of a required fire-resistance-rated assembly.
9. Stud wall cavities shall not convey air from more than one floor level.
10. Stud wall cavities and joist-space plenums shall be isolated from adjacent concealed spaces by tight-fitting fireblocking in accordance with Section R602.8.
11. Stud wall cavities in the outside walls of building envelope assemblies shall not be utilized as air plenums.

Reason: As currently written, Item 2 mandated UL 181. However, many sheet metal manufacturers make duct in their shop. A contractors shop would in essence qualify as a factory. However, contractors do not have listing and labeling of their duct. This section is also in conflict with other items, spectifically Item 3, 4, and 6. This section should simply allow the use of UL 181 duct as opposed to appearing to require compliance.

Cost Impact: Will not increase the cost of construction
This will lower the cost of construction by allowing any viable duct to be used in a dwelling unit.

RM 29-15 : M1601.1.1-BALLANCO3972

RM 30-15

M1601.1.1

Proponent: Julius Ballanco, JB Engineering and Code Consulting, P.C., representing General Plastics (JBENGINEER@aol.com)

2015 International Residential Code

Revise as follows:

M1601.1.1 Above-ground duct systems. Above-ground *duct systems* shall conform to the following:

1. *Equipment* connected to *duct systems* shall be designed to limit discharge air temperature to not greater than 250°F (121°C).
2. Factory-made ducts shall be listed and labeled in accordance with UL 181 and installed in accordance with the manufacturer's instructions.
3. Fibrous glass duct construction shall conform to the SMACNA *Fibrous Glass Duct Construction Standards* or NAIMA *Fibrous Glass Duct Construction Standards*.
4. Field-fabricated and shop-fabricated metal and flexible duct constructions shall conform to the SMACNA HVAC *Duct Construction Standards—Metal and Flexible* except as allowed by Table M1601.1.1. Galvanized steel shall conform to ASTM A 653.
5. The use of gypsum products to construct return air ducts or plenums is permitted, provided that the air temperature does not exceed 125°F (52°C) and exposed surfaces are not subject to condensation.
6. *Duct systems* shall be constructed of materials having a flame spread index of not greater than 200.
7. Stud wall cavities and the spaces between solid floor joists to be used as air plenums shall comply with the following conditions:
    - 7.1. These cavities or spaces shall not be used as a plenum for supply air.
    - 7.2. These cavities or spaces shall not be part of a required fire-resistance-rated assembly.
    - 7.3. Stud wall cavities shall not convey air from more than one floor level.
    - 7.4. Stud wall cavities and joist-space plenums shall be isolated from adjacent concealed spaces by tight-fitting fireblocking in accordance with Section R602.8.
    - 7.5. Stud wall cavities in the outside walls of building envelope assemblies shall not be utilized as air plenums.
8. PVC plastic duct and fitting material shall conform to cell classification 12454-B of ASTM D1248 or ASTM D1784 and the external loading properties of ASTM D2412. The duct temperature for plastic ducts shall not exceed 150° F (66° C).

Reason: The PMGCAC raised a concern last cycle regarding the requirements for plastic duct above ground. The plastic duct being used above ground is the same duct that is used for underground installations. This change will add the plastic duct requirements to the list of above ground duct systems using the language in Section M1601.1.2 to regulate the material requirement.
Item 6 in this section was originally added to the code during the initial hearings for the IRC when I proposed the inclusion of plastic ducts above ground. The Committee, at that time, thought the text would be more clear by referencing a flame spread of 200 rather than the language proposed for plastic duct. As such, plastic ducts have always been permitted by the IRC for above ground installations. This will simply add more specific requirements for the duct material.

Cost Impact: Will not increase the cost of construction
This change clarifies the requirement for PVC plastic duct and fittings. These are optional materials that may be used for duct construction.

RM 30-15 : M1601.1.1-BALLANCO5109

RM 31-15

M1601.1.1

Proponent: Guy McMann, Jefferson County Colorado, representing Colorado Associatoin of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Residential Code

Revise as follows:

M1601.1.1 Above-ground duct systems. Above-ground *duct systems* shall conform to the following:

1. *Equipment* connected to *duct systems* shall be designed to limit discharge air temperature to not greater than 250°F (121°C).
2. Factory-made ducts shall be listed and labeled in accordance with UL 181 and installed in accordance with the manufacturer's instructions.
3. Fibrous glass duct construction shall conform to the SMACNA *Fibrous Glass Duct Construction Standards* or NAIMA *Fibrous Glass Duct Construction Standards*.
4. Field-fabricated and shop-fabricated metal and flexible duct constructions shall conform to the SMACNA HVAC *Duct Construction Standards—Metal and Flexible* except as allowed by Table M1601.1.1. Galvanized steel shall conform to ASTM A 653.
5. The use of gypsum products to construct return air ducts or plenums is permitted, provided that the air temperature does not exceed 125°F (52°C) and exposed surfaces are not subject to condensation.
6. *Duct systems* shall be constructed of materials having a flame spread index of not greater than 200.
7. Stud wall cavities and the spaces between solid floor joists to be used as air plenums shall comply with the following conditions:
    - 7.1. These cavities or spaces shall not be used as a plenum for supply air.
    - 7.2. These cavities or spaces shall not be part of a required fire-resistance-rated assembly.
    - 7.3. Stud wall cavities shall not convey air from more than one floor level.
    - 7.4. Stud wall cavities and joist-space plenums shall be isolated from adjacent concealed spaces by tight-fitting fireblocking in accordance with Section R602.8.
    - 7.5. Stud wall cavities in the outside walls of building envelope assemblies shall not be utilized as air plenums
8. <u>Volume dampers, equipment and other means of supply, return and exhaust air adjustment used in system balancing shall be provided with access</u>.

Reason: This language is absent in the IRC and is critical that access be provided for these devices in order to properly balance a system..

Cost Impact: Will increase the cost of construction
It is possible that an increase in cost might occur if access doors need to be purchased. Otherwise not.

RM 31-15 : M1601.1.1-MCMANN3699

RM 32-15

M1601.1.1

Proponent: Robby Schwarz, representing EnergyLogic, Inc. (robby@nrglogic.com)

2015 International Residential Code

Revise as follows:

M1601.1.1 Above-ground duct systems. Above-ground *duct systems* shall conform to the following:

1. *Equipment* connected to *duct systems* shall be designed to limit discharge air temperature to not greater than 250°F (121°C).
2. Factory-made ducts shall be listed and labeled in accordance with UL 181 and installed in accordance with the manufacturer's instructions.
3. Fibrous glass duct construction shall conform to the SMACNA *Fibrous Glass Duct Construction Standards* or NAIMA *Fibrous Glass Duct Construction Standards*.
4. Field-fabricated and shop-fabricated metal and flexible duct constructions shall conform to the SMACNA HVAC *Duct Construction Standards—Metal and Flexible* except as allowed by Table M1601.1.1. Galvanized steel shall conform to ASTM A 653.

~~5. The use of gypsum products to construct return air ducts or plenums is permitted, provided that the air temperature does not exceed 125°F (52°C) and exposed surfaces are not subject to condensation.~~

5. *Duct systems* shall be constructed of materials having a flame spread index of not greater than 200.
6. Stud wall cavities and the spaces between solid floor joists to be used as air plenums shall comply with the following conditions:
   6.1. These cavities or spaces shall not be used as a plenum for supply or return air.
   6.2. These cavities or spaces shall not be part of a required fire-resistance-rated assembly.
   6.3. Stud wall cavities shall not convey air from more than one floor level.
   6.4. Stud wall cavities and joist-space plenums shall be isolated from adjacent concealed spaces by tight-fitting fireblocking in accordance with Section R602.8.
   6.5. Stud wall cavities in the outside walls of building envelope assemblies and the spaces between solid floor joists in any portion of the building shall not be utilized as supply or return air plenums.

Reason: Rational Statement:
Air is a fluid like water is a fluid. Code will not stand for a plumbing system that leaks but allows a minimum level of duct leakage even though the air that is carried through the duct system carries heat, moisture, and pollutants that can be detrimental to the building occupant and the structure. Many have read the language in the last two cycles of the code to mean that both the supply side and the return side of an HVAC system need to be fully ducted. However the commentary has left a window of opportunity for contractors to continue to utilize building cavities for return air plenums. To be crystal clear, this code change proposal is largely in response to that and is designed to ensure that all HVAC duct systems are fully ducted to ensure life safety, long term durability, cost effectiveness, comfort and efficiency as they are all impacted by air under pressure being forced through un-ducted building cavities. A number of papers have been written about the decrease in efficiency and comfort as well as the increase in building durability issues and cost of ownership associated with air traveling through and out of un-ducted building cavities. Much of this air also is pulled into and out of the building due to the connection of the cavity to the outside. Negative pressure are a significant issue for combustion safety is a home and are more likely to impact atmospherically vented appliances through the leakage associated with building cavities used as returns. For all of these reasons and more all air pushed our pulled by an HVAC blower motor should be contained inside a duct system.

Cost Impact: Will increase the cost of construction
Cost implications are small with this proposal as building cavities need to be enclosed any way so air can flow through them. However this proposal is requiring that return air be enclosed in duct work and there will be a cost associated with that. However, this requirement, as well and the enhanced duct sealing requirements of the IECC, leads builders to the utilization of centralized returns which diminishes the amount of return duct work in the house drastically, maintains comfort and performance of the HVAC system, and is very cost affective.

RM 32-15 : M1601.1.1-SCHWARZ4948

RM 33-15

M1601.1.1

Proponent: Donald Surrena, National Association of Home Bulilders, representing National Association of Home Builders (dsurrena@nahb.org); Jay Peters, representing AQC Industries (peters.jay@me.com)

2015 International Residential Code

Revise as follows:

M1601.1.1 Above-ground duct systems. Above-ground *duct systems* shall conform to the following:

1. *Equipment* connected to *duct systems* shall be designed to limit discharge air temperature to not greater than 250°F (121°C).
2. Factory-made ducts shall be listed and labeled in accordance with UL 181 and installed in accordance with the manufacturer's instructions.
3. Fibrous glass duct construction shall conform to the SMACNA *Fibrous Glass Duct Construction Standards* or NAIMA *Fibrous Glass Duct Construction Standards*.
4. Field-fabricated and shop-fabricated metal and flexible duct constructions shall conform to the SMACNA HVAC *Duct Construction Standards—Metal and Flexible* except as allowed by Table M1601.1.1. Galvanized steel shall conform to ASTM A 653.
5. The use of gypsum products to construct return air ducts or plenums is permitted, provided that the air temperature does not exceed 125°F (52°C) and exposed surfaces are not subject to condensation.
6. Polyethylene~~*Duct*~~ duct *systems* shall be constructed of materials having a flame spread index of not greater than 200.
7. Stud wall cavities and the spaces between solid floor joists to be used as air plenums shall comply with the following conditions:
   7.1. These cavities or spaces shall not be used as a plenum for supply air.
   7.2. These cavities or spaces shall not be part of a required fire-resistance-rated assembly.
   7.3. Stud wall cavities shall not convey air from more than one floor level.
   7.4. Stud wall cavities and joist-space plenums shall be isolated from adjacent concealed spaces by tight-fitting fireblocking in accordance with Section R602.8.
   7.5. Stud wall cavities in the outside walls of building envelope assemblies shall not be utilized as air plenums.
8. PVC and CPVC ducts and fittings not covered by external duct insulation shall be constructed of material having a flame spread index not greater than 25 and a smoke development index not greater than 50 when tested in accordance with ASTM E 84 or UL 723. PVC and CPVC ducts and fittings shall be constructed of material having a flame spread index not greater than 25 and a smoke development index not greater than 500 when tested in accordance with ASTM E 84 or UL 723 where such ducts and fittings are covered by external duct insulation material conforming to Section M1601.3. The design air temperature within PVC and CPVC duct systems shall not exceed 140°F (60°C).

Reason: There is a need to more clearly support the use of above-ground plastic ducts in the International Residential Code (IRC) Section M1601.1.1. Plastic ducts appear to be "technically" allowed under this IRC Section but often receive rejection at the local jurisdiction level due to lack of specificity, clarity, and coherence, particularly in regards to the language of IRC Section M1601.2[1] and the International Mechanical Code (IMC) Section 603.8.3[2]. Unclear and incomplete duct material requirements make using lower-cost, higher-performing duct systems unnecessarily difficult or impossible depending on interpretation at the local jurisdiction level.
Solvent welded assembly of plastic ducts inherently results in low air leakage and low airflow resistance. These relatively lower-cost materials are commonly available in appropriate small sizes for space conditioning airflow in low-load houses.

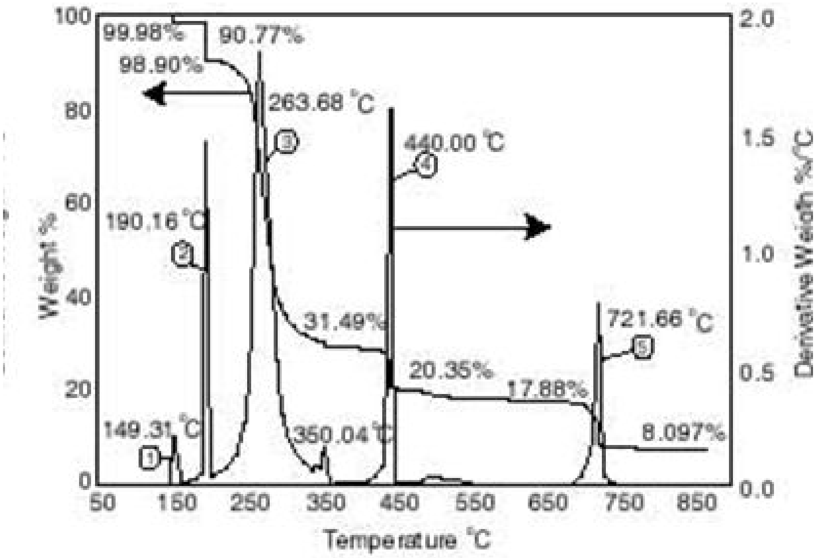
After researching the history, it was found that item 6 under Section M1601.1.1 was established specifically to allow polyethylene ducts, fittings and transitions (often blow-molded) to be used in above-ground duct systems. Based on feedback from industry stakeholders, building officials and ICC staff, the lack of clarity in this section regarding the intended material has been an ongoing problem. Calling out the intended polyethylene material will make this section clear and enforceable, clarifying that not only polyethylene fitings are allowed, but the duct system constructed of the same material.

Some available CPVC products made with fire retardant already meet the 25/50 flame spread and smoke development limitation, without being water filled. While the ignition temperature of PVC is up to 850°F (455°C), PVC and CPVC are self-extinguishing materials, meaning that they will stop burning when the heat source is removed. Typical PVC has a flame spread index in the range of 15, far less than the Class 1 duct limit of 25. The smoke development index for PVC is in the range of 500, but testing of available duct wrap products has been shown to reduce the smoke development index to less than 50.

In prior proposals related to this Section, questions have been raised about PVC brittleness and PVC off-gassing. Regarding PVC brittleness:

- PVC becomes brittle in extreme cold, but if it were installed as an air duct in an extreme cold location it would be insulated, protecting it from cold and potentially damaging impact.
- PVC will soften and lose strength with excessive heat, but that condition is well above the 140° F design air temperature limitation imposed in this proposal. (As a further note about the 140° F limit, that is not a technical limit to be confused with the 150° F limit given for plastic ducts in Section M1601.1.2, rather, 140° F is a reasonable practical limit since there is no practical need to supply heated air in dwellings above 140° F in dwellings. Modern condensing furnaces typically deliver heated air in the range of 110° F to 115° F. Air delivered much hotter than that can cause comfort and air distribution/stratification problems, as remembered by the old "scorched air" complaints.)
- PVC will break down and get brittle if left exposed to UV light, but once again it would be covered with insulation and protected in that case.
- PVC will degrade with age as plasticizers added in manufacturing are lost. After an estimated 50 years, its effective pressure capability may drop but not in the range of air duct pressures. In addition, PVC is already approved for use with pressurized water.

Regarding VOC off-gassing, the chart below obtained from http://www.madisongroup.com/case-studies-pvc-pipe.html shows test results from a thermogravimetric analyzer (TGA) where the PVC sample was gradually heated. Decomposition of different compounds can be seen along with the percent weight loss. The decomposition peaks can be matched with known materials that decompose at the same exact temperature. Referring to the curve marked (1), there was no recorded weigh loss until about 150° C (302° F).



TGA Analysis of a PVC sample. (1) Volatiles: humidity, monomers, solvents (2) DOP plasticizer (3) HCL formation (4) carbon-carbon scission (5) CO_2 formation

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[1] IRC Chapter 16 Duct Systems, Section 1601.2 states that, "Each portion of a factory-made air duct shall bear a listing and label indicating compliance with UL 181 and UL 181A or UL 181B."

[2] IMC Chapter 6 Duct Systems, Section 603.8.3 states that, "Plastic duct and fittings shall be utilized in underground installations only."

Cost Impact: Will not increase the cost of construction
Since the added text clarifies that PVC, CPVC and polyethylene may be used–as an option–in duct construction, there is no added cost associated with this proposal. In fact, it may reduce construction costs by allowing contractors more options. Where PVC or CPVC ducts are required to have an external insulation covering material conforming to Section M1601.3, the comparison would only be where the ducts are inside conditioned space which is the only case where they can be uninsulated. Flexible duct and fibrous duct board are pre-insulated factory ducts. Therefore, the cost comparison is only between uninsulated metal ducts and insulated plastic ducts. In that case, it is estimated that the cost of minimally insulated plastic duct is roughly equivalent to the cost of uninsulated metal duct.

RM 33-15 : M1601.1.1-SURRENA5025

RM 34-15

M1601.1.2

Proponent: Jay Peters, Codes and Standards International, representing AQC Industries (peters.jay@me.com)

2015 International Residential Code

Revise as follows:

M1601.1.2 Underground duct systems. Underground *duct systems* shall be constructed of *approved* concrete, clay, metal or plastic. The maximum ~~duct~~design temperature for systems utilizing plastic ~~ducts~~duct and fittings shall ~~not~~ be ~~greater than~~ 150°F (66°C). Metal ducts shall be protected from corrosion in an *approved* manner or shall be completely encased in concrete not less than 2 inches (51 mm) thick. Nonmetallic ducts shall be installed in accordance with the manufacturer's instructions. Plastic pipe and fitting materials shall conform to cell classification 12454-B of ASTM D 1248 or ASTM D 1784 and external loading properties of ASTM D 2412. Ducts shall slope to an accessible point for drainage. ~~Where encased in concrete, ducts~~Ducts shall be sealed, secured and ~~secured~~tested with air at a pressure of not less than 2 inches of W.C. for not less than 5 minutes in the presence of the code official prior to ~~any~~encasing the ducts in concrete ~~being poured~~or direct burial. Metallic ducts having an *approved* protective coating and nonmetallic ducts shall be installed in accordance with the manufacturer's instructions.

Reason: This air temperature language does not change the substantive technical content of the provision but uses the exact same language as the IMC to bring uniformity to the codes.
All duct leakage, whether in the envelope, in the attic, or underground is undesireable but underground ducts are more likely to cause serious issues due to their location. Underground ducts systems have a propensity to leak which causes air exfiltration (loss) and also duct infiltration (gain) of contaminants into the duct system and residence. The leakage, in-and-out, not only causes poor indoor air quality, duct system degradation, sick building occupants, mold, mildew and even radon contamination, but also wastes energy. Some estimate that after the combined infiltration from walls/ceilings/floors, the duct system is the next largest cause of air leakage in the residence. Underground return air ducts are of particular concern due to the negative pressure within the duct system, causing intake of impurities. All ducts are to be sealed before burial, whether in concrete or directly buried in the ground but the code does not require any verification or test to prove the system is airtight, or more importantly, watertight. Metallic ducts encased in concrete, as well as those approved for direct burial should be tested to find leaks before burial, not afterwards, or never at all.

Cost Impact: Will increase the cost of construction
Although I have checked the box for additional cost, underground duct systems, when installed by quality contractors and installed correctly should already be performing this test. The proposal for air test may add a minimal cost to initial installation but has potential to save money in the long run through greater energy savings, indoor air quality and future repairs.

RM 34-15 : M1601.1.2-PETERS5253

RM 35-15

M1601.1.3 (New), M1601.1.3.1 (New), M1601.1.3.2 (New), M1601.1.3.3 (New), M1601.1.3.4 (New), M1601.1.3.5 (New), M1601.1.3.6 (New), M1601.1.3.7 (New), M1601.1.3.8 (New), M1601.4.1, M1601.4.3.1 (New), Chapter 44

Proponent: Ralph Koerber, ATCO Rubber Products, Inc., representing Air Diffusion Council (ADC) (rkoerber@atcoflex.com)

2015 International Residential Code

Add new text as follows:

M1601.1.3 **Nonmetallic Ducts** Nonmetallic ducts shall be constructed with Class 0 or Class 1 duct material and shall comply with UL181. Fibrous duct construction shall conform to the SMACNA Fibrous Glass Duct Construction Standards or NAIMA Fibrous Glass Duct Construction Standards. Flexible air ducts and air connectors shall comply with the ADC Flexible Duct Performance & Installation Standards. The air temperature within nonmetallic ducts shall not exceed 250ºF (121ºC).

M1601.1.3.1 **Flexible Air Ducts and Air Connectors** Flexible air ducts, both metallic and non-metallic, shall comply with Sections M1601.1.3.2, M1601.1.3.3, M1601.1.2.7, and M1601.1.3.8. Flexible air connectors, both metallic and nonmetallic, shall comply with Sections M1601.1.3.4 through M1601.1.3.8.

M1601.1.3.2 **Flexible air ducts** Flexible air ducts, both metallic and nonmetallic, shall be tested in accordance with UL181. Such ducts shall be *listed* and *labeled* as Class 0 or Class 1 flexible air ducts and shall be installed in accordance with their listing.

M1601.1.3.3 **Duct length.** Flexible air ducts shall not be limited in length. Flexible air ducts shall be installed fully extended. The provision of excess duct length for the purpose of possible future relocation of air terminal devices is prohibited.

M1601.1.3.4 **Flexible air connectors** Flexible air connectors, both metallic and nonmetallic, shall be tested in accordance with UL181. Such connectors shall be *listed* and *labeled* as Class 0 or Class 1 flexible air connectors and shall be installed in accordance with their listing.

M1601.1.3.5 **Connector length.** Flexible air connectors shall be limited in length to 14 feet (4267 mm). . Flexible air connectors and multiple lengths of flexible air connector that have been joined together shall be limited in length to 14 feet (4267 mm). Flexible air connectors shall be installed fully extended. .

M1601.1.3.6 **Connector penetration limitations.** Flexible air connectors shall not pass through any wall, floor, or ceiling.

M1601.1.3.7 **Flexible air duct and air connector clearance.** Flexible air ducts and air connectors shall be installed with *clearances* to *appliances* as specified in the *appliance* manufacturer's installation instructions.

M1601.1.3.8 **Flexible air duct and air connector bends.** Where flexible air ducts and air connectors are used in place of metallic elbows, the bend radius shall be greater than or equal to one (1) duct diameter measured to the outer surface of the duct on the inside of the bend.

Revise as follows:

M1601.4.1 Joints, seams and connections. Longitudinal and transverse joints, seams and connections in metallic and nonmetallic ducts shall be constructed as specified in SMACNA HVAC *Duct Construction Standards—Metal and Flexible* and NAIMA *Fibrous Glass Duct Construction Standards*. Joints, longitudinal and transverse seams, and connections in ductwork shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems, liquid sealants or tapes. Tapes and mastics used to seal fibrous glass ductwork shall be *listed* and *labeled* in accordance with UL 181A and shall be marked "181A-P" for pressure-sensitive tape, "181 A-M" for mastic or "181 A-H" for heat-sensitive tape.
~~Tapes and mastics used to seal metallic and flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked "181 B-FX" for pressure-sensitive tape or "181 BM" for mastic.~~

Duct connections to flanges of air distribution system equipment shall be sealed and mechanically fastened~~.~~ ~~Mechanical fasteners for use with flexible nonmetallic air ducts shall comply with UL 181B and shall be marked 181B-~~

~~C~~. Crimp joints for round metallic ducts shall have a contact lap of not less than 1 inch (25 mm) and shall be mechanically fastened by means of not less than three sheet-metal screws or rivets equally spaced around the joint.

Tapes and mastics used to seal metallic and nonmetallic flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked "181 B-FX" for pressure-sensitive tape or "181 BM" for mastic. Fittings used in combination with flexible air ducts and air connectors shall have a flange length of not less than 2 inches (51 mm) for connection of the flexible duct. Flexible duct inner cores shall be installed not less than 1" (25mm) onto the fitting prior to taping and application of the mechanical fastener. Mastic shall be applied in accordance with the mastic manufacturer's installation instructions prior to pulling the inner core onto the fitting and applying the mechanical fastener. Nonmetallic mechanical fasteners for use with flexible nonmetallic air ducts shall comply with UL 181B and shall be marked 181B-C. Where nonmetallic mechanical fasteners are used, the fittings shall be beaded. The insulation and outer vapor barrier of flexible ducts shall be sealed to the fitting using 2 wraps of approved duct tape or a mechanical fastener in place of, or in conjunction with, the tape.

Closure systems used to seal all ductwork shall be installed in accordance with the manufacturers' instructions.

Exceptions:

1. Spray polyurethane foam shall be permitted to be applied without additional joint seals.
2. Where a duct connection is made that is partially inaccessible, three screws or rivets shall be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.
3. For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for continuously welded joints and seams and locking-type joints and seams of other than the snap-lock and button-lock types.

Add new text as follows:

M1601.4.3.1 **Support** Flexible air ducts and air connectors shall be supported at intervals not to exceed 4 feet (1219mm) where installed horizontally and 6 feet (1829mm) where installed as vertical risers and shall be installed in accordance with the manufacturer's installation instructions and the *ADC Flexible Duct Performance & Installation Standards.* Supports shall be not less than 1.5 inches (38mm) in width and the sag between supports shall not exceed 1/2" (13mm) per foot of duct length between supports.

Add new standard(s) as follows:

Air Diffusion Council

1901 N. Roselle Road, Suite 800

Schaumburg, IL 60195

ADC *Flexible Duct Performance & Installation Standards*, 5th Edition

Reason: The proposed revised and added text is companion to similar proposals made to the IMC Chapter 6.
The changes and revisions included seek to clarify important aspects of proper flexible duct installation.

All of the language, to my knowledge, is currently included either within the manufacturer's installation instructions supplied with flexible ducts that are listed and labeled to the UL181 Standard, the UL181B Standard for Closure Systems, and within the Air Diffusion Council Flexible Duct Performance & Installation Standards.

Although the code language currently requires that products be installed per the listing and per the manufacturer's installation instructions, this added or revised text within the code sections should help clarify important aspects of proper flexible duct installations.

Some revisions are only movement of text within the sections to facilitate flow of information and relavence.

Cost Impact: Will not increase the cost of construction
Since the intent of the proposal is to clarify existing requirements (per the manufacturer's installation instructions already required), there should be no additional cost impact if these revisions are included.

Analysis:
A review of the standard proposed for inclusion in the code, ADC Fle*xible Duct Performance & Installation Standards*, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

RM 35-15 : M1601.1.3 (New)-KOERBER5138

RM 36-15

M1601.4.1

Proponent: Donald Surrena, National Association of Home Builders, representing National Association of Home Builders (dsurrena@nahb.org)

2015 International Residential Code

Revise as follows:

M1601.4.1 Joints, seams and connections. Longitudinal and transverse joints, seams and connections in metallic and nonmetallic ducts shall be constructed as specified in SMACNA HVAC *Duct Construction Standards—Metal and Flexible* and NAIMA *Fibrous Glass Duct Construction Standards*. Joints, longitudinal and transverse seams, and connections in ductwork shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems, liquid sealants or tapes. Tapes and mastics used to seal fibrous glass ductwork shall be *listed* and *labeled* in accordance with UL 181A and shall be marked "181A-P" for pressure-sensitive tape, "181 A-M" for mastic or "181 A-H" for heat-sensitive tape.

Tapes and mastics used to seal metallic and flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked "181 B-FX" for pressure-sensitive tape or "181 BM" for mastic. Duct connections to flanges of air distribution system equipment shall be sealed and mechanically fastened. Mechanical fasteners for use with flexible nonmetallic air ducts shall comply with UL 181B and shall be marked 181B-C. Crimp joints for round metallic ducts shall have a contact lap of not less than 1 inch (25 mm) and shall be mechanically fastened by means of not less than three sheet-metal screws or rivets equally spaced around the joint.

Closure systems used to seal all ductwork shall be installed in accordance with the manufacturers' instructions.

Exceptions:

1. Spray polyurethane foam shall be permitted to be applied without additional joint seals.
2. Where a duct connection is made that is partially inaccessible, three screws or rivets shall be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.
3. For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for continuously welded joints and seams and locking-type joints and seams of other than the snap-lock and button-lock types that are located outside of conditioned spaces.

Reason: This proposal will reduce construction cost and still reduce energy loss that would occur due to duct leakage outside conditioned space. Low pressure longitudinal seam duct leakage is very limited and the small amount of leakage within conditioned space is still useful energy.

Cost Impact: Will not increase the cost of construction
Cost decrease of up to $314 for an average house according to research conducted by Home Innovation Research Labs.

RM 36-15 : M1601.4.1-SURRENA5018

RM 37-15

M1602.2

Proponent: Guy McMann, Jefferson County Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Residential Code

Revise as follows:

M1602.2 Return air openings. Return air openings for heating, ventilation and air conditioning systems shall comply with all of the following:

1. Openings shall not be located less than 10 feet (3048 mm) measured in any direction from an open combustion chamber or draft hood of another appliance located in the same room or space.
2. The amount of return air taken from any room or space shall be not greater than the flow rate of supply air delivered to such room or space.
3. Return and transfer openings shall be sized in accordance with the appliance or equipment manufacturers' installation instructions, Manual D or the design of the registered design professional.
4. Return air shall not be taken from a closet, bathroom, toilet room, kitchen, garage, mechanical room, boiler room, furnace room or unconditioned attic.

    Exceptions:

    1. Taking return air from a kitchen is not prohibited where such return air openings serve the kitchen only, and are located not less than 10 feet (3048 mm) from the cooking appliances.
    2. Dedicated forced-air systems serving only the garage shall not be prohibited from obtaining return air from the garage.
5. Taking return air from an unconditioned crawl space shall not be accomplished through a direct connection to the return side of a forced-air furnace. Transfer openings in the crawl space enclosure shall not be prohibited.
6. Return air from one dwelling unit shall not be discharged into another dwelling unit.
7. <u>Return air shall not be taken from indoor swimming pool enclosures and associated deck areas except where such space is dehumidified.</u>

Reason: It is not desirable to pull return air from swimming pool areas due to the affects it would have on the system from humidity and chemical odors associated with such spaces. A dedicated system would be required or a combination of supply and exhaust. This scenario is consistent with the same dwelling built under the IMC.

Cost Impact: Will not increase the cost of construction
Generally speaking this proposal is will not cause an increase is cost. If dehumidificaton is chosen then there could be an increase in cost.

RM 37-15 : M1602.2-MCMANN3700

RM 38-15

M2005.1, M2005.2, M2005.2.1

Proponent: Guy McMann, Jefferson County, Colorado, representing Colorado Associatoin of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

2015 International Residential Code

Revise as follows:

M2005.1 General. Water heaters shall be installed in accordance with Chapter 28, the manufacturer's instructions and the requirements of this code. ~~Water heaters installed in an attic shall comply with the requirements of Section M1305.1.3.~~ Gas-fired water heaters shall comply with the requirements in Chapter 24. Domestic electric water heaters shall comply with UL 174. Oiled-fired water heaters shall comply with UL 732. Thermal solar water heaters shall comply with Chapter 23 and UL 174. Solid fuel-fired water heaters shall comply with UL 2523.

M2005.2 Prohibited locations. Fuel-fired water heaters shall not be located in sleeping rooms, bathrooms, toilet rooms, storage closets or a space that opens only to such room or spaces.

Exceptions:

1. The water heater is a direct- vent appliance installed in accordance with the terms of its listing and the manufacturer's installation instructions.
2. Where the water heater is installed in a room ~~used as a storage closet. Water heaters located in~~or space that opens only into a bedroom or bathroom, the room or space shall be ~~installed in~~provided with a ~~sealed enclosure so that~~ *solid weather stripped door equipped with an approved self-closing device. All combustion air* ~~will not~~ shall be taken directly from the ~~living space~~outdoors. ~~Installation of direct-vent water heaters within an enclosure is not required.~~

M2005.2.1 Water heater access. Access to water heaters that are located in an *attic* or underfloor crawl space ~~is permitted to~~shall be ~~through a closet located in a sleeping room or bathroom where *ventilation* of those spaces is~~ in accordance with ~~this code.~~Section M1305.

Reason: This section lacks some general informatoin and is incomplete. It is also in need of a little cleanup. There are no new requirements.

Cost Impact: Will not increase the cost of construction
This proposal is strictly editorial in nature and will not cause an increase is cost.

RM 38-15 : M2005.1-MCMANN3692

RM 39-15

M2006.1, M2006.3, Chapter 44

Proponent: Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org)

2015 International Residential Code

Revise as follows:

M2006.1 General. Pool and spa heaters shall be installed in accordance with the manufacturer's installation instructions. Oil-fired pool heaters shall comply with UL 726. Electric pool and spa heaters shall comply with UL 1261, UL 1563 or CSA C22.2 No. 218.1. Gas-fired pool heaters shall comply with ANSI Z21.56/CSA 4.7. Pool and spa heat pump water heaters shall comply with UL 1995, AHRI 1160, or CSA C22.2 No. 236.

Delete without substitution:

~~**M2006.3 Temperature-limiting devices.** Pool heaters shall have temperature-relief valves.~~

Add new standard(s) as follows:

AHRI 1160 (I-P) -09 Performance rating of Heat Pump Pool Heaters

ANSI Z21.56a/CSA 4.7 -2013 Gas Fired Pool Heaters

CSA C22.2 No. 236-11 Cooling Equipment

CSA C22.2 No. 218.1-M89(R2011) Spas, Hot Tubs and Associated Equipment

UL 1563-2009 Standard for Electric Spas, Hot Tubs and Associated Equipment-with revisions through July 2012

Reason: This proposal is needed to ensure consistency with what standards are required for the various pool heaters in Section 316.2 and Table 316.2 of the International Swimming Pool & Spa Code.
Further, section M2006.3 needs to be removed because it is out of date and not compatible with the current heaters on the market. For example, UL Standard 1995 does not require a temperature relief valve for two reasons: (1) If a condition exists whereby the thermostat fails to turn off the heat pump, the outlet water temperature is effectively controlled by the compressor high pressure control and/or internal pressure control. Long before the outlet water reaches an unacceptably high temperature, the refridgeration system high pressure control and/or the compressor internal pressure control will trip and shut off the compressor. (2) A pool, spa or hot tub is an open system, unlike a water heater tank that can allow pressure to build. Excess pressure developed as a result of excessive temperatures in the heat pump are relieved through the pool, spa or hot tub.

Bibliography: International Swimming Pool & Spa Code, Section 316.2 and Table 316.2

Cost Impact: Will not increase the cost of construction
This proposal will prevent an increase in cost because without it, a jurisdiction may requrie a temperature relief valve in products that are not currently listed to have one.

Analysis:
A review of the standard proposed for inclusion in the code, AHRI 1160, ANSI Z21.56/CSA 4.7, CSA C22.2 No 218.1, CSA C22.2 No. 236 and UL 1563, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

RM 39-15 : M2006.1-HATFIELD5744

RM 40-15

Table M2101.1, M2103.3

Proponent: Curtis Dady, Viega, LLC, representing Viega, LLC (curtis.dady@viega.us)

2015 International Residential Code

Revise as follows:

TABLE M2101.1
HYDRONIC PIPING MATERIALS

MATERIAL	USE CODE[a]	STANDARD[b]	JOINTS	NOTES
Copper tubing (type K, L or M)	1, 2	ASTM B 75, B 88, B 251, B 306, ASME B16.51	Brazed, soldered, press-connected and flared mechanical fittings	Joints embedded in concrete

(Portions of table not shown remain unchanged)

For SI: °C = [(°F)-32]/1.8.

a. Use code:
1. Above ground.
2. Embedded in radiant systems.
3. Temperatures below 180°F only.
4. Low temperature (below 130°F) applications only.
5. Temperatures below 160°F only.

b. Standards as listed in Chapter 44.

M2103.3 Piping joints. Copper and copper alloy systems shall be soldered, brazed, or press-connected. Soldering shall be in accordance with ASTM B 828. Fluxes for soldering shall be in accordance with ASTM B 813. Brazing fluxes shall be in accordance with AWS A5.31. Press-connect shall be in accordance with ASME B16.51. Piping joints that are embedded shall be installed in accordance with the following requirements:

1. Steel pipe joints shall be welded.
2. Copper tubing shall be joined by brazing complying with Section P3003.6.1.
3. Polybutylene pipe and tubing joints shall be installed with socket-type heat-fused polybutylene fittings.
4. CPVC tubing shall be joined using solvent cement joints.
5. Polypropylene pipe and tubing joints shall be installed with socket-type heat-fused polypropylene fittings.
6. Cross-linked polyethylene (PEX) tubing shall be joined using cold expansion, insert or compression fittings.
7. Raised temperature polyethylene (PE-RT) tubing shall be joined using insert or compression fittings.

Reason: ASME B16.51 "Copper and Copper Alloy Press-Connect Pressure Fittings" is included in IMC table 1202.5 HYDRONIC PIPE FITTINGS and these joints are included in sections 1203.8 and 1203.8.3.

Cost Impact: Will not increase the cost of construction
Addition of option, not requirement.

RM 40-15 : M2101.1-DADY3675

RM 41-15

Table M2101.1, Table M2105.4

Proponent: Mike Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservnet.com)

2015 International Residential Code

Revise as follows:

TABLE M2101.1
HYDRONIC PIPING MATERIALS

MATERIAL	USE CODE[a]	STANDARD[b]	JOINTS	NOTES
Cross-linked polyethylene (PEX)	1, 2, 3	ASTM F 876, ~~F 877~~	(See PEX fittings)	Install in accordance with manufacturer's instructions

(Portions of table and notes not shown remain unchanged)

TABLE M2105.4
GROUND-SOURCE LOOP PIPE

MATERIAL	STANDARD
Cross-linked polyethylene (PEX)	ASTM F 876; ~~ASTM F 877~~ CSA B137.5

(Portions of table not shown remain unchanged)

Reason: ASTM F877 has been revised a few years ago to remove redundant pipe/tubing dimensional and performance specifications which are otherwise specified in ASTM F876. F877 remains a PEX fitting and PEX system materials and performance standard exclusive for use with ASTM F876 piping/tubing.

Cost Impact: Will not increase the cost of construction
This proposal simply deletes a standard that is no longer pipe or tubing related from the code. The piping material is now covered by a different standard, and as such, the option is not deleting or adding a material. Thus the code with this proposal added will not cause the cost of construction to increase..

RM 41-15 : Table M2101.1-CUDAHY4732

RM 42-15

Table M2101.1

Proponent: Pennie L Feehan, representing Copper Development Association (penniefeehan@me.com)

2015 International Residential Code

Revise as follows:

TABLE M2101.1
HYDRONIC PIPING MATERIALS

MATERIAL	USE CODE[a]	STANDARD[b]	JOINTS	NOTES
~~Brass pipe~~	~~1~~	~~ASTM B 43~~	~~Brazed, welded, threaded, mechanical and flanged fittings~~	
~~Brass tubing~~	~~1~~	~~ASTM B 135~~	~~Brazed, soldered and mechanical fittings~~	
Copper <u>and copper-alloy</u> pipe	1	ASTM B42, <u>B43,</u> B302	Brazed, soldered and mechanical fittings threaded, welded and flanged	
Copper and copper-alloy tubing (type K, L or M)	1, 2	ASTM B75, B88, <u>B135,</u> B251, B306	Brazed, soldered and flared mechanical fittings	Joints embedded in concrete <u>shall be brazed</u>

(Portions of table not shown remain unchanged)

For SI: °C = [(°F)-32]/1.8.

a. Use code:

1. Above ground.
2. Embedded in radiant systems.
3. Temperatures below 180°F only.
4. Low temperature (below 130°F) applications only.
5. Temperatures below 160°F only.

b. Standards as listed in Chapter 44.

Reason: The proposal removes brass because brass is a copper alloy and the standards and requirements are covered in the copper & copper-alloy lines. The requirement under note was incomplete comment and did not make sence.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction as it is editorial in nature.

RM 42-15 : Table M2101.1-FEEHAN4026

RM 43-15

Table M2101.1, Table M2105.4, Table M2105.5, M2105.13, M2105.13.3 (New), M2105.13.4 (New), Chapter 44

Proponent: Larry Gill, representing IPEX USA LLC (larry.gill@ipexna.com)

2015 International Residential Code

Revise as follows:

TABLE M2101.1
HYDRONIC PIPING MATERIALS

MATERIAL	USE CODE[a]	STANDARD[b]	JOINTS	NOTES
Raised temperature polyethylene (PE-RT)	1, 2, 3	ASTM F 2623 ASTM F 2769 <u>CSA B137.18</u>	Copper crimp/insert fitting stainless steel clamp, insert fittings	
Raised Temperature Polyethylene (PE-RT) fittings	1, 2,3	ASTM F 1807 ASTM F 2159 ASTM F 2735 ASTM F 2769 ASTM F 2098 <u>ASTM D3261</u> <u>CSA B137.18</u>	Copper crimp/insert fitting stainless steel clamp, insert fittings	

(Portions of table not shown remain unchanged)

TABLE M2105.4
GROUND-SOURCE LOOP PIPE

MATERIAL	STANDARD
Raised temperature polyethylene (PE-RT)	ASTM F 2623; ASTM F 2769; <u>CSA B137.18</u>

(Portions of table not shown remain unchanged)

TABLE M2105.5
GROUND-SOURCE LOOP PIPE FITTINGS

PIPE MATERIAL	STANDARD

Raised temperature polyethylene (PE-RT)	ASTM D 3261; ASTM F 1807; ASTM F 2159; ASTM F 2769; CSA B137.1; ASTM F1055, ASTM F2098, ASTM F2735, ASTM D2683, ASTM D3261, CSA B137.18

(Portions of table not shown remain unchanged)

M2105.13 Raised temperature polyethylene (PE-RT) plastic tubing. Joints between raised temperature polyethylene tubing and fittings shall comply with Sections M2105.13.1, M2105.13.2, M2105.13.3, and ~~M2105.13.2~~M2105.13.4. Mechanical joints shall comply with Section M2105.8.1.

Add new text as follows:

M2105.13.3 Heat fusion joints. Heat fusion joints shall be of the socket-fusion, saddle-fusion or butt-fusion type, and shall be joined in accordance with ASTM D2657. Joint surfaces shall be clean and free of moisture. Joint surfaces shall be heated to melt temperatures and joined. The joint shall remain undisturbed until cool. Fittings shall be manufactured in accordance with ASTM D2683 or ASTM D3261.

M2105.13.4 Electrofusion joints Joints shall be of the electrofusion type. Joint surfaces shall be clean and free of moisture and scoured to expose virgin resin. Joint surfaces shall be heated to melt temperatures to a time specified by the manufacturer and joined. The joint shall remain undisturbed until cool. Fittings shall be manufactured in accordance with ASTM F1055.

Add new standard(s) as follows: CSA B137.18 - 2013 - Polyethylene of raised temperature (PE-RT) tubing systems for pressure applications.

Reason: Add new CSA B137.18 - Polyethylene of raised temperature resistance (PE-RT) tubing systems for pressure applications to Tables M2101.1, M2105.4, and M2105.5 (scope includes hydronic heating and ground source loop pipe and fittings).
Add reference to ASTM D3261which is a consensus standard for PE fusion to Table M2101.1 and Table M2105.5

Add references to ASTM F1055, ASTM F2098, ASTM F2735, and ASTM D2683 to Table M2105.5. ASTM F2098 and ASTM F2735 are already referenced in the IMC for PE-RT fittings. ASTM F1055 and ASTM D2683 are being added for fused PE joints.

Add new sections M2105.13.3 and M2105.13.4 to permit fusion of PE-RT joints.

The addition of these PE-RT standards will provide alternatives to the standards already in the Code.

Cost Impact: Will not increase the cost of construction
No cost impact. These changes provide alternatives to PERT pipe and fittings standards only. No changes in cost to the current Code provisions.

Analysis: A review of the standard proposed for inclusion in the code, CSA B137.18, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

RM 43-15 : Table M2101.1-GILL4497

RM 44-15

Table M2101.9

Proponent: Mike Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservnet.com)

2015 International Residential Code

Revise as follows:

TABLE M2101.9
HANGER SPACING INTERVALS

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (feet)	MAXIMUM VERTICAL SPACING (feet)
PEX tubing ≤ 1 inch	2.67	4
PEX tubing ≥ 1 1/4 inches	4	10a

(Portions of table not shown remain unchanged)

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. For sizes 2 inches and smaller, a guide shall be installed midway between required vertical supports. Such guides shall prevent pipe movement in a direction perpendicular to the axis of the pipe.

Reason: The 2015 code cycle for the IRC included updates to the support spacing for both PEX and PE-RT tubing for sizes larger than 1". The IRC-P Table P2605.1 is current and correct and should be used as the base template for all other tables within the ICC codes as identified in this amendment proposal. The horizontal support spacing for both PEX and PE-RT tubing (piping) up to and including 1" size is 32" (2-2/3Ft) and 48" (4Ft) for sizes 1- 1/4" and larger. These dimensions are consistent with all published PEX literature and manufacture's installation instructions.

Cost Impact: Will not increase the cost of construction
This proposal modifies the spacing for piping material support into the code and thus the code with this proposal added will not cause the cost of construction to increase, and could decrease the cost as less support is required for larger pipe.

RM 44-15 : Table M2101.9-CUDAHY4739

RM 45-15

M2101.10

Proponent: Mike Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservnet.com)

2015 International Residential Code

Revise as follows:

M2101.10 Tests. Hydronic piping systems shall be tested hydrostatically at a pressure of one and one-half times the maximum system design pressure, but not less than 100 pounds per square inch (689 kPa). The duration of each test shall be not less than 15 minutes and not more than 20 minutes.

> **Exception:** For plastic piping systems, testing with a compressed gas shall be an alternative to hydrostatic testing where compressed air or other gas pressure testing is specifically authorized by all of the manufacturer's instructions for the plastic pipe and fittings products installed at the time the system is being tested, and compressed air or other gas testing is not otherwise prohibited by applicable codes, laws, or regulations outside of this code.

Reason: PPFA has a new air testing policy, which allows for some limited air testing of plastic piping systems, if a number of conditions are met.

Bibliography: PLASTIC PIPE AND FITTINGS ASSOCIATION POLICY ON TESTING PLASTIC PIPE AND FITTINGS INSTALLATIONS WITH COMPRESSED GAS, PPFA, 2014, http://www.ppfahome.org/ub4.aspx

Compressed air or any other compressed gases should not be used for pressure testing plastic plumbing systems.

EXCEPTIONS:

1.) With trap seal pull testing, where a completed DWV system is vacuum tested with all of its traps filled with water, and the trap seals are tested with a vacuum typically between one and two inches of water column.

2.) For plastic piping systems specifically designed for use with compressed air or gasses;

• Manufacturers' instructions must be strictly followed for installation, visual inspection, testing and use of the systems,

(and)

• Compressed air or other gas testing is not prohibited by the authority having jurisdiction (AHJ).

3.) When compressed air or other gas pressure testing is specifically authorized by the applicable written instructions of the manufacturers of all plastic pipe and plastic pipe fittings products installed at the time the system is being tested and compressed air or other gas testing is not prohibited by the authority having jurisdiction (AHJ).

The manufacturer should be contacted if there is any doubt as to how a specific system should be tested.

Cost Impact: Will not increase the cost of construction
This proposal simply adds another option for air testing some specific piping materials into the code and as such, the option is not requiring that this method be chosen. Thus the code with this proposal added will not cause the cost of construction to increase.

RM 45-15 : M2101.10-CUDAHY4681

RM 46-15

M2101.10

Proponent: Gary Morgan, Viega LLC, representing Viega LLC (gary.morgan@viega.us)

2015 International Residential Code

Revise as follows:

M2101.10 Tests. Hydronic system piping ~~systems~~ shall be tested ~~hydrostatically~~ with either water or, for piping systems other than plastic, by air at a pressure of one and one-half times the maximum system design pressure, but not less than 100 pounds per square inch (689 kPa). The duration of each test shall be not less than 15 minutes and not more than 20 minutes.

> **Exception:** For plastic piping systems, testing with a compressed gas shall be an alternative to hydrostatic testing where compressed air or other gas pressure testing is specifically authorized by all of the manufacturer's instructions for the plastic pipe and fittings products installed at the time the system is being tested, and compressed air or other gas testing is not otherwise prohibited by applicable codes, laws, or regulations outside of this code.

Reason: PPFA (Plastic Pipe and Fittings Association) has a new air testing policy, which allows for some limited air testing of plastic piping systems if certain conditions are met. The vast majority of plastic pipe used in hydronic applications pose no more of a safety concern than does air testing of metallic piping systems. The proposed language is also consistant with new language being proposed by PPFA in the IPC and IRC-P.

Cost Impact: Will not increase the cost of construction
If anything, allowance of air testing vs. hydrostatic testing will save time and expense typically.

RM 46-15 : M2101.10-MORGAN4930

RM 47-15

M2101.10

Proponent: Gary Morgan, Viega LLC, representing Viega LLC (gary.morgan@viega.us)

2015 International Residential Code

Revise as follows:

M2101.10 Tests. Hydronic piping systems shall be tested hydrostatically at a pressure of one and one-half times the maximum system design pressure, but not less than 100 pounds per square inch (689 kPa). The duration of each test shall be not less than 15 minutes~~ and not more than 20 minutes~~.

Reason: To limit the maximum time of pressure testing to 20 minutes (when the minimum time is already only 15 minutes) is not consistant with industry practice nor is it consistant with the IMC 1208.1 for testing of hydronic systems where no such maximum time even exists.

Cost Impact: Will not increase the cost of construction
Eliminating the maximum time of testing requirement has absolutely no bearing on the cost of construction.

RM 47-15 : M2101.10-MORGAN4994

RM 48-15

M2103.2, M2103.2.1, M2103.2.2

Proponent: Brent Ursenbach, Salt Lake County, representing Utah Chapter ICC (bursenbach@slco.org)

2015 International Residential Code

Revise as follows:

M2103.2 Thermal barrier required. Radiant floor heating systems shall have a thermal barrier in accordance with Sections M2103.2.1 through M2103.2.4. Insulation R-values for slab-on-grade and suspended floor installations shall be in accordance with the *International Energy Conservation Code*.

> **Exception:** Insulation shall not be required in engineered systems where it can be demonstrated that the insulation will decrease the efficiency or have a negative effect on the installation.

Delete without substitution:

~~**M2103.2.1 Slab-on-grade installation.** Radiant piping used in slab-on-grade applications shall have insulating materials having a minimum *R*-value of 5 installed beneath the piping.~~

~~**M2103.2.2 Suspended floor installation.** In suspended floor applications, insulation shall be installed in the joist bay cavity serving the heating space above and shall consist of materials having a minimum *R*-value of 11.~~

Reason: Insulation R-values should be located in the IECC/Chapter 11, not Chapter 21- Hydronic Piping. Design professionals, code officials, contractors, developers, virtually all involved in the building process look to the IECC/Chapter 11 for specfic thermal performance values. Locating these two sub-sections in the IMC has created considerable confusion. A similiar proposal will be submitted in Grouip B, to add these sub-sections into the IECC where they belong.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction as it is the first step in re-locating an existing insulation requirement from the IRC mechanical section to the IECC/Chapter 11 IRC. There is no increase in the R-value of the insulation or the installation labor.

RM 48-15 : M2103.2-URSENBACH5803

RM 49-15

M2103.3

Proponent: Tim Earl, GBH International, representing The Oatey Company (tearl@gbhinternational.com)

2015 International Residential Code

Revise as follows:

M2103.3 Piping joints. Copper and copper alloy systems shall be soldered in accordance with ASTM B 828. Fluxes for soldering shall be in accordance with ASTM B 813. The base material for tinning fluxes, excluding the tinning powder, shall meet the criteria of ASTM B813. Brazing fluxes shall be in accordance with AWS A5.31. Piping joints that are embedded shall be installed in accordance with the following requirements:

1. Steel pipe joints shall be welded.
2. Copper tubing shall be joined by brazing complying with Section P3003.6.1.
3. Polybutylene pipe and tubing joints shall be installed with socket-type heat-fused polybutylene fittings.
4. CPVC tubing shall be joined using solvent cement joints.
5. Polypropylene pipe and tubing joints shall be installed with socket-type heat-fused polypropylene fittings.
6. Cross-linked polyethylene (PEX) tubing shall be joined using cold expansion, insert or compression fittings.
7. Raised temperature polyethylene (PE-RT) tubing shall be joined using insert or compression fittings.

Reason: Tinning fluxes have been shown in several studies to create a stronger and more consistently water-tight connection when using low-lead fittings. This means less rework on the job site and less likelihood of joint failure. With the federal mandate of low-lead in 2014, this has become a significant issue and the codes need to reflect this need. We are pursuing changes to the referenced ASTM standard as well, however these will not be completed in time for this code cycle and we feel that it is important to make this change as it has the potential to save money related to rework and repair. Once the standard is altered, we would support removing the language being proposed.

Cost Impact: Will not increase the cost of construction
This proposal will not affect cost as it simply adds another solder flux option.

RM 49-15 : M2103.3-EARL4643

RM 50-15

Table M2105.4, Table M2105.5, Chapter 44

Proponent: Jeremy Brown, representing NSF International (brown@nsf.org)

2015 International Residential Code

Revise as follows:

TABLE M2105.4
GROUND-SOURCE LOOP PIPE

MATERIAL	STANDARD
Chlorinated polyvinyl chloride (CPVC)	ASTM D 2846; ASTM F 437; ASTM F 438; ASTM F 439; ASTM F 441; ASTM F 442; CSA B137.6
Cross-linked polyethylene (PEX)	ASTM F 876; ASTM F 877 CSA B137.5; NSF 358-3
Polyethylene/aluminum/polyethylene (PE-AL-PE) pressure pipe	ASTM F 1282; CSA B137.9; AWWA C 903
High-density Polyethylene (HDPE)	ASTM D 2737; ASTM D 3035; ASTM F 714; AWWA C901; CSA B137.1; CSA C448; NSF 358-1
Polypropylene (PP-R)	ASTM F 2389; CSA B137.11
Polyvinyl chloride (PVC)	ASTM D 1785; ASTM D 2241; CSA 137.3
Raised temperature polyethylene (PE-RT)	ASTM F 2623; ASTM F 2769

TABLE M2105.5
GROUND-SOURCE LOOP PIPE FITTINGS

PIPE MATERIAL	STANDARD
Chlorinated polyvinyl chloride (CPVC)	ASTM D 2846; ASTM F 437; ASTM F 438; ASTM F 439; ASTM F 1970; CSA B137.6
Cross-linked polyethylene (PEX)	ASTM F 877; ASTM F 1807; ASTM F 1960; ASTM F 2080; ASTM F 2159; ASTM F 2434; CSA B137.5; NSF 358-3
Polyethylene/aluminum/polyethylene PE-AL-PE)	ASTM F 2434; ASTM F 1282; CSA B137.9
High-density Polyethylene (HDPE)	ASTM D 2683; ASTM D 3261; ASTM F 1055; CSA B137.1; CSA C448; NSF 358-1
Polypropylene (PP-R)	ASTM F 2389; CSA B137.11; NSF 358-2

Polyvinyl chloride (PVC)	ASTM D 2464; ASTM D 2466; ASTM D 2467; ASTM F 1970, CSA B137.2; CSA B137.3
Raised temperature polyethylene (PE-RT)	ASTM D 3261; ASTM F 1807; ASTM F 2159; F 2769; B137.1

Add new standard(s) as follows:

NSF 358-3 (DRAFT 10-7-2014) Cross-linked Polyethylene (PEX) Pipe and Fittings for Water-Based Ground-Source (Geothermal) Heat Pump Systems

Reason: NSF 358-3 Cross-linked Polyethylene (PEX) Pipe and Fittings for Water-Based Ground-Source (Geothermal) Heat Pump Systems is currently under development as of the submittal deadline. This will be the American National Standard for PEX system components used in geothermal systems and when completed should be referenced in this table. This standard will have geothermal specific requirements above and beyond the ASTM standards for PEX. This standard is expected to be completed in 2015. A draft may be obtained from Jeremy Brown at brown@nsf.org.

Cost Impact: Will not increase the cost of construction
Adding another option for standards will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code,NSF 358-3 , with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

RM 50-15 : Table M2105.4-BROWN5479

RM 51-15

Table M2105.4, Table M2105.5

Proponent: Jeremy Brown, representing NSF International

2015 International Residential Code

Revise as follows:

TABLE M2105.4
GROUND-SOURCE LOOP PIPE

MATERIAL	STANDARD
Polypropylene (PP-R)	ASTM F 2389; CSA B137.11; NSF 358-2

(Portions of table not shown remain unchanged)

TABLE M2105.5
GROUND-SOURCE LOOP PIPE FITTINGS

PIPE MATERIAL	STANDARD
Polypropylene (PP-R)	ASTM F 2389; CSA B137.11; NSF 358-2

(Portions of table not shown remain unchanged)

Add new standard(s) as follows:
NSF 358-2-2012 Polypropylene Pipe & fittings for water-based ground-source "geothermal" heat pump systems

Reason: NSF 358-2 Polypropylene Pipe & fittings for water-based ground-source "geothermal" heat pump systems is the American National standard and should be included in these tables. This standard has requirements for material suitability, performance, chemical resistance long term strength and quality assurance requirements related to geothermal products. A copy of this standard will be provided to the commitee and may be obtained by anyone else by emailing brown@nsf.org.

Cost Impact: Will not increase the cost of construction
Providing an additional option will not increase the cost of construction.

Analysis: A review of the standard proposed for inclusion in the code, NSF 358-2, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

RM 51-15 : Table M2105.4-BROWN5477

RM 52-15

M2005.1, M2301.2.1, M2301.2.2.2, M2301.2.4, M2301.2.6, M2301.2.8, M2301.2.11.1, M2301.3, M2301.3.1, M2301.3.2, M2301.2.6.1 (New), M2301.2.6.2 (New)

Proponent: Rex Gillespie (rex.gillespie@caleffi.com)

2015 International Residential Code

Revise as follows:

M2005.1 General. Water heaters shall be installed in accordance with Chapter 28, the manufacturer's instructions and the requirements of this code. Water heaters installed in an attic shall comply with the requirements of Section M1305.1.3. Gas-fired water heaters shall comply with the requirements in Chapter 24. Domestic electric water heaters shall comply with UL 174. Oiled-fired water heaters shall comply with UL 732. ~~Thermal solar~~Solar thermal water ~~heaters~~heating systems shall comply with Chapter 23 and ~~UL 174~~SRCC 300. Solid fuel-fired water heaters shall comply with UL 2523.

M2301.2.1 Access. ~~Solar energy collectors, controls, dampers, fans, blowers and pumps~~ Access shall be ~~accessible~~ provided to solar energy *equipment* for ~~inspection, maintenance, repair~~maintenance. Solar systems and ~~replacement~~appurtenances shall not obstruct or interfere with the operation of any doors, windows or other building components requiring operation or access. Roof-mounted solar thermal equipment shall not obstruct or interfere with the operation of roof-mounted equipment, appliances, chimneys, plumbing vents, roof hatches, smoke vents, skylights and other roof penetrations and openings.

M2301.2.2.2 Collector sensors. Collector sensor installation, sensor location and the protection of exposed sensor wires from ~~ultraviolet light~~ degradation shall be in accordance with SRCC 300.

M2301.2.4 Vacuum relief. System components that might be subjected to ~~pressure drops below atmospheric pressure~~ a vacuum during operation or shutdown shall be designed to withstand such vacuum or shall be protected ~~by a vacuum-relief valve.~~ with vacuum relief valves.

M2301.2.6 Protection from freezing. System components shall be protected from damage resulting from freezing of heat-transfer liquids at the winter design temperature provided in Table R301.2(1). Freeze protection shall be provided ~~by heating, insulation, thermal mass and heat transfer fluids~~in accordance with SRCC 300. Drain-back systems shall be installed in compliance with Section M2301.2.6.1 and systems utilizing freeze ~~points lower than the winter design temperature, heat tape or other *approved* methods, or combinations thereof.~~protection valves shall comply with Section M2301.2.6.2.

> **Exception:** Where the 97.5-percent winter design temperature is greater than ~~32~~or equal to 48°F (~~0~~9°C).

M2301.2.8 Expansion tanks. Expansion tanks in solar energy systems shall be installed in accordance with Section M2003 in solar collector loops that contain pressurized heat transfer fluid. Where expansion tanks are used, the system shall be designed in accordance with SRCC 300 to provide an expansion tank that is sized to withstand the maximum operating pressure of the system.

> **Exception:** Expansion tanks shall not be required in the collector loop of *drain-back systems*.

M2301.2.11.1 Solar loop isolation. Valves shall be installed to allow the solar ~~collectors~~ loop to be isolated from the remainder of the system

M2301.3 Labeling. *Labeling* shall comply with Sections M2301.3.1 and M2301.3.2.

M2301.3.1 Collectors and panels. Solar thermal collectors and panels shall be listed and labeled in accordance with SRCC 100 or SRCC 600. ~~Collectors and panels~~Factory-built collectors shall ~~be *listed* and *labeled* to show~~bear a label showing the manufacturer's name, model number~~,~~ and serial number~~, collector weight, collector maximum allowable temperatures and pressures, and the type of heat transfer fluids that are compatible with the collector or panel~~. ~~The *label* shall clarify that these specifications apply only to the collector or panel.~~

M2301.3.2 Thermal storage units. Pressurized ~~thermal~~ water storage ~~units~~ tanks shall ~~be *listed* and *labeled* to show~~ bear a label showing the manufacturer's name and address, model number, serial number, storage unit maximum and minimum allowable operating temperatures and ~~pressures,~~storage unit maximum and ~~the type of heat transfer fluids that are compatible with the storage unit~~minimum allowable operating pressures. The *label* shall clarify that these specifications apply only to the ~~thermal~~ water storage ~~unit~~tanks.

Add new text as follows:

M2301.2.6.1 Drain-back systems Drain-back systems shall be designed and installed to allow for manual gravity draining of fluids from areas subject to freezing to locations not subject to freezing, and air filling of the components and piping. Such piping and components shall maintain a horizontal slope in the direction of flow of not less than one-fourth unit vertical in 12 units horizontal (2-percent slope). Piping and components subject to manual gravity draining shall permit subsequent air filling upon drainage and air venting upon refilling.

M2301.2.6.2 Freeze protection valves. Freeze protection valves shall discharge in a manner that does not create a hazard or structural damage.

Reason: A reference to the SRCC 300 standard was added to the IRC in Chapter 23 during the 2015 cycle. This change in Chapter 20 changes to language to correspond to SRCC 300. Requirements for hot water storage tanks, which UL 174 intended to address are covered in SRCC 300, therefore, UL 174 is no longer necessary.
Access provisions were revised to clarify that roof-mounted solar collectors and equipment should not interfere with the operation of key safety components and features from other systems. While this can reasonably assumed, providing this provisions will provide code officials more clear language to reference when inspecting installations.

New language has been added to the freeze protection section to address specific issues with two of the most common freeze protection approachs: drainback systems and freeze protection valves. Drainback systems allow the liquid to drain from the external collector to conditioned space when flow is not occuring. As a result proper slope is critical to ensure operation. Inspection of the installation and workmanship is necessary to ensure that the slope is consistent and the freeze protection is fully functional. Freeze protection valves discharge a small amount of water in freezing conditions and therefore should be addressed in a way similar to T&P valves to ensure that the discharge does not damage the roof or create a hazard (e.g. freezing on a pedestrian walkway). Identical language has also been proposed for Chapter 14 of the IMC. The winter design temperature was revised to utilize the 97.5% winter design temperature, which can be found in Appendix D of the IPC. The threshold value was adjusted to accomodate this change. This will provide greater clarity and allow the Appendix D tables to be used.

The provisions relating to collector and hot water storage tank labeling were simplified since this information and more can be found in manuals and specifications. The language for storage units (tanks) was also revised to clarify that they are only to apply to hot water storage tanks.

Bibliography: SRCC 300, Minimum Standards for Solar Water Heating Systems, Jan. 2, 2013.

Cost Impact: Will not increase the cost of construction
The proposed changes are not anticipated to impact the cost of installation. No new equipment or features are required, and no new requirements are placed on manufacturers impacting certification or manufacturing costs. Proposed provisions provide additional clarity and direction for installers and code officials at inspection.

RM 52-15 : M2301.2.1-GILLESPIE4041

RM 53-15

M2301.3.3 (New)

Proponent: Robby Schwarz, EnergyLogic, Inc., representing EnergyLogic, Inc. (robby@nrglogic.com)

2015 International Residential Code

Add new text as follows:

M2301.3.3 Labeling of solar energy systems The solar energy installer shall provide a certificate or label that lists the following information relative to the installed solar system: Such certificate or label shall be posted near the inverter, electrical distribution panel, or other conspicuous location.

1. The date that the system was installed.
2. The name of the installation company.
3. The system type.
4. The orientation of the arrays and collectors.
5. The tilt in degrees of the arrays and collectors.
6. The square foot area of the arrays and collectors.
7. The number of panels in the arrays.
8. The peak power production of the arrays and collectors stated in watts.
9. The inverter efficiency of the arrays and collectors.
10. The loop type of the arrays and collectors.
11. The type of the arrays and collectors.
12. The storage volume of the system in cubic feet or gallons.

Reason: Rational Statement:
Just like the requirement to provide an insulation certificate to fully document the R-values of the insulation in each assembly of the home ensures that the code official and home owner knows and understand what has been installed in the home, this proposal ensures that everyone involved knows and understands the PV or solar thermal system that has been installed. In addition, since the requirement is in label form it is hoped that this Permanente label will live with the house and will provide meaning full information that can be used for repairs and upgrades, as well as, appraisals and sales transactions when the house is turned over.

Cost Impact: Will not increase the cost of construction
The cost of a label is so minimal that it should not be considered increasing the cost of construction.

RM 53-15 : M2301.3.3 (New)-SCHWARZ4982

RM 54-15

R202 (New), M2301.4.1.1 (New), M2301.4.1.2 (New)

Proponent: Rex Gillespie (rex.gillespie@caleffi.com)

2015 International Residential Code

Add new definition as follows:

SECTION 202 DEFINITIONS

FOOD GRADE FLUID. Potable water or a fluid containing additives listed in accordance with the Code of Federal Regulations, Title 21, Food and Drugs, Chapter 1, Food and Drug Administration, Parts 174-186

SECTION 202 DEFINITIONS

NON-FOOD GRADE FLUID. Any fluid that is not designated as a food grade fluid.

Add new text as follows:

M2301.4.1.1 Double-wall heat exchangers. Heat exchangers utilizing a *non-food grade fluid* shall separate the non-food grade fluid from the potable water by means of double-wall construction. An air gap open to the atmosphere shall be provided between the two walls. The point of discharge from the air gap between the two walls of the double-wall heat exchanger shall be visible.

M2301.4.1.2 Single-wall heat exchangers. Where single-wall heat exchangers are used, the heat transfer fluid shall be food grade fluid..

Reason: This proposal seeks to align with the language that appears in the IMC Chapter 1402.8 regarding heat exchangers and add definitions of FOOD GRADE and NON-FOOD GRADE heat transfer fluids as stated in SRCC Standard 300

Bibliography: SRCC Standard 300, Minimum Standard for Solar Thermal Water Heating Systems, January 3, 2013.

Cost Impact: Will not increase the cost of construction
The proposed changes are not anticipated to impact the cost of installation. No new equipment or features are required, and no new requirements are placed on manufacturers impacting certification or manufacturing costs. Proposed provisions provide additional clarity and direction for installers and code officials at inspection.

Analysis: A review of the standard proposed for inclusion in the code, CFR Title 21, Chapter 1, Parts 174-186, with regard to the ICC criteria for referenced
standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

RM 54-15 : M2301.4-GILLESPIE5131

2015 GROUP A – PROPOSED CHANGES TO THE INTERNATIONAL RESIDENTIAL CODE – PLUMBING/MECHANICAL

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TENTATIVE ORDER OF DISCUSSION
2015 PROPOSED CHANGES TO THE
INTERNATIONAL RESIDENTIAL CODE
(PLUMBING)

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

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

- P3-15 Part II

RP1-15
RP2-15
- P20-15 Part II
- P98-15 Part II
- P166-15 Part II
- P99-15 Part II

RP3-15
- P15-15 Part II
- P19-15 Part II
- P115-15 Part II
- P117-15 Part II
- P51-15 Part II
- P53-15 Part II

RP4-15
- P55-15 Part II
- P82-15 Part II
- P162-15 Part II
- FG42-15 Part II

RP5-15
RP6-15
RP7-15
- P93-15 Part II

RP8-15
- P107-15 Part II
- P109 Part II

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RP10-15
- P101-15 Part II
- P150-15 Part II
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RP14-15
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- P133-15 Part II
- P131-15 Part II
- P135-15 Part II

RP16-15
- P132-15 Part II
- P170-15 Part II
- P172-15 Part II
- P174-15 Part II
- P184-15 Part II
- P128-15 Part II

RP17-15
- P181-15 Part II
- P190-15 Part II
- P178-15 Part II
- P191-15 Part II
- P194-15 Part II
- P195-15 Part II
- P197-15 Part II
- P198-15 Part II
- P202-15 Part II
- P203-15 Part II

RP18-15
- P204-15 Part II
- P205-15 Part II
- P215-15 Part II
- P218-15 Part II
- P219-15 Part II
- P220-15 Part II
- P221-15 Part II
- P224-15 Part II
- P226-15 Part II
- P228-15 Part II

RP19-15

RP 1-15

P2503.4

Proponent: Gary Kozan, CPD, representing Florida Association of Plumbing Heating Cooling Contractors (garyk@ridgewayplumbing.com)

2015 International Residential Code

Revise as follows:

P2503.4 Building sewer testing. The *building sewer* shall be tested by insertion of a test plug at the point of connection with the public sewer~~,~~ and completely filling the *building sewer* with water ~~and pressurizing~~from the lowest to the ~~sewer to not less than 10-foot (3048 mm) head of water~~highest point thereof. The test pressure shall not decrease during a period of not less than 15 minutes. The *building sewer* shall be watertight at all points.

A forced sewer test shall consist of pressurizing the piping to a pressure of not less than 5 psi (34.5 kPa) greater than the pump rating and maintaining such pressure for not less than 15 minutes. The forced sewer shall be water tight at all points.

Reason: Subjecting a gravity house sewer to a 10-foot head test is outdated and impractical. By the time the building sewer is connected, fixtures have usually been installed, so both ends have to be plugged off before testing in order to protect the building from flooding. Leaks on gravity house sewers are rare, considering that most today are constructed with plastic pipe and contain few fittings and joints. Simply filling the sewer with water is sufficient to identify any leaks. It should be noted that public sewer mains and branch laterals downstream of the building sewer are not water tested at all.
This testing method is identical to that found in the other model plumbing code (UPC), used in many states. Florida adopted similar testing requirements in 2000. It is time that the IPC recognizes this proven practice and bring the codes closer together.

Bibliography:
2012 Uniform Plumbing Code:

723.0 Building Sewer Test

723.1 General. Building sewers shall be tested by plugging the end of the building sewer at its points of connection with the public sewer or private sewage disposal system and ***completely filling the building sewer with water from the lowest to the highest point thereof***(emphasis added), or approved equivalent low-pressure air test. Plastic DWV piping systems shall not be tested by the air test method. The building sewer shall be watertight.

2010 Florida Building Code - Plumbing

312.6 Gravity sewer test. Gravity sewer tests shall consist of plugging the end of the building sewer with water at the point of connection with the public sewer, ***completely filling the building sewer with water from the lowest to the highest point thereof***(emphasis added), and maintaining such pressure for 15 minutes. The building sewer shall be watertight at all points.

2010 Florida Building Code - Residential:

2503.4 Gravity sewer test. Gravity sewer tests shall consist of plugging the end of the building sewer with water at the point of connection with the public sewer, ***completely filling the building sewer with water from the lowest to the highest point thereof***(emphasis added), and maintaining such pressure for 15 minutes. The building sewer shall be watertight at all points.

Cost Impact: Will not increase the cost of construction
Reducing the head test for gravity sewers will shorten the length of the fill stack, and eliminate the need for additional test fittings, test balls, and labor to plug off the upper end of the sewer. This should translate to a modest reduction in cost of approx. $20 - $40 per sewer test.

RP 1-15 : P2503.4-KOZAN3454

RP 2-15

P2503.5.1

Proponent: Janine Snyder, City of Thornton, Colorado, representing Colorado Association of Plumbing & Mechanical Officials (CAPMO) (Janine.Snyder@cityofthornton.net)

2015 International Residential Code

Revise as follows:

P2503.5.1 Rough plumbing. DWV systems shall be tested on completion of the rough piping installation by water or, for piping systems other than plastic, by air, without evidence of leakage. Either test shall be applied to the drainage system in its entirety or in sections after rough-in piping has been installed, as follows:

1. Water test. Each section shall be filled with water to a point not less than ~~5~~ 10 feet (~~1524~~3048 mm) above the highest fitting connection in that section, or to the highest point in the completed system. Water shall be held in the section under test for a period of 15 minutes. The system shall prove leak free by visual inspection.
2. Air test. The portion under test shall be maintained at a gauge pressure of 5 pounds per square inch (psi) (34 kPa) or 10 inches of mercury column (34 kPa). This pressure shall be held without introduction of additional air for a period of 15 minutes.

Reason: Historically the codes required a 10 foot head on DWV systems. With the change in the 2015 to only 5 feet head the DWV system can have leaks that are undetectable therefore placing the property owner at risk for damage over the life of the structure. The 10 foot head not only elliminates that risk it ensures that the system is in fact water tight which is the purpose of the test in the first place.

Cost Impact: Will increase the cost of construction
The 10 foot head requirement has been in place and is the standard for testing. The cost of replacing or repairing portions of the DWV system that have leaks that have gone undetected due to the relaxed testing pressures overrules the cost of the additional 5 foot head of water.

RP 2-15 : P2503.5.1-SNYDER4419

RP 3-15

P2603.2.1

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Residential Code

Revise as follows:

P2603.2.1 Protection against physical damage. In concealed locations, where piping, other than cast-iron or galvanized steel, is installed through holes or notches in studs, joists, rafters or similar members less than ~~1 $^1/_4$~~ 1 ½ inches (~~31.8~~38.1 mm) from the nearest edge of the member, the pipe shall be protected by steel shield plates. Such shield plates shall have a thickness of not less than 0.0575 inch (1.463 mm) (No. 16 Gage). Such plates shall cover the area of the pipe where the member is notched or bored, and shall extend not less than 2 inches (51 mm) above sole plates and below top plates.

Reason: For the 2015 IRC, a proposal was approved that reduced the dimension to 1 ¼ inches to match what the National Electrical Code has for wiring protection. Such a reason has no technical basis as wiring is not piping. Drywall nails or screws penetrating wires could cause a short such that a circuit breaker would trip and the circuit becomes dead. Yes, finding such an electrical fault is sometimes difficult but it does not lead to structure damage. A screw or nail penetration of a pipe leads to water damage of a structure. Sometimes the water damage does not immediately occur or the leak is so small that it takes months or even years for the leak to be discovered. Water, or worse, sewage leaks over a long period of time cause mold damage in walls and ceilings and bacteria contamination of living spaces.
The plumbing codes have maintained this 1 ½ inch dimension for many decades with great success in limiting widespread issues with pipe penetrations. Consider that a 2 inch long drywall screw attaching ½ inch gypsum board to framing will penetrate the framing member 1 ½ inches.

This should have not been allowed to change in the IRC in the 2015 edition. This proposal is needed for consistency between the IRC and the IPC.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 143.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

RP 3-15 : P2603.2.1-SNYDER4137

RP 4-15

P2708.4

Proponent: Ed Osann, representing Natural Resources Defense Council (eosann@nrdc.org)

2015 International Residential Code

Revise as follows:

P2708.4 Shower control valves. Individual shower and tub/shower combination valves shall be equipped with control valves of the pressure-balance, thermostatic-mixing or combination pressure-balance/thermostatic-mixing valve types with a high limit stop in accordance with ASSE 1016/ASME A112.1016/CSA B125.16. <u>Shower control valves shall provide thermal shock protection for the rated flow rate of the installed showerhead.</u> The high limit stop shall be set to limit the water temperature to not greater than 120°F (49°C). In-line thermostatic valves shall not be used for compliance with this section.

Reason: Installation of a shower valve meeting the referenced ASSE/ASME/CSA standard is not sufficient to ensure shower safety. The thermal protection afforded by shower valves can be compromised if the flow rate of the showerhead is less than the flow rate for which the protective components of the valve have been designed. The referenced standard for shower valves allows for acceptance at a rated flow of up to 2.5 gpm. However, 2.5 gpm at 80 psi is the current federal *maximum* flowrate for showerheads, and showerheads with maximum flow rates well below 2.5 gpm are widely available. The current EPA *WaterSense* specification for showerheads has a maximum flow rate of 2.0 gpm, and over 3,000 qualifying models are on the market today. Many showerheads are available with flow rates between 2.0 and 1.5 gpm. As manufacturers continue to innovate with more water- and energy-efficient showerheads, the code change proposed here is needed to ensure that new buildings built to this code will safely accommodate the showerheads selected by the designer or builder.
Note that this language does not require that the showerhead itself have a flow rate of less than 2.5 gpm, but simply that the shower valve provide the thermal protection called for under the recognized standard when tested at a flow rate that matches the flow rate of the showerhead.

The 2012 Uniform Plumbing Code, Section 408.3, contains a similar requirement for 'matching' the valve and showerhead flow rates as follows:

> "Showers and tub-shower combinations shall be provided with individual control valves of the pressure balance, thermostatic, or combination pressure balance/thermostatic mixing valve type that provide scald and thermal shock protection for the rated flow of the installed showerhead."

The IRC should be no less protective of health and safety than the UPC.

Additional Technical Background

As noted above, the thermal protection afforded by shower valves can be compromised if the flow rate of the showerhead is less than the flow rate for which the protective components of the valve have been designed. As noted by Martin and Johnson (2008) (as cited in Codes and Standards Enhancement Initiative (CASE), "Multi-Head Showers and Lower-Flow Shower Heads," 2013 California Building Energy Efficiency Standards, California Utilities Statewide Codes and Standards Team, September 2011), combinations of valves and shower heads were tested to determine whether pressure-compensating valves and thermostatic valves with rated flows of 2.5 gpm would perform adequately at lower flow rates. The tests included 22 shower valves from six manufacturers, and the valves were assessed on their ability to maintain water temperature within certain bounds for a given time after a change in pressure event, as described by the ASSE 1016-2005 standard for shower valves. The results indicated that a significant share of shower valves rated for 2.5 gpm failed to provide the thermal protection specified by ASSE 1016 when tested at lower flow rates. As summarized in the CASE report (p. 15): "These results indicate that shower valve temperature maintenance is strongly affected by flow rate, and that new showers with lower-flow shower heads would have to be installed with valves that are designed for 2.0 and lower flow rates."

Cost Impact: Will not increase the cost of construction
Adoption of this proposal will have no effect on the cost of construction, since it calls for the installation of showerheads and shower mixing valves that are compatible, rather than calling for the installation of a particular showerhead or mixing valve that might carry a cost premium. Care in specification and installation is required, not a special product or special installation technique. As noted above, the proposal does not require that the showerhead itself have a flow rate of less than 2.5 gpm, and compliance can be achieved with minimally compliant valves and showerheads. If an architect or builder chooses to install a more efficient showerhead with a lower flow rate, there are valves available at moderate price points that can accomodate the builder's deision. For example, in January 2015, Moen was offering numerous models of showerhead, valve, and trim featuring a pressure-balance type valve retail priced at $102.90 that is fully compatible with showerheads rated at 1.75 gpm maximum or higher. Valves of the temperature-balancing type are more expensive, but are not required by this proposal.

RP 4-15 : P2708.4-OSANN5184

RP 5-15

P2801.6

Proponent: Kari Hebrank, Wilson & Associates, representing VizCO-US (khebrank@wilsonmgmt.com); Howard Guard (howard@vizco.com)

2015 International Residential Code

Revise as follows:

P2801.6 Required pan. Where a storage tank-type water heater or a hot water storage tank is installed in a location where water leakage from the tank will cause damage, the tank shall be installed in a pan constructed of one of the following:

1. Galvanized steel or aluminum of not less than 0.0236 inch (0.6010 mm) in thickness.
2. Plastic not less than 0.036 inch (0.9 mm) in thickness.
3. Other approved materials.

A plastic pan ~~shall not be installed~~ beneath a gas-fired water heater shall be constructed of material having a flame spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723.

Reason: The reason for this code proposal is that there should not be a restriction against the installation of all plastic pans beneath gas-fired hot water heaters and storage tanks as there are some plastic pans that have been developed and successfully tested against tough industry standards and ratings for flammability and smoke, specifically ASTM E84 Class A standards, thus making these type of pans perfectly suitable for water leakage protection for gas-fired hot water heaters.
One such product is manufactured by VizCO-US, Inc., and their proprietary SECUREFLX material, which was tested and met both UL94 V2 flammability rating and ASTM E84 Class A standards for flame spread and smoke development, has been used and approved in furnace drain pans for years. The heat and distortion thresholds of this material and the accompanying proven test and rating standards make VizCO-US pans an extremely safe product for use with either gas or electric water heaters. The VizCO-US product test reports are included in an attachment to this code proposal {510} {509} and it is important to note that the UL94 flammability rating for plastic materials --to which the VizCO-US plastic pan adheres--states that specimens may not burn with flaming combustion for more than 30 seconds after either application of the test flame.

Another reason for this code change is that without it, there would be a restriction of trade for manufacturers who produce plastic drip pans that meet the mandated UL and ASTM standards for flammability and smoke. Furthermore, the building code is intended to accommodate new products and new technology as innovative ideas and products emerge, rather than discriminate against products that meet current industry building standards. Without this code change, there will be discrimination against one segment of the building product manufacturing industry.

Moreover, with ZERO CLEARANCE gas water heater models, the manufacturers have approved a zero clearance between the bottom of the tank and any flammable surface, so a plastic pan that meets flammability ratings should be allowed upon the manufacturers approval.

Without this code change, only metal pans would be allowed to be installed beneath a gas-fired water heater, thus limiting choice for both the contractor and the consumer, and ultimately increasing costs. VizCO-US plastic pans meet or exceed ASTM E-84 and UL 94 testing and performance standards and contain the following characteristics: self-extinguishing, low smoke, flexible, extreme strength, affordability and perform without failure at a higher temperature range than any other non-metallic solution. (See sales sheet attachment for product characteristics.) {511} {512}

The standards UL 723 and ASTM 84 are standards that characterize the relative rate at which flame will spread as the subject material burns. Testing reports for the VizCO-US plastic pans are attached to this code proposal.

VizCO US
THE VIZIONARY COMPANY

INSPECTOR ✓ PREFERRED

SECUREFLX material


VizCO Corporate office in Bradenton, Florida.


Extrusion line at the Monticello, Florida factory.

SecureFLX is designed to be safer and physically outperform every other drain pan at a superior price point.

Our goal is to provide a product with the following characteristics: self extinguishing, low smoke, flexibility, extreme strength and to perform without failure at a higher temperature range than any other non-metallic solution.

The result is a cost effective material unlike anything on the market.

Independent laboratories have tested and rated our material to meet or exceed ASTM E-84 class A and UL-94 testing and performance standards.

IL INDEPENDENT LABORATORIES Testing and Performance Ratings

CLASS A SMOKE/FIRE RATED
Meets ASTM E84 class A rating

Meets or Exceeds UL94 v2 Standards

ASTM E 84 - CLASS A RATING:

	Flame Spread Index	Smoke Developed Index
Class A	0-25	0-450

Material Properties

PROPERTIES	ASTM METHOD	VALUE
Izod Impact	D-256	12.0 ft-lbs/in
Tensile Strength	D-638	8,900 psi
Flexural Strength	D-790	13,500 psi
Flexural Modulus	D-790	345,000 psi
Rockwell Hardness	D-785	112 R
HDTUL Unannealed (264 psi)	D-648	270°F

USED BY CODE OFFICIALS AND REGULATORY AGENCIES IN THE ACCEPTANCE OF INTERIOR FINISH MATERIALS FOR VARIOUS APPLICATIONS.

THE MOST WIDELY ACCEPTED CLASSIFICATION SYSTEM DESCRIBED IN THE NATIONAL FIRE PROTECTION ASSOCIATION PUBLICATION NFPA 101 LIFE SAFETY CODE.

CHARACTERIZES THE RELATIVE RATE AT WHICH FLAME WILL SPREAD AS THE SUBJECT MATERIAL BURNS.

Mechanical Properties

TEMPERATURE RANGE: -20°F TO 260°F
DISTORTION TEMPERATURE: 310°F
LOAD SUPPORT (LBS): 1000+
FLAME RETARDANT
SELF-EXTINGUISHING
LOW SMOKE

MADE WITH PRIDE IN THE U.S.A

UL94 FLAMMABILITY RATING:

SPECIMENS MAY NOT BURN WITH FLAMING COMBUSTION FOR MORE THAN 30 SECONDS AFTER EITHER APPLICATION OF THE TEST FLAME.

THE STANDARD FOR SAFETY OF FLAMMABILITY OF PLASTIC MATERIALS

SECUREFLX

www.VizCo.com • (941) 753-3333
3500 9th Street West • Bradenton, FL 34205

Bibliography: The referenced testing standards and ratings are included in the attachments. {509} {510}

Cost Impact: Will not increase the cost of construction
This code proposal has cost-savings implications to the construction industry and consumers. VizCO-US plastic pans will save distributors, contractors and homeowners anywhere from 10%-30% when installed beneath gas-fired water heaters, rather than installation of the higher-priced metal pans. Additionally, oftentimes there are replacement costs with the metal pans, especially the flimsier aluminum pans, that are easily dented and crushed during transportation from the manufacturer to the distributor, from the distributor to the contractor and from the contractor to the jobsite.
Unlike metal pans which are dented and crushed during installation of the water tanks that roll over the sides of the pan, VizCO-US plastic pans are designed not to break, crack, split or crush. You can actually roll a tank over the side of a VizCO-US pan which is designed to aide in the installation process and keep the contractor from having to lift a tank up and over a sidewall of the pan. (See sales sheet attachment for

product description.) {511} {512}

VizCO-US pans offer cost-savings to everyone in the supply chain from the time it is released from the manufacturing plant unitl the time the tank is set in place. Due to the extreme strength of the product, there are cost-savings in shipping/delivery costs and financial cost-savings by not having to worry about replacement costs, or credits and returns for damaged products like there are with metal pans.

RP 5-15 : P2801.6-HEBRANK5541

RP 6-15

P2802 (New), P2802.1 (New), P2802.2 (New), Table P2802.2 (New), P2802.3 (New)

Proponent: Ed Osann, representing Natural Resources Defense Council (eosann@nrdc.org)

2015 International Residential Code

Add new text as follows:

SECTION P2802
RADIAL DISTANCE TO CERTAIN PLUMBING FIXTURES

P2802.1 Scope. The distance limitation in Section P2802.2 shall apply to the following plumbing fixtures:

1. lavatories.
2. kitchen sinks.
3. showers.
4. tub-shower combinations.

Exception: Plumbing fixtures connected to a hot water recirculation system.

P2802.2 Maximum distance to certain plumbing fixtures For hot water distribution systems serving individual dwelling units, the maximum radial distance in plan view between the location of a water heater and a plumbing fixture receiving hot water from it shall be no more than the length shown in Table P2802.2. For purposes of this determination, the location of a water heater shall be translated vertically to each floor on which a fixture served by such water heater is located.

TABLE P2802.2
MAXIMUM RADIAL DISTANCE BETWEEN A WATER HEATER AND CERTAIN PLUMBING FIXTURES

Dwelling Unit Floor Area (ft^2)	Maximum Plan View distance (ft)	
	Two or More Story Structures	One-Story Structures
≤1000	20 ft.	30 ft.
>1000 to ≤1600	30 ft.	40 ft.
>1600 to ≤2200	40 ft.	50 ft.
>2200 to ≤2800	45 ft.	55.ft.
>2800	50 ft.	65 ft.

P2802.3 Points of Measurement Radial distance shall be measured in plan view betwee the center point of the water heater and the hot water outlet serving a plumbing fixture indicated in Section P2802.1.

Reason: Cold or tepid water in the initial draw from a hot water outlet is often unusable for its intended purpose and is frequently purged, resulting in a waste of water, energy, and time for residents. Pipe insulation significantly reduces heat loss and helps to ensure that hot water gets to users sooner. However, a complementary strategy is to reduce the volume of water contained in the hot water distribution system subject to cool-down. This proposal seeks to reduce entrained hot water volume by setting generous but clear limits on the distance between a hot water heater and the furthest bathroom or kitchen fixture it serves.

Providing greater proximity between the hot water source and the fixtures using hot water will reduce the need for purging. This proposal is similar in intent and effect to Section 607.2 of the International Plumbing Code, which sets a maximum developed length of 50 feet for hot water supply piping between a heat source and any hot water fixture. While not a limitation on pipe length or internal volume *per se*, this proposal will have similar results and has the avantage of requiring no special drawings nor any measurements or calculations at the job site. Rather, its simple provisions can be easily applied during project design and confirmed at plan check, and its graduated distance limits meet the need for a flexible approach that respects the diversity of types and sizes of single-family homes covered by the IRC.

Plans for most two-story production homes should comply with this provision with little or no adjustment. Most home designs where the principal length-to-width ratio of the building footprint is 2 to 1 or less should face few compliance isues. The concept may be more challenging for single-story homes, and for that reason an additinal distance allowance is provided for single-story buildings. Plans for homes with long and narrow configuration may require adjustment, largely to avoid positioning the hot water heater and its furthest fixture outlet at diagonally opposite corners of the building. Avoiding such inherently inefficient designs is the primary intent of this proposal.

The specific limitations in this proposal have their origin in a review of data collected from a diverse group of 55 single-family homes under construction in California in 2010-11. A plot of house floor area and maximum length of pipe between the hot water heater and the furthest hot water fixture was developed. Based upon these plotted data, in 2011 the California Utilities Statewide Codes and Standards team devloped a draft proposal setting a grauated limit on the maximum length of hot water pipe between a water heater and the furthest fixture. The proposal was estimated to save over 2500 gallons of water and over 24 therms of natural gas annually when applied to prototype homes. However, these initial pipe length criteria would have been met by just 10 out of the 55 homes surveyed. Subsequent workshops raised concerns about the challenges of field verification of pipe length subject to the limit. As a result, the concept was modified to measure radial distance in plan view, in lieu of field verification of pipe length. In its second iteration, limits were expressed as radial distances instead of pipe length, but the proposal was intended to be equally stringent. In this proposal for the IRC 2018 model code, these stringent distant limits have been increased by 50%; we estimate that over 75% of the surveyed homes in the 2010-11 data set would meet these proposed limits.

Plans not meeting the radial length limitation can come into compliance using several strategies, including fixture repositioning or hot water repositioning. The latter can often be accomplished by repositioning the proposed water heater location from an exterior garage wall to an interior garage wall; moving a basement water heater from a corner toward a more central location; or rearranging fixture locations in a bathroom to move hot water outlets closer to the water heater. Installation of a second water heater is also an option, as is a recirculation loop. Design flexibility is maintained, and architects and builders can easily identify any compliance issues at an early stage.

The IRC, as a minimum code, has a crucial role to play in curbing excessive waste of water and energy in future years by means of improved design and construction of new homes. An inefficient hot water distribution system is likely to remain in place for the life of the building, leaving owners without access to options that would have only been practical at the time of construction.

Reducing the waste of energy and water is an integral part of the stated purpose of the IRC:

> R101.3 Intent.
>
> The purpose of this code is to establish minimum requirements to safeguard the public safety, health and general welfare through affodability, structural strength, means of egress facilities, stability, sanitation, light and ventilation, energy conservation and safety to life and property from fire and other hazards attributed to the built environment and to provide safety to fire fighters and emergency responders during emergency operations.

This proposal, by reducing demands on energy and water systems in new homes, clarly advances the "public safety, health and general welfare" through cost-effective designs and energy conservation. Water-saving building designs reduce unnecessary water use, helping to ensure that water supplies are maintained at safe and reliable levels, protecting human health and firefighting capability as well as environmental resources. Energy- and water-saving designs, such as those meeting the criteria of this proposal, also enhance housing affordability and general welfare through reduced energy, water and sewer bills of building owners and occupants.

Additional Technical Background

A 2009 paper by Robert Hendron of the National Renewable Energy Laboratory and others quantified the waste of hot water in initial draws waiting for water to reach 105ºF. Modeling the plumbing typical of a 3-bedroom, 2-bath, single-story home with a hot water distrubutiuon simulation tool found that an estimated 12% of all hot water used on an annual basis is wasted. When viewed by fixture, the results are as follows:

- Showers -- over 10% wastage.
- Kitchen sinks -- 18% wastage.
- Lavatories -- over 30% wastage.

Purging at these fixtures is responsible for 95% of the estimated total of nearly 3,000 gallons of hot water wastage annually. Of course, many new homes are built with more hot water outlets than this model's base case and with hot water distribution systems that are far less efficient. Nevertheless, this proposal will direct the attention of designers and code officials to the proximity between water heaters and those fixtures that are responsible for the great majority of hot water waste.

Bibliography: Hendron, Robert, et al, "Potential for Energy Savings through Residential Hot Water Distribution System Improvements", Proceedings of the 3rd International Conference on Energy Sustainability, San Francisco, CA July 2009.
Single Family Water Heating Distribution System Improvements, Codes and Standards Enhancement Initiative (CASE), California Utilities Statewide Codes and Standards Team, draft May 2011.

Single Family Water Heating Distribution System Improvements, Codes and Standards Enhancement Initiative (CASE), California Utilities Statewide Codes and Standards Team, final September 2011.

Cost Impact: Will not increase the cost of construction
This proposal is a design requirement that can be met without increasing the cost of construction. Plans that may be initially out of conformance can most commonly be adjusted with strategies that need not carry a cost penalty, such as repositioning the proposed hot water heater location from an exterior garage wall to an interior garage wall, or by rearranging fixture locations in a bathroom to move hot water outlets closer to the water heater. Such changes typically result in shorter lengths of both cold and hot water piping, thereby reducing costs. The CASE report referenced in the bibliography evaluated the cost-effectiveness of radial distance limits that were significantly more stringent than proposed here, and found them to be cost-effective in all cases. (See final report, pp. 20-21.) The report's estimate even assumed an initial cost of $390 for additional lengths of natural gas piping and water heater vent piping, even though repositioning a water heater from an outer garage wall to an inner garage wall need not increase gas service line length. Cost savings averageing $73 from reduced length of PEX hot water piping were estimated. Natural gas savings of 24 therms per year more than ofset these costs on a life-cycle basis. What's more, no savings were calculated or credited for reduced water and sewer charges over the life of the building, which would further improve the cost-effctiveness of this measure.

RP 6-15 : P2802 (New)-OSANN5261

RP 7-15

P2804.6.1

Proponent: William Chapin, representing Professional Code Consulting, LLC (bill@profcc.us)

2015 International Residential Code

Revise as follows:

P2804.6.1 Requirements for discharge pipe. The discharge piping serving a pressure-relief valve, temperature-relief valve or combination valve shall:

1. Not be directly connected to the drainage system.
2. Discharge through an air gap located in the same room as the water heater.
3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the air gap.
4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.
5. Discharge to the floor, ~~to the pan serving the water heater or~~ storage tank, to a waste receptor or to the outdoors.
6. Discharge in a manner that does not cause personal injury or structural damage.
7. Discharge to a termination point that is readily observable by the building occupants.
8. Not be trapped.
9. Be installed to flow by gravity.
10. Terminate not more than 6 inches (152 mm) and not less than two times the discharge pipe diameter above the floor or waste receptor flood level rim.
11. Not have a threaded connection at the end of the piping.
12. Not have valves or tee fittings.
13. Be constructed of those materials indicated in Section P2906.5 or materials tested, rated and *approved* for such use in accordance with ASME A112.4.1.
14. Be one nominal size larger than the size of the relief-valve outlet, where the relief-valve discharge piping is constructed of PEX or PE-RT tubing. The outlet end of such tubing shall be fastened in place.

Reason: A water heater pan does not have sufficient volume or drain size to adequately drain the volume of water that is delivered when the relief valve opens due to an over temperature event.

Cost Impact: Will not increase the cost of construction
This will not increase the cost of construction as there is already a drain in place if there is a water heater pan.

RP 7-15 : P2804.6.1-CHAPIN5710

RP 8-15

P2902.5.4, P2904.1

Proponent: Jeffrey Shapiro, representing International Residential Code Fire Sprinkler Coalition (jshapiro@ircfiresprinkler.org)

2015 International Residential Code

Revise as follows:

P2902.5.4 Connections to automatic fire sprinkler systems. The potable water supply to automatic fire sprinkler systems shall be protected against backflow by a double check backflow prevention assembly, a double check fire protection backflow prevention assembly, a reduced pressure principle backflow prevention assembly or a reduced pressure principle fire protection backflow prevention assembly.

> **Exception:**~~Where~~ Where sprinkler systems are installed ~~as a portion of the water distribution system~~ in accordance with ~~the requirements of this code and are not provided with a fire department connection~~Section P2904.1, backflow protection for the water supply system shall not be required.

P2904.1 General. The design and installation of residential fire sprinkler systems shall be in accordance with NFPA 13D or Section P2904, which shall be considered equivalent to NFPA 13D. Partial residential sprinkler systems shall be permitted to be installed only in buildings not required to be equipped with a residential sprinkler system. Section P2904 shall apply to stand-alone and multipurpose wet-pipe sprinkler systems that do not include the use of antifreeze. A multipurpose fire sprinkler system shall provide domestic water to both fire sprinklers and plumbing fixtures. A stand-alone sprinkler system shall be separate and independent from the water distribution system.

A backflow preventer shall not be required to separate a ~~stand-alone~~ sprinkler system from the water distribution system, provided that the sprinkler system complies with all of the following:

1. The system complies with NFPA 13D or Section P2904.
2. The piping material complies with Section P2905.
3. The system does not contain antifreeze.
4. The system does not have a fire department connection.

Reason: The proposed revision clarifies the code by coordinating the requirements in Sections P2902.5.4 with P2904.1. The allowance to omit backflow protection for certain stand-alone systems currently permitted by Section P2904.1 was not previously correlated with Section P2902.5.4, which has caused confusion in applying the code. The proposed text further improves usability of the code by placing a complete backflow preventer exception in Section P2904.1 rather than the current approach, which covers multipurpose systems in Section P2902.5.4 and standalone systems in Section P2904.1.

The proposed revision also makes it clear that the permissible exception to backflow protection applies to systems installed to either Section P2904 or NFPA 13D, and it corrects an oversight in the current code text related to fire department connections, making it clear that backflow protection may not be omitted on any system, stand-alone or multipurpose, that is provided with a fire department connection. Although fire department connections aren't required by Section P2904 and aren't ordinarily installed on home fire sprinkler systems, the possibility that such a connection might be voluntarily provided must be addressed.

Cost Impact: Will not increase the cost of construction

The proposal will reduce the cost of construction in cases where a backflow preventer would otherwise have been provided because of a misunderstanding of the current code provisions.

RP 8-15 : P2902.5.4-SHAPIRO4703

RP 9-15

P2903.4, P2903.4.1, P2903.4.2

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Residential Code

Revise as follows:

P2903.4 Thermal expansion control. ~~A means for controlling increased~~ Where a storage water heater is supplied with cold water that passes through a check valve, pressure ~~caused by~~reducing valve or backflow preventer, a thermal expansion tank shall be ~~installed where required~~connected to the water heater cold water supply pipe at a point that is downstream of all check valves, pressure reducing valves and backflow preventers. Thermal expansion tanks shall be sized in accordance with ~~Sections P2903.4.1~~the tank manufacturer's instructions and ~~P2903.4.2~~shall be sized such that the pressure in the water distribution system shall not exceed that required by Section P2903.3.1.

Delete without substitution:

~~**P2903.4.1 Pressure-reducing valve.** For water service system sizes up to and including 2 inches (51 mm), a device for controlling pressure shall be installed where, because of thermal expansion, the pressure on the downstream side of a pressure-reducing valve exceeds the pressure-reducing valve setting.~~

~~**P2903.4.2 Backflow prevention device or check valve.** Where a backflow prevention device, check valve or other device is installed on a water supply system using storage water heating equipment such that thermal expansion causes an increase in pressure, a device for controlling pressure shall be installed.~~

Reason: Any location there is a pressure reducing device, a check valve or a backflow preventer in the cold water piping to a storage-type water heater, a means to compensate for thermal expansion must be installed. This is typically accomplished with an expansion tank. Other methods for relieving thermal expansion pressure, such additional relief valves, waste water for the life of the system. Thermal expansion tanks are required by most storage water heater manufacturers to protect the water heater. Expansion tank manufacturers typically size their tanks so that the water distribution system pressure will remain just shy of the pressure required to open a 150 psi water heater relief valve. This will allow the system pressure to exceed the maximum pressure intended by Section P2903.3.1, which is unacceptable. A similar proposal for the 2015 IPC was Approved as Submitted.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 149.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, there will be the added cost for a thermal expansion tank and the labor to connect it to the piping versus the cost and labor to install a relief valve that discharges a small amount of water to relieve thermal expansion caused pressure. Where specialized water closet tank fill valves were used for the relief, the change might result in no cost impact at all. Where use of a relief valve (before) required a drain to be installed for capturing the discharge, installing a thermal expansion tank might cost less than the drain installation.

RP 9-15 : P2903.4-SNYDER4139

RP 10-15

P2903.5

Proponent: Michael Meagher, representing Sioux Chief Mfg (michael.meagher@siouxchief.com)

2015 International Residential Code

Revise as follows:

P2903.5 Water hammer. The flow velocity of the water distribution system shall be controlled to reduce the possibility of water hammer. A water hammer arrestor shall be installed where quick-closing valves are utilized. Water-hammer arrestors shall be installed in accordance with the manufacturer's instructions. Water-hammer arrestors shall conform to ASSE 1010.

Reason: This proposal re-aligns both the IRC P2903.5 with the IPC 604.9 Water Hammer paragraphs as they were when they were first created, eliminating confusion and clearly spelling out the necessary requirement for water hammer control on all plumbing systems. Originally, these two code paragraphs on water hammer control were identical. Then, the 2009 IRC P2903.5 was edited, striking a single sentence that contained the mandatory language. This same edit proposal did not make it through to the 2009 IPC 604.9. It was voted down, keeping the mandatory language as is. Confusion amongst code officials throughout the country has ensued over this discrepency in the two codes ever since.

Water hammer control has been a part of our plumbing codes and practices ever since plain air chambers were introduced over a hundred years ago. Today, modern plumbing systems require water hammer control even more so than in the past. In regards to the science of water hammer, the laws of physics do not change when comparing the pressure surge in a 1-or-2 family dwelling to the surge in a multi-family system. They are the same. In addition, the advent of plastic piping systems, with various designs of metal and hard-plastic mechanical fitting systems, do not eliminate this need for water hammer control, as some may have assumed. Rather, the need to protect these systems from damaging pressure surges is even greater due to their lower pressure ratings compared to traditional metal piping systems.

Over the years, the plumbing industry has developed a wide variety of ASSE 1010 certified AA size arresters, even laundry boxes with certified integral arresters, which have become very popular throughout the country, making water hammer control very easy and affordable. Other model codes requiring arresters have been successfully welcomed and easily enforced throughout much of the United States, Canada, and in many parts of the world, for many years now. The installation of AA arresters is now common practice for well over half the residential construction in North America, in both single-family and multi-family.

Bibliography: [Link to website for additional information] This link to the ASSE website verifies the many arrester manufacturers and the wide variety of ASSE certified AA arrester options available in the plumbing industry.
http://www.asse-plumbing.org/prodlist_new.asp

Cost Impact: Will increase the cost of construction
For fhe tens of thousands of new homes that are already being installed with AA arresters, there is NO cost impact.
For the tens of thousands of new homes that are still being installed with old-fashioned plain air chambers, there is NO cost impact, and more likely a cost savings, due to the elimination of the cost of labor and material of installing 12-16 air chambers versus the cost of 3 to 5 AA arresters per home.

Where the current IRC is being used and interpreted as requiring NO water hammer control, the initial installation cost impact of this code change will be roughly $18 to $30 per home, depending on local interpretation of required quick-closing valves. This cost impact is calculated using the most common practice of arrester installation, which is installing outlet boxes (such as laundry boxes) with integral arresters. Since the arresters are already factory-installed, the cost impact is simply the cost difference in boxes with and without arresters, roughly $6 per single valve/arrester box ($12 per laundry box since it includes two arresters per box). The second most popular AA arrester installaion is the swivel compression tee arrester which easily and quickly hooks up to the compression supply stop that serves the quick-closing valve. The cost impact of this is roughly $8. Depending on local enforcement, the total cost impact per home could be $18-$30, or an average of about $24 per home.

The LONG TERM cost impact of water hammer control, however, is immeasurable. yet very obvious. Just like many other required devices in a plumbing system, such as pressure reducing valves limiting static pressures to 80 psi, water hammer arresters will help protect the entire plumbing system and all of its necessary appurtenances and appliances from premature failure, saving the homeowner thousands of dollars in repairs and damage over the life of the home.

RP 10-15 : P2903.5-MEAGHER5179

RP 11-15

P2902.5.4, P2904.1, 2904.1.1 (New)

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Residential Code

Revise as follows:

P2902.5.4 Connections to automatic fire sprinkler systems. The potable water supply to automatic fire sprinkler systems shall be protected against backflow by a double check backflow prevention assembly, a double check fire protection backflow prevention assembly, a reduced pressure principle backflow prevention assembly or a reduced pressure principle fire protection backflow prevention assembly.

> **Exception:** Where sprinkler systems are installed~~ as a portion of the water distribution system~~ in accordance with ~~the requirements of this code and are not provided with a fire department connection~~Section P2904.1.1, backflow protection for the water supply system shall not be required.

P2904.1 General. The design and installation of residential fire sprinkler systems shall be in accordance with NFPA 13D or Section P2904, which shall be considered equivalent to NFPA 13D. Partial residential sprinkler systems shall be permitted to be installed only in buildings not required to be equipped with a residential sprinkler system. Section P2904 shall apply to stand-alone and multipurpose wet-pipe sprinkler systems that do not include the use of antifreeze. A multipurpose fire sprinkler system shall provide domestic water to both fire sprinklers and plumbing fixtures. A stand-alone sprinkler system shall be separate and independent from the water distribution system.~~ A backflow preventer shall not be required to separate a stand-alone sprinkler system from the water distribution system.~~

Add new text as follows:

2904.1.1 Backflow protection.
A backflow preventer shall not be required to separate a stand-alone sprinkler system from the water distribution system, provided that the sprinkler system complies with all of the following:

1. The system complies with NFPA 13D or Section P2904.
2. The piping material complies with Section P2905.
3. The system does not contain antifreeze.
4. The system does not have a fire department connection.

Reason: The proposed revision clarifies the code by coordinating the requirements in Sections P2902.5.4 with P2904.1. The allowance to omit backflow protection for certain stand-alone systems currently permitted by Section P2904.1 was not previously correlated with Section P2902.5.4, which has caused confusion in applying the code. The proposed text further improves usability of the code by placing a complete backflow preventer exception in the proposed Section P2904.1.1 rather than the current approach, which covers multipurpose systems in Section P2902.5.4 and standalone systems in Section P2904.1.
The proposed revision also makes it clear that the permissible exception to backflow protection applies to systems installed to either Section P2904 or NFPA 13D, and it corrects an oversight in the current code text related to fire department connections, making it clear that backflow protection may not be omitted on any system, stand-alone or multipurpose, that is provided with a fire department connection. Although fire department connections aren't required by Section P2904 and aren't ordinarily installed on home fire sprinkler systems, the possibility that such a connection might be voluntarily provided must be addressed.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 145.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

RP 11-15 : P2904.1-SNYDER4138

RP 12-15

Table P2906.6, Chapter 44

Proponent: William Chapin, representing Professional Code Consulting, LLC (bill@profcc.us)

2015 International Residential Code

Revise as follows:

TABLE P2906.6
PIPE FITTINGS

MATERIAL	STANDARD
Fittings for polyethylene of raised temperature (PE-RT) plastic tubing	ASSE 1061; ASTM F 1807; ASTM F2098; ASTM F 2159; ASTM F 2735; ASTM F 2769

(Portions of table not shown remain unchanged)

Add new standard(s) as follows:
ASSE 1061-2011 Peformance Requirements for Push-Fit Fittings (UPDATE of edition year).

Reason: ASSE 1061-2011 added PE-RT to the list of tubing that can be used with the fittings.

Cost Impact: Will not increase the cost of construction
This will not increase the cost of construction as it only adds another option for the installer.

Analysis: Successful action on this proposal will result in the update of Reference Standard ASSE 1061 to the 2011 edition level for only the change indicated in the table. A coordinating proposal for updating the standard for the entire code will be submitted to Group B for inclusion in the Reference Standards administrative update proposal.

RP 12-15 : Table P2906.6-CHAPIN5711

RP 13-15

P2906.6.1 (New)

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Residential Code

Add new text as follows:

P2906.6.1 Saddle tap fittings. The use of saddle tap fittings and combination saddle tap and valve fittings shall be prohibited.

Reason: As PEX, PE-RT and CPVC tubings are becoming even more popular than ever for water distribution systems in residential buildings, there are more reports of saddle tap fittings being installed on these types of tubing. This just doesn't work out very well. The IRC does not require that refrigerator ice maker water supply connection boxes be installed at rough-in. And the installation of reverse osmosis drinking water systems is becoming quite popular. Where can someone tap into the water distribution system for the supply of water? A saddle tap is quick and easy but is subject to being bumped and twisted. Where the tap is a combination tap and valve, operation of the valve makes the potential for leakage problems greater.
This connection method should be prohibited just like it has been prohibited in the IPC for some time.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 130.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. For those plumbing contractors that were trying to legally cut corners in every way possible, there will be the minor added cost for a tee installation. Can they convince the builder or developer that they should be paid more for their work because of this change? It would be very, very doubtful that the builder or developer will be impacted with this minor cost addition.

RP 13-15 : P2906.6.1 (New)-SNYDER4140

RP 14-15

P2906.9.1.5, P2906.9.1.5.1, P2906.9.1.5.2

Proponent: Gary Morgan, Viega.LLC, representing Viega LLC (gary.morgan@viega.us)

2015 International Residential Code

Revise as follows:

~~P2906.9.1.5~~P2906.10 Cross-linked polyethylene plastic (PEX). Joints between cross-linked polyethylene plastic tubing or fittings shall comply with Section ~~P2906.9.1.5.1~~P2906.10.1 or Section ~~P2906.9.1.5.2~~P2906.10.2.

~~P2906.9.1.5.1~~P2906.10.1 Flared joints. *No change to text.*

~~P2906.9.1.5.2~~P2906.10.2 Mechanical joints. Mechanical joints shall be installed in accordance with the manufacturer's instructions. Fittings for cross-linked polyethylene (PEX) plastic tubing shall comply with the applicable standards indicated in Table P2906.6 and shall be installed in accordance with the manufacturer's instructions. PEX tubing shall be factory marked with the applicable standards for the fittings that the PEX manufacturer specifies for use with the tubing.

Reason: This proposal fixes an oversight that has existed for several years in this code in that the Section for "PEX Plastic" (P2906.9.1.5) should never have been subcategorized under "Solvent cementing" Section P2906.9.1. Like other specific piping material types, "PEX plastic" should have had it's own section like that of Polypropylene (PP), PEX/AL/PEX, Stainless Steel, Press-connect,and PE-RT to name a few.
This proposal also brings the IRC in consistant alignment with how the IPC is now organized by renumbering the sections for PEX.

Cost Impact: Will not increase the cost of construction
This proposal will have no effect on the cost of construction and only seeks to correct an oversight of organizational numbering.

RP 14-15 : P2906.9.1-MORGAN5492

RP 15-15

P2906.9.1.4

Proponent: Tim Earl, GBH International, representing The Oatey Company, representing The Oatey Company (tearl@gbhinternational.com)

2015 International Residential Code

Revise as follows:

P2906.9.1.4 PVC plastic pipe. A purple primer , or other *approved* primer, that conforms to ASTM F 656 shall be applied to PVC solvent-cemented joints. Solvent cement for PVC plastic pipe conforming to ASTM D 2564 shall be applied to all joint surfaces.

Reason: The market place has already begun using clear as well as UV-light visible primers where local inspectors allow. Many users prefer this as spilled purple primers can permanently stain surfaces and cause added expenses in repair/replacement of stained items. This simply meets a market condition and gives broader authority for these applications to occur. This would also be consistent with language in the IPC and other proposals in the IRC.

Cost Impact: Will not increase the cost of construction
This proposal will not impact cost as it simply adds another primer option.

RP 15-15 : P2906.9.1.4-EARL4723

RP 16-15

Table P2906.4, Table P2906.5, Table P2906.6, P2906.19, P2906.19.2 (New), P2906.19.3 (New)

Proponent: Larry Gill, representing IPEX USA LLC (larry.gill@ipexna.com)

2015 International Residential Code

Revise as follows:

TABLE P2906.4
WATER SERVICE PIPE

MATERIAL	STANDARD
Polyethylene of raised temperature (PE-RT) plastic tubing	ASTM F 2769; CSA B137.18

(Portions of table not shown remain unchanged)

TABLE P2906.5
WATER DISTRIBUTION PIPE

MATERIAL	STANDARD
Polyethylene of raised temperature (PE-RT) plastic tubing	ASTM F 2769; CSA B137.18

(Portions of table not shown remain unchanged)

TABLE P2906.6
PIPE FITTINGS

MATERIAL	STANDARD
Fittings for polyethylene of raised temperature (PE-RT) plastic tubing	ASTM F 1807; ASTM F2098; ASTM F 2159; ASTM F 2735; ASTM F 2769; ASTM F1055; ASTM D2683; ASTM D3261; CSA B137.18

(Portions of table not shown remain unchanged)

P2906.19 Polyethylene of raised temperature plastic. Joints between polyethylene of raised temperature plastic tubing and fittings shall be in accordance with ~~Section~~Sections P2906.19.1, P2906.19.2 and P2906.19.3.

Add new text as follows:

P2906.19.2 Heat fusion Joints Joints shall be of the socket-fusion, saddle-fusion, or butt-fusion type, and shall be joined in accordance with ASTM D2657. Joint surfaces shall be clean and free of moisture. Joint surfaces shall be heated to melt temperatures and joined. The joint shall remain undisturbed until cool. Fittings shall be manufactured in accordance with ASTM D2683 or ASTM D3261.

P2906.19.3 Electrofusion Joints Joints shall be of the electrofusion type. Joint surfaces shall be clean and free of moisture and scoured to expose virgin resin. Joint surfaces shall be heated to melt temperatures for a period of time specified my the manufacturer and joined. The joint shall remain undisturbed until cool. Fittings shall be manufactured in accordance with ASTM F1055.

Add new standard(s) as follows:
CSA B137.18 - 2013 - Polyethylene of raised temperature resistance (PE-RT) tubing systems for pressure applications.

Reason: Add new CSA B137.18 Polyethylene of raised temperature resistance (PE-RT) tubing systems for pressure applications to tables

P2906.4, P2906.5 and P2906.6. This standard includes both pipe and fittings for water service and water distribution. This change will permit pipe and fittings meeting CSA B137.18 to be used in accordance with the Code.
Add new sections P2906.19.2 and P2906.19.3 for PE-RT fusion joints. Also add corresponding reference standards for PE-RT fusion - ASTM F1055, ASTM D2683 and ASTM D3261. This change will permit PE-RT pipe to be joined by fusing methods.

Cost Impact: Will not increase the cost of construction
This proposal adds additional standards for use with PERT pipe and fittings. These new standards are similar to existing referenced standards and product are similar so there is no increase in the cost of the PERT system by referenciing these standards and adding standards to permit fusion of PERT.

Analysis: A review of the standard proposed for inclusion in the code, CSA B137.18 - 2013, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

RP 16-15 : P2906.19-GILL4509

RP 17-15

P3003.9.2

Proponent: Tim Earl, GBH International, representing The Oatey Company (tearl@gbhinternational.com)

2015 International Residential Code

Revise as follows:

P3003.9.2 Solvent cementing. Joint surfaces shall be clean and free from moisture. A purple primer, or other *approved* primer, that conforms to ASTM F 656 shall be applied. Solvent cement not purple in color and conforming to ASTM D 2564, CSA B137.3 or CSA B181.2 shall be applied to all joint surfaces. The joint shall be made while the cement is wet, and shall be in accordance with ASTM D 2855. Solvent-cement joints shall be installed above or below ground.

> **Exception:** A primer shall not be required where all of the following conditions apply:
> 1. The solvent cement used is third-party certified as conforming to ASTM D 2564.
> 2. The solvent cement is used only for joining PVC drain, waste and vent pipe and fittings in non-pressure applications in sizes up to and including 4 inches (102 mm) in diameter

Reason: The market place has already begun using clear as well as UV-light visible primers where local inspectors allow. Many users prefer this as spilled purple primers can permanently stain surfaces and cause added expenses in repair/replacement of stained items. Also, there are some installations (under sinks, basements) where the PVC will be exposed and the primer visible after installation. This simply meets a market condition and gives broader authority for these applications to occur. This would also be consistent with language in the IPC and other proposals in the IRC.
Visible primer stains on pipe installation:

Typical installation with visible primer

UV-visible primer:

UV visible primer

Staining to floor from purple primer (after being wiped off, with less than one minute of exposure):

Stained floor

Stained tile

Cost Impact: Will not increase the cost of construction
This proposal will not impact cost as it simply allows another primer option.

RP 18-15

P3010.4, P3010.5

Proponent: Larry Gill, representing IPEX USA LLC (larry.gill@ipexna.com)

2015 International Residential Code

Revise as follows:

P3010.4 Pipe. The replacement pipe shall be made of a high-density polyethylene (HDPE) that conforms to ~~cell classification number~~ material designation code PE3608, PE4608 or PE4710 as indicated in ASTM F 714. The pipe fittings shall be manufactured with an SDR of 17 and in compliance with ASTM F 714.

P3010.5 Pipe fittings. Pipe fittings to be connected to the replacement piping shall be made of high-density polyethylene (HDPE) that conforms to ~~cell classification number~~ material designation code PE3608, PE4608 or PE4710 as indicated in ASTM F 714. The pipe fittings shall be manufactured with an SDR of 17 and in compliance with ASTM D 2683.

Reason: The listed designations PE 3608, 4608 and 4710 are not cell classiciations per the referecned standard ASTM F714. They are material designation codes. Minor correction to terminology.

Cost Impact: Will not increase the cost of construction
Change to correct terminology with no impact on cost. The proposal does not change the cost of the product it only corrects how the product is referenced.

RP 18-15 : P3010.4-GILL4929

RP 19-15

P3201.1, P3201.2, P3201.2.1.1, P3201.2.1.2, P3201.2.1.3, P3201.2.1.4, P3201.3, P3201.5, P3201.6, Chapter 44

Proponent: Ronald George, Plumb-Tech Design & Consulting LLC on belhalf of Hepworth Bldg Prods (A Trading Div. of Wavin UK Holdings) Ltd., representing Hepworth Building Products (A trading Division of Wavin UK Holdings) Ltd./HepVO

2015 International Residential Code

Revise as follows:

P3201.1 Design of traps. Traps shall be of standard design, shall have smooth uniform internal waterways, shall be self-cleaning and shall not have interior partitions except where integral with the fixture. Traps shall be constructed of lead, cast iron, copper or copper alloy or *approved* plastic. Copper or copper alloy traps shall be not less than No. 20 gage (0.8 mm) thickness. Solid connections, slip joints and couplings shall be permitted to be used on the trap inlet, trap outlet, or within the trap seal. Slip joints shall be accessible.

> **Exception:** Sanitary waste valve devices complying with ASME A112.18.8 shall be an alternative to the traps required by this section where such devices are installed in accordance with the manufacturer's instructions.

P3201.2 Trap seals. Each fixture trap shall have a liquid seal of not less than 2 inches (51 mm) and not more than 4 inches (102 mm).

> **Exception:** Sanitary waste valve devices complying with ASME A112.18.8 shall not be required to have a liquid seal.

P3201.2.1.1 Potable water-supplied trap seal primer valve. A potable water-supplied trap seal primer valve shall supply water to the trap. Water-supplied trap seal primer valves shall conform to ASSE 1018. The devices shall be installed in accordance with the manufacturer's instructions. The discharge pipe from the trap seal primer valve shall connect to the trap above the trap seal on the inlet side of the trap.

P3201.2.1.2 Reclaimed or gray-water-supplied trap seal primer valve. A reclaimed or gray-water-supplied trap seal primer valve shall supply water to the trap. Water-supplied trap seal primer valves shall conform to ASSE 1018. The devices shall be installed in accordance with the manufacturer's instructions. The quality of reclaimed or gray water supplied to trap seal primer valves shall be in accordance with the requirements of the manufacturer of the trap seal primer valve. The discharge pipe from the trap seal primer valve shall connect to the trap above the trap seal on the inlet side of the trap.

P3201.2.1.3 Waste-water-supplied trap primer device. A waste-water-supplied trap primer device shall supply water to the trap. Waste-water-supplied trap primer devices shall conform to ASSE 1044. The devices shall be installed in accordance with the manufacturer's instructions. The discharge pipe from the trap seal primer device shall connect to the trap above the trap seal on the inlet side of the trap.

P3201.2.1.4 Barrier-type trap seal protection device. A barrier-type trap seal protection device ~~shall protect the floor drain trap seal from evaporation. Barrier-type floor drain trap seal protection devices~~ shall conform to ASSE 1072. The devices shall be installed in accordance with the manufacturer's instructions.

P3201.3 Trap setting and protection. Traps shall be set level with respect to their water seals and shall be protected from freezing. Trap seals shall be protected from siphonage, aspiration or back pressure by an *approved* system of venting (see Section P3101). The devices shall be installed in accordance with the manufacturer's instructions.

P3201.5 Prohibited trap designs. The following types of traps are prohibited:

1. Bell traps.
2. Separate fixture traps with interior partitions, except those lavatory traps made of plastic, stainless steel or other corrosion-resistant material.
3. "S" traps.
4. Drum traps.
5. Trap designs with moving parts.

> **Exception:** Sanitary waste valve devices complying with ASME A112.18.8 shall be permitted provided that the devices are installed in accordance with the manufacturer's instructions.

P3201.6 Number of fixtures per trap. Each plumbing fixture shall be separately trapped by a water seal trap. The vertical distance from the fixture outlet to the trap weir shall not exceed 24 inches (610 mm) and the horizontal distance shall not exceed 30 inches (762 mm) measured from the center line of the fixture outlet to the centerline of the inlet of the trap. The height of a clothes washer standpipe above a trap shall conform to Section P2706.1.2. Fixtures shall not be double trapped.

Exceptions:

1. Fixtures that have integral traps.
2. A single trap shall be permitted to serve two or three like fixtures limited to kitchen sinks, laundry tubs and lavatories. Such fixtures shall be adjacent to each other and located in the same room with a continuous waste arrangement. The trap shall be installed at the center fixture where three fixtures are installed. Common trapped fixture outlets shall be not more than 30 inches (762 mm) apart.
3. Connection of a laundry tray waste line into a standpipe for the automatic clothes-washer drain shall be permitted in accordance with Section P2706.1.2.1.
4. <u>A water seal trap shall not be required where a sanitary waste valve device complying with ASME A112.18.8 is installed in accordance with the manufacturer's instructions.</u>

Add new standard(s) as follows:

<u>ASME A112.18.8 -2009 (Reaffirmed 2014) In-Line Sanitary Waste Valves for Plumbing Drainage Systems</u>

Reason: This code change proposal is for a new plumbing product that outperforms a p-trap, but it is not a p-trap. A p-trap is based on trapping water in the drain to provide a seal between the interior of a building and the sewer gasses and odors in the public sewer. This product is called an In-Line Sanitary Waste valve. It is designed to prevent sewer odors from the building drain and public sewers from entering the building but it does not "Trap water" it uses a flexible membrane and therefore it needs to be identified separately with an exception. In-line sanitary waste valves perform better than a P-trap. P-traps will often plug when solids are put into the drain, where in-line waste valve easily pass solids. P-traps often crack and leak when exposed to freezing temperatures and P-traps will dry up an allow sewer odors to escape into the building when the fixture has not been used for a period of time. (A couple of weeks) In-line sanitary waste valves perform very well in freezing conditions and they still prevent sewer gasses from entering a building when the fixture has not been used for an extended period. Long periods of non-use is common for many seasonal type hotel, school and state park types of buildings. Sanitary waste valves have been used extensively in many other parts of the world very successfully. (Europe, South Africa, and Asia) (See attached testimonial letters)

This proposal is seeking to allow the use of in-line sanitary waste valves that conform to the requirements of the attached standard to be used in lieu of p-traps, but not replace p-traps. These devices cost more than a p-trap, so they will not take over the market. They are intended to only be used on sinks, lavatories, and bathtubs where freezing conditions may exist (in overhangs) or in seasonal buildings like cabins, vacation homes or large hotels where some wings or building may not be used for long periods, They may also be used in State Park facilities, National Park Facilities, seasonal resorts, schools, and stadiums during off-seasons or in buildings where traps can freeze or dry up. This option is currently not available and this code change is intended to give consumers a choice for a better product if they choose to purchase it.

The manufacturer went to the American Society of Mechanical Engineers to develop a Standard for this product. The standard is ASME A112.18.8, the standard was titled: "In-Line Sanitary Waste Valves for Plumbing Drainage Systems". This standard includes a "Scope" that states these devices are intended "for use as an alternate to tubular p-traps" (1-1/4 inch and 1-1/2 inch at sinks, lavatories and bathtubs only) The standard also covers the material and performance requirements for the product. It also states that these devices are not intended for use with water closets and urinals.

The Standard includes Material Requirements for the device to comply with the Seal material requirements in ASTM F409 Standard Specification for Thermoplastic Accessible and Replaceable Plastic Tube and Tubular Fittings. It also addresses the Seal material to comply with or exceed the following material requirements from ASTM D2000: M3BA507, A14, B13, C12 and F17 or M2BG714, B14, EO14, and EO34. The ASTM D2000 standard is an industry standard for rubber and polymer products. The material requirements have been confirmed with a 3rd party laboratory test report. (Attached)

The Standard also has material requirements for the bladder/checking member material to comply with or exceed the following material requirements from ASTM D2000: M3FC607, EA14, EO16 and G11. The bladder/checking member material requirements have been confirmed with a 3rd party laboratory test report. (Attached)

Other material requirements address valve inlet dimensions, valve outlet dimensions and threaded connections.

The Standard includes performance testing requirements which includes the following tests: 1. Waterway Flow test; 2. One-Way Sealing Performance Test; 3. Airway Flow Rate; 4. Recovery from an Excess Back Pressure Test; 5. Leak Tightness Test; 6. Thermal Cycling; 7. Resistance to Household Substances: rice, diced vegetables, resistance to cleaning product, soaps, solids, kiln dried sand, and the lard test from the grease interceptor and trap seal protection device standards; 9. Resistance to Chemicals and Solvents; 10. Drop Test; and 11. Life Cycle Operation Test.

The Standard also has requirements for marking, Identification and installation Instructions.

In-Line sanitary waste valves are an innovative, hygienic, Self Sealing, Waste Valve.

In-Line sanitary waste valves can be installed vertically or horizontally (with an adaptor) and are available in 1-1/4 inch (32mm) and 1-1/2 inch (40mm) sizes.

The Recreational Vehicle industry in North America has embraced this technology because it out performs P-traps in freezing conditions and when there are periods of non-use. Another advantagee over p-traps is it prevents sewage from backing up into bathtubs when there is movement and it could help prevent backflow of sewage.

Bibliography: Link to website for additional information: http://overseas.wavin.com/overseas/HepVo_waste_valve.html

Cost Impact: Will not increase the cost of construction
There will be no addditional cost associated with this code change, because it is not mandating the use of products meeting this Standard, it is simply listing it as an alternate to a p-trap as an alternate method for a better performing installation. It is not a mandatory code change, If someone chooses to install an in-line Sanitary Waste Valve, Then it must conform to the industry Standard.

Analysis: A review of the standard proposed for inclusion in the code, ASME A112.18.8 -2009 (Reaffirmed 2014), with regard to the ICC criteria for referenced
standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

RP 19-15 : P3201-GEORGE5005

2015 GROUP A – PROPOSED CHANGES TO THE INTERNATIONAL SWIMMING POOL AND SPA CODE

SWIMMING POOL AND SPA CODE COMMITTEE

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Chief Building Official
City of Goodyear
Goodyear, AZ

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TENTATIVE ORDER OF DISCUSSION
2015 PROPOSED CHANGES TO THE
INTERNATIONAL SWIMMING POOL AND SPA CODE

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

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

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SP 1-15

101.3.1 (New)

Proponent: Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org)

2015 International Swimming Pool and Spa Code

Add new text as follows:

101.3.1 Flotation tanks. Flotation tank systems intended for sensory deprivation therapy shall not be considered to be included in the scope of this code.

Reason: Per the scope of the ISPSC, the provisions of this code are intended to address aquatic recreation facilities, pools and spas...that are intended for swimming, bathing or wading. A flotation tank system is not intended for swimming, bathing or wading; rather, it is intended for sensory deprivation therapy and should not be included under the ISPSC. This proposal attempts to clarify this by providing intent that they are not under the scope of this code.

Cost Impact: Will increase the cost of construction
This proposal attempt to clarifty that a product is not under the scope of the ISPSC and therefore will not increase the cost of construction.

SP 1-15 : [A] 101.3-HATFIELD5742

SP 2-15

202 (New),

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Add new definition as follows:

SECTION 202 DEFINITIONS

ACCESS (TO). That which enables a fixture, appliance or equipment to be reached by ready access or by a means that first requires the removal or movement of a panel, door similar obstruction (see "Ready access").

SECTION 202 DEFINITIONS

READY ACCESS. That which enables a fixture, appliance or equipment to be directly reached without requiring the removal or movement of any panel, door or similar obstruction and without the use of a portable ladder, step stool or similar device.

Reason: There are several locations where these terms are used in the ISPSC however, without these definitions, the true meaning of the terms are not clear. These definitions are identical to the IMC definitions for these terms. The IMC has scoping control of these defined terms where they are used in all codes except for the IRC.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 108.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 2-15 : 202-ACCESS (TO) (New)-SNYDER4141

SP 3-15

202

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

SECTION 202 DEFINITIONS

SHALLOW AREAS. Portions of a pool or spa with water depths less than ~~5~~4 feet (~~1524 mm~~1219mm).

Reason: This proposal resolves a conflict between the definition of SHALLOW AREA and what is stated as a shallow area in Section 807.2. The change was made in the conservative direction.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 12.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 3-15 : 202-SHALLOW AREAS-SNYDER4142

SP 4-15

202

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

SECTION 202 DEFINITIONS

SWIMOUT. An underwater seat area that is placed completely outside of the ~~perimeter shape~~diving envelope of ~~the~~a pool. ~~Where located at the deep end, swimouts are permitted to be used as the deep-end means of entry or exit to the pool.~~

Reason: A swimout is not required to be outside of the perimeter shape of a pool. Many times they are located on those areas but they are not required to be. This revised wording agrees with Figure 322.2.
The second sentence is a requirement and requirements should not be in code defintions. Requirments belong in the code text (Chapters 3 though 10). There was no need to add this requirement to the code as it is already in Sections 411.1.3 and 809.2

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 13.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 4-15 : 202-SWIMOUT-SNYDER4143

SP 5-15
202

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

SECTION 202 DEFINITIONS

~~**UNDERWATER LEDGE.** A narrow shelf projecting from the side of a vertical structure whose dimensions are defined in the appropriate standard.~~

Reason: The phrase UNDERWATER LEDGE is only used in the definition of UNDERWATER SEAT and nowhere else in the code. There is no a need for this definition as it is clear by the description of UNDERWATER SEAT. This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 40.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 5-15 : 202-UNDERWATER LEDGE-SNYDER4144

SP 6-15

302.6

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

302.6 Waste-water discharge. Where ~~waste water~~ wastewater from pools ~~and~~or spas, such as backwash water from filters and water from deck drains~~discharge~~ discharge to ~~the~~ a building drainage system, ~~such installation~~ the connection shall be through an air gap in accordance with the *International Plumbing Code* or the *International Residential Code~~,~~ as applicable in accordance with Section 102.7.1*.

Reason: This simple rewording clarifies the intent that water being discharged to a building drainage system must do so through an air gap. It is paramount that sewage not come in contact with water systems around a pool or spa.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 105.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 6-15 : 302.6-SNYDER4145

SP 7-15

303.1.3

Proponent: Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

303.1.3 Covers. Outdoor heated pools and outdoor permanent spas shall be provided with a vapor-retardant cover or other *approved* vapor-retardant means in accordance with Section 104.11.

> **Exception:** Where more than 70 percent of the energy for heating, computed over an operating season, is from ~~site-recovered energy such as from~~ a heat pump or solar energy source, covers or other vapor-retardant means shall not be required.

Reason: The original intent of this exception was that when an air-source swimming pool heat pump was installed on a pool or spa, it would not require a vapor retardant cover. Because an air-source swimming pool heat pump transfers heat from the air to the pool, it is a more energy efficient way to heat a pool over other types of heaters. The language included the term site-recovered energy without the knowlege that this term is defined in ASHRAE 90.1 and as defined would not include air-source swimming pool heat pumps. If this exception were to be interpretted to require a heat pump that uses site-recovered energy, as defined in ASHRAE 90.1, then one would find that such a product does not exist in the swimming pool industry.
Therefore, this proposal eliminates that terminology to clarify that the intent here is if a pool or permanent spa utilizes a heat pump or solar energy source for more than 70% of the energy used in heating the pool or permanent spa, than one is exempt from the vapor retardant cover requirement.

Cost Impact: Will not increase the cost of construction
This change will not increase the cost of construction; rather, it will clarify the original intent of this section.

SP 7-15 : 303.1.3-HATFIELD5787

SP 8-15

305.1

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

305.1 General. The provisions of this section shall apply to the design of barriers for restricting entry into areas having for pools and spas. ~~These design controls are intended to provide protection against the potential drowning and near drowning by restricting access to such pools spas. These requirements provide an integrated level of protection against potential drowning through the use of physical barriers and warning devices.~~ Where spas or hot tubs are equipped with a lockable safety cover complying with ASTM F 1346 and swimming pools are equipped with a powered safety cover that complies with ASTM F 1346, the areas where those spas, hot tubs or pools are located shall not be required to comply with Sections 305.2 through 305.7.

~~**Exceptions:**~~

1. ~~Spas and hot tubs with a lockable *safety cover* that complies with ASTM F 1346.~~
2. ~~Swimming pools with a powered *safety cover* that complieswith ASTM F 1346.~~

Reason: The last two sentences in the existing section appear to be commentary so they should be removed. The exceptions really don't fit correctly because the main paragraph does not have requirements that the exceptions work with.

The proposed revised language better identifies what Section 305 is about which is the design of barriers for restricting entry into areas having pools and spas. The new last sentence simply says, where a pool or spa has a safety cover, compliance with the remainder of the section is not required. No new requirements are being presented by this proposal.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC). The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 41.

Cost Impact: Will not increase the cost of construction

This proposal will not increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 8-15 : 305.1-SNYDER4146

SP 9-15

305.2.4.1 (New), 305.2.10

Proponent: Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org)

2015 International Swimming Pool and Spa Code

Add new text as follows:

305.2.4.1 **Setback for mesh fences** The location of a mesh fence from the inside of the fence to the nearest edge of the water of a pool or spa shall be not less than 20 inches (508 mm).

Delete without substitution:

~~**305.2.10 Poolside barrier setbacks.** The pool or spa side of the required barrier shall be not less than 20 inches (508 mm) from the water's edge.~~

Reason: This proposal clarifies the original intent of Section 305.2.10, which was to apply only to mesh fences, which are removable child barriers otherwise known as baby barriers. The setback requirement was never intended to apply to walls, screen enclosures, other types of fencing, etc. The way the code is currently written it could be construed as applying to all types of barriers and not just the mesh fencing as intended. Therefore, this proposal simply deletes Section 305.2.10 and instead places the setback requirement as a subsection of the mesh fencing section, so it is applied to only that type of barrier fence.

Bibliography: See 2007 Florida Building Code, Code Commentary for Section R4101.17.1.13 which clearly provides that the intent of the setback is only for mesh fencing.

Cost Impact: Will not increase the cost of construction
This will not increase the cost of construction, as it simply clarifies the original intent of a code provision.

SP 9-15 : 305.2.4.1 (New)-HATFIELD5780

SP 10-15

305.2.10 (New)

Proponent: Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org)

2015 International Swimming Pool and Spa Code

Add new text as follows:

305.2.10 Flexible plastic netting Flexible plastic mesh fencing and netting shall not be used for a required barrier. This section shall not apply to factory-manufactured mesh fence assemblies made and installed in accordance with Section 305.2.4.

Reason: This new section is being proposed to clarfiy that certain plastic fencing is not intended for use as a pool barrier. For example, the plastic fencing one uses at construction sites to warn people to stay out of the area could possibly be argued as meeting the barrier provisions if this new section is not added. This is possible due to the fact the vertical post spacing could be 15 to 20 feet, the "holes" could meet the width maximum and the top edge is supported by a tension wire. However, the "holes" could be widened by a foot being inserted and weight on the top could pull it down to less than 48 inches above grade. Further, the bottom of this type of fence rarely is supported by a tension wire; therefore, it could be possible for someone to push under it and get into the pool. All of these factors represent a safety concern if this type of product were used to meet the barrier requirements, which is why this new section is needed to prevent that from happening. However, the second sentence is needed to clarfiy this is NOT intended to eliminate the mesh fencing that is manufactured specifically as a "baby barrier" around a pool, under Section 305.2.4.

Cost Impact: Will not increase the cost of construction
This will not increase the cost of construction, as it just clarifies that a certain type of plastic netting that was never intended to be a pool barrier iand s not, in fact, a pool barrier.

SP 10-15 : 305.2.10 (New)-HATFIELD5487

SP 11-15

305.3

Proponent: Timothy Pate, , City and County of Broomfield, representing the Colorado Chapter of ICC Code Change Committee, representing City and County of Broomfield (tpate@broomfield.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

305.3 Gates. Access gates shall comply with the requirements of Sections 305.3.1 through 305.3.3 and shall be equipped to accommodate a locking device. Pedestrian access gates shall open outward away from the pool or spa, shall be self-closing and shall have a self-latching device.

<u>Where the combined occupant load of the pool deck area and the pool water area is calculated to be 50 persons or more based on the swimming pool occupant load factors in Table 1004.1.2 of the International Building Code, not less than two pedestrian access gates shall serve as the means of egress gates for the combined area. The means of egress gates shall be separated in accordance with Section 1007.1.1 of the IBC. Where more than one means of egress gate from the area is required, all means of egress gates from the area shall have panic hardware installed in accordance with Section 1010.1.10 of the IBC.</u>

Reason: This proposed change is to add language that would require checking the occupant load using IBC Table 1004.1.2 which has pool and pool deck listed as a function of space. Once the space exceeds the 49 it would need exits which would match what is done for a building or space within a building. There has been confusion as to how exterior pools are treated in regards to means of egress since they are not technically an occupancy. I do not believe the best way to solve this is to change language to call these spaces occupancies since you would then have to also use Chapter 29 to determine required numbers of plumbing fixtures. I believe some building departments use IBC section 1004.5 for these outdoor areas but this section says you need means of egress but the definition of means of egress only talks to occupied portions of buildings or structures.
This leads to a lot of confusion for building departments and designers. I feel that adding this specific language to the swimming pool barrier section will help clear up this confusion.

Cost Impact: Will increase the cost of construction
This would increase the cost in the jurisdictions that have not interpretated this section to require the panic hardware already.

SP 11-15 : 305.3-PATE3935

SP 12-15

305.3, 305.3.3, 305.4

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

305.3 Gates. Access gates shall comply with the requirements of Sections 305.3.1 through 305.3.3 and shall be equipped to accommodate a locking device. Pedestrian access gates shall open outward away from the pool or spa, shall be self-closing and shall have a self-latching device.

305.3.3 Latches. For *residential* pools, the operable parts of the latch release for the self-latching device shall be located at 54 inches (1372 mm) maximum above the finished floor or ground. Where the latch release~~ mechanism~~ of the self-latching device is located less than 54 inches (1372~~ mm~~) ~~from grade~~above the finished floor or ground, the latch release~~ mechanism~~ shall be located on the pool or spa side of the gate not less than 3 inches (76 mm) below the top of the gate, and the gate and barrier shall not have openings greater than 1~~/2~~/2 inch (12.7 mm) within 18 inches (457 mm) of the release mechanism. For *public pools*, for latches on gates along the accessible route, the operable parts of the self-latching devices shall comply with Section 1010.1.9.2 of the *International Building Code.*

305.4 Structure wall as a barrier. Where a wall of a dwelling or structure serves as part of the barrier and where doors or windows provide direct access to the pool or spa through that wall, one of the following shall be required:

1. Operable windows having a sill height of less than 48 inches (1219 mm) above the indoor finished floor and doors shall have an alarm that produces an audible warning when the window, door or their screens are opened. The alarm shall be *listed* and *labeled* as a water hazard entrance alarm in accordance with UL 2017. In ~~dwellings or structures~~dwelling units not required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located 54 inches (1372 mm) or more above the finished floor. In ~~dwellings or structures~~dwelling units required to be Accessible units, Type A units or Type B units, or in structures where the swimming pool is required to be accessible, the operable parts of the alarm deactivation switches shall be located not greater than 54 inches (1372 mm) and not less than 48 inches (1219 mm) above the finished floor.
2. A *safety cover* that is *listed* and *labeled* in accordance with ASTM F 1346 is installed for the pools and spas.
3. An *approved* means of protection, such as self-closing doors with self-latching devices, is provided. Such means of protection shall provide a degree of protection that is not less than the protection afforded by Item 1 or 2.

Reason: The intent of the changes is to coordinate the locking arrangements on gates and doors for public pools with the allowances worked out in the IBC as part of the coordination with ADA. The definition for public pool and residential pool would determine where accessibility is appropriate.

The 2015 IBC reads as follows:
IBC 1010.1.9.2 Hardware height. Door handles, pulls, latches, locks and other operating devices shall be installed 34 inches (864 mm) minimum and 48 inches (1219 mm) maximum above the finished floor. Locks used only for security purposes and not used for normal operation are permitted at any height.
Exception: Access doors or gates in barrier walls and fences protecting pools, spas and hot tubs shall be permitted to have operable parts of the release of latch on self-latching devices at 54 inches (1370 mm) maximum above the finished floor or ground, provided the self-latching devices are not also self-locking devices operated by means of a key, electronic opener or integral combination lock.

IBC 1109.13 Controls, operating mechanisms and hardware. Controls, operating mechanisms and hardware intended for operation by the occupant, including switches that control lighting and ventilation and electrical convenience outlets, in accessible spaces, along accessible routes or as parts of accessible elements shall be accessible.

Exceptions:

1. Operable parts that are intended for use only by service or maintenance personnel shall not be required to be accessible.
2. Electrical or communication receptacles serving a dedicated use shall not be required to be accessible.
3. Where two or more outlets are provided in a kitchen above a length of counter top that is uninterrupted by a sink or appliance, one outlet shall not be required to be accessible.
4. Floor electrical receptacles shall not be required to be accessible.
5. HVAC diffusers shall not be required to be accessible.
6. Except for light switches, where redundant controls are provided for a single element, one control in each space shall not be required to be accessible.
7. Access doors or gates in barrier walls and fences protecting pools, spas and hot tubs shall be permitted to comply with Section 1010.1.9.2.

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Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 12-15 : 305.3.3-SNYDER4147

SP 13-15

306.1

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

306.1 General. ~~**Decks**~~ The structural design and installation of decks around pools and spas shall be ~~designed and installed~~ in accordance with the *International Residential Code* or the *International Building Code,* as applicable in accordance with Section ~~102.7.1~~ 102.7, ~~except as provided in~~ and this section.

Reason: The arrangement of the first part of the existing code section can be read "Decks shall be…. installed….". In other words, one interpretation of this section might conclude that decks are required for every pool and spa. This is not what was intended by the section. This section is only requiring that the design and installation of decks be in accordance with the applicable codes. The revise language clarifies the intent.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This PMGCAC Item 42.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 13-15 : 306.1-SNYDER4148

SP 14-15

307.1, 307.2, 307.7, 307.8, 307.9, 307.2 (New), 307.3, 307.3.1, 307.3.2, 307.4, 307.4.1, 307.5, 307.6

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

307.1 General design requirements. ~~The provisions of this section~~ Sections 307.1.1 through 307.1.4 shall apply to all pools and spas.

> ~~**Exception:** The provisions of Sections 307.3 through 307.6 do not apply to *listed* and *labeled* portable *residential* spas and *listed* and *labeled* portable *residential* exercise spas.~~

~~**307.2**~~**307.1.1 Glazing in hazardous locations.** *No change to text.*

~~**307.7**~~**307.1.2 Colors and finishes.** ~~The~~For other than residential pools and residential spas, the colors, patterns, or finishes of the pool ~~or~~and spa ~~interior~~interiors shall not obscure objects or surfaces within the pool or spa.

> ~~**Exception:** *Residential* pools and spas.~~

~~**307.8**~~**307.1.3 Roofs or canopies.** *No change to text.*

~~**307.9**~~**307.1.4 Accessibility.** *No change to text.*

307.2 Specific design and material requirements. Sections 307.2.1 through 307.2.4 shall apply to all pools and spas except for listed and labeled portable residential spas and listed and labeled portable residential exercise spas.

~~**307.3**~~**307.2.1 Materials.** *No change to text.*

~~**307.3.1**~~**307.2.1.1 Beach pools.** *No change to text.*

~~**307.3.2**~~**307.2.1.2 Compatibility.** *No change to text.*

~~**307.4**~~**307.2.2 Materials and structural design.** Pools and spas shall conform to one or more of the standards indicated in Table ~~307.4~~307.2.2. The structural design of pools and spas shall be in accordance with the *International Building Code* or the *International Residential Code*, as applicable in accordance with Section 102.7.1 of this code.

TABLE 307.2.2
RESERVOIRS AND SHELLS

MATERIAL	STANDARD
Fiberglass reinforced plastic	IAPMO Z124.7
Plastic	IAPMO Z124.7
Stainless steel (Types 316, 316L, 304, 304L)	ASTM A 240
Tile	ANSI A108/A118/A136.1
Vinyl	ASTM D 1593

~~**307.4.1**~~**307.2.2.1 Installation.** *No change to text.*

~~**307.5**~~**307.2.3 Freeze protection.** *No change to text.*

~~**307.6**~~**307.2.4 Surface condition.** *No change to text.*

Reason: The existing layout of Section 307 does work very well when attempting apply the Exception in Section 307.1 to only a portion of the sections in Section 307. Generally, good format for an exception is to have the exception "attached" to every section that the exception applies to. This makes the code difficult to read whereas a reorganization is often a better way to accomplish the goal which in this case, is to exempt portable spas from complying with some (but not all) of the requirements in Section 307. Although there is a significant moving around of language and some new sections to accommodate the reorganization, no new requirements are being introduced.
Section 307.1 (and its subsections) are general requirements that apply for all pools and spas.

Section 307.2 (and its subsections) are more specific requirements except those requirements do not apply to *listed and labeled* spas. Remember that specific requirements for *listed and labeled* spas are covered by Chapter 9.

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Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 14-15 : 307.1-SNYDER4149

SP 15-15

307.6 (New), Chapter 11

Proponent: Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org)

2015 International Swimming Pool and Spa Code

Add new text as follows:

307.6 Plastering of pools and spas The plastering of the interior of concrete pools and permanently-installed concrete spas shall be in accordance with APSP 12.

Add new standard(s) as follows:
ANSI/APSP/NPC/ICC - 12 2015 American National Standard for the Plastering of Swimming Pools

Reason: The Association of Pool & Spa Professionals, in conjunction with the National Plasters Council and ICC are currently developing the ANSI/APSP/NPC/ICC-12 American National Standard for the Plastering of Swimming Pools. This Standard will provide clear requirements when plastering a swimming pool or a permanently installed concrete spa, in both residential and commercial settings.
Plastering is the final coating applied to the shell of a concrete pool or spa. White is the most common, but it can be tinted to other colors by using pigmented aggregate. Pool plaster adds a watertight seal and makes the surface of the pool smoother for contact with swimmers than the underlying rough concrete shell. The pool plaster is a key element for the athestics and overall enjoyment of the pool or spa and this standard will ensure that it is applied properly.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction, rather it will help ensure a proper plaster was put on the pool, decreasing the costs associated with having to redo a bad plaster job.

Analysis: A review of the standard proposed for inclusion in the code, ANSI/APSP/NPC/ICC - 12 , with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

SP 15-15 : 307.6 (New)-HATFIELD5495

SP 16-15

307.9

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

307.9 Accessibility. An accessible route to public pools and spas shall be provided in accordance with the *International Building Code.* Accessibility within public pools and spas shall be provided as required by the accessible recreational facilities provisions of the *International Building Code.* ~~Accessibility for pools and spas accessory to detached oneand two-family dwellings and townhouses not more than three stories in height shall be provided where required by the *International Residential Code.*~~

Reason: In Section 307.9, the last sentence not only adds confusion, and should be deleted. There is nothing in the IRC that addresses accessibility in pools and spas. Recreational facilities that serve multiple townhouses would be addressed in the IBC.This is CTC/PMG Proposal Item 5
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 16-15 : 307.9-SNYDER4151

SP 17-15

308.3

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

308.3 ~~Shape~~Dimensions and shape. ~~This code is not intended to regulate the~~The dimensions and shape of a pool or spa ~~other than~~shall not be limited provided that water circulation is provided for every water area, underwater areas are designed to ~~take into account the effect that a given shape will have on the safety~~avoid entrapment of bathers and, where regulated by other sections of the ~~occupants and to maintain~~code, perimeter access is provided for the ~~minimum required level of circulation to ensure sanitation.~~pool or spa.

Reason: The existing language seemed to be more of a commentary statement than a requirement. However, there was an underlying intent to the words that needed to be brought out about the general design (dimension and shape) that is critical for the safety of users. Simply stated, you can make a pool or spa any shape or size provided that water circulation, perimeter access and avoidance of bather entrapment is provided for.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC). The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 44.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 17-15 : 308.3-SNYDER4152

SP 18-15

311.3, 311.3.1 (New), 311.3.2 (New)

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

311.3 Water velocity. The water velocity in suction and return ~~lines~~piping shall comply with either Section 311.3.1 or 311.3.2. Pool piping sizes shall be chosen so that at the rated flows for the filtering and cleaning equipment, the operating head of the pump is not ~~exceed 8 feet (2.4 m) per second~~exceeded. The water velocity in ~~suction~~copper and copper alloy piping shall ~~be as required by Section 310.~~not exceed 8 fps (2.4 mps).

311.3.1 **Public pool and spas.** For *public* pools and spas, suction piping water velocity shall not exceed 6 fps (1.8 mps), return piping water velocity shall not exceed 10 fps (3.0 mps) and water velocity through grates shall not exceed 1.5 fps (0.5 mps) except where compliance with Section 310 further limits the water velocities in piping and through grates.

311.3.2 **Residential pool and spas.** For *residential* pools and spas, the water velocity in suction piping and return piping shall not exceed 8 fps (2.4 mps) except where compliance with Section 310 further limits the water velocities in suction and return piping.

Reason: APSP 7-2013 (which is referenced by the 2015 ISPSC) has some different requirements (than the previous edition) with respect to sizing of circulation piping. The ISPSC needs to be updated and clarified so that there is not confusion when comparing the requirements of APSP and the code.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC). The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 8.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, in some cases, the suction piping might have to be larger in order to control the velocity through the suction outlet grate. The requirement for larger piping will have additional cost in both material and labor.

SP 18-15 : 311.3-SNYDER4154

SP 19-15

313.7, 202 (New)

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

313.7 Emergency shutoff switch. An emergency shutoff switch shall be provided to disconnect all power to recirculation and jet system pumps and air blowers. Emergency shutoff switches shall be~~:~~ provided with ready access~~;~~, be located within sight of the pool or spa~~;~~, and be located not less than 5 feet (~~1524 mm~~1524mm) horizontally from ~~the~~an inside wall~~s~~ of the pool or spa~~.~~ that is served by the pumps and blowers controlled by the switch.

> ~~**Exception:** *Onground storable pools*, permanent inground *residential* swimming pools, *residential* spasand *residential* water features.~~

Add new definition as follows:

SECTION 202 DEFINITIONS

READY ACCESS. That which enables a fixture, appliance or equipment to be directly reached without requiring the removal or movement of any panel, door or similar obstruction and without the use of a portable ladder, step stool or similar device.

Reason: The emergency shutoff switch should be out in the open and not behind a panel so it is obvious where the switch is for fast access. Using the term "ready access" along with the IMC definition, will make this clear. The definition is identical to the IMC definition for this term. The IMC has scoping control of this defined term where it is used in all codes except for the IRC.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 107.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 19-15 : 313.7-SNYDER4155

SP 20-15

316.2, Table 316.2, 316.4, 316.6 (New), 316.6.1 (New), 316.6.2 (New), Chapter 11

Proponent: Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

316.2 Listed and labeled. Heaters and hot water storage tanks shall be *listed* and *labeled* in accordance with the applicable standard listed in Table 316.2.

TABLE 316.2
WATER HEATERS

DEVICE	STANDARD
Electric water heater	UL 1261, UL 1563 or CSA C22.2 No. 218.1
Gas-fired water heater	ANSI Z21.56/CSA 4.7a
Heat exchanger	~~NSF 50~~AHRI 400
Heat pump water heater	UL 1995, AHRI 1160, CSA C22.2 No. 236
~~Photovoltaic solar water heaters~~	~~NSF 50~~
~~Thermal radiant solar water heater~~	~~NSF 50~~

316.4 Installation. Heaters shall be installed in accordance with the manufacturer's specifications and the *International Fuel Gas Code*, *International Mechanical Code*, *International Energy Conservation Code*, NFPA 70 or *International Residential Code*, as applicable in accordance with Section 102.7.1. Solar thermal water heaters shall be installed in accordance with Section 316.6.

Add new text as follows:

316.6 Solar thermal water heaters. Solar thermal heaters utilized for pools and spas shall comply with Sections 316.6.1 through 316.6.2.

316.6.1 Installation. Solar thermal water heaters shall be installed in accordance with the International Mechanical Code or International Residential Code, as applicable in accordance with Section 102.7.1.

316.6.2 Collectors and panels. Solar thermal collectors and panels shall be listed and labeled in accordance with SRCC 100 or SRCC 600. Collectors and panels shall be permanently marked with the manufacturer's name, model number, and serial number. Such markings shall be located on each collector in a position that is readily viewable after installation of the collector or panel.

Add new standard(s) as follows:

AHRI 400-01 Liquid to Liquid Heat Exchangers with Addenda 1 and 2

SRCC 100 - 13 Standard 100 for Solar Collectors

SRCC 300 - 13 Standard 100 for Solar Water Heating Systems

Reason: This proposal add requirements for solar thermal water heater collectors that appears in the IRC to ensure safety and performance of these devices. It also removes references to NSF 50 for solar thermal and PV water heaters since they are outside the scope of NSF 50. Further, it adds reference to AHRI 400 for heat exchangers to align with an existing requirement in the IECC.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction, rather it aligns requirements with what already exists in other codes.

Analysis: A review of the standard proposed for inclusion in the code,AHRI 400-01, SRCC 100 - 13, SRCC 300 - 13, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

SP 20-15 : 316.2-HATFIELD5761

SP 21-15

318.2

Proponent: Jerry Kerney, self, representing self (JKerney60@gmail.com)

2015 International Swimming Pool and Spa Code

Revise as follows:

318.2 Protection of potable water supply. Potable water supply systems shall be designed, installed and maintained so as to prevent contamination from nonpotable liquids, solids or gases being introduced into the potable water supply through cross-connections or other piping connections to the system. Means of protection against backflow in the potable water supply shall be ~~provided through~~by an air gap complying with ASME A112.1.2 ~~and~~or by a backflow prevention assembly in accordance with the *International Residential Code* or the *International Plumbing Code*, as applicable in accordance with Section 102.7.1.

Reason: It is not always possible to use an air gap to make the connection of potable water to pool or spa systems. Mechanical backflow prevention assemblies, as outlined in the plumbing codes, is another acceptable method for making potable water connections to non-potable systems such as pools and spas. This is done often. The code yexy doesn't reflect what is common practice. This needs changed.

Cost Impact: Will not increase the cost of construction
Where use of an air gap is impossible, a backflow prevention assembly is the only way to make the connection. This change doesn't cost more than what the existing code was requiring to be impossible.

SP 21-15 : 318.2-KERNEY5783

SP 22-15

401.1

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

401.1 ~~Public swimming pools~~ Scope. The provisions of this chapter shall apply only to ~~public swimming pools. Public swimming pools covered in this chapter include~~ Class A, Class B, Class C, Class E and Class F public swimming pools.

Reason: This is partially a clean up to make the sentence read in mandatory language. Also, Class F was added to the list of pols because in the last cycle, Class F (wading pools) was added to the language in Section 405 on wading pools and a definition was added to Chapter 2 for Class F. This section was overlooked in those revisions/addtions.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC). The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 62.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 22-15 : 401.1-SNYDER4157

SP 23-15

401.2

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

401.2 Scope. The ~~requirements contained~~provisions in this chapter ~~provide specifications for~~shall govern the design, equipment, operation, warning signs, installation, sanitation, new construction, and alteration specific to the types of public swimming pools indicated in Section 401.1.

Reason: This proposal is a simple clean-up of language to convert the sentence into mandatory language. No new requirements are being proposed.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 63.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 23-15 : 401.2-SNYDER4158

SP 24-15

401.4.1, 401.6

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

401.4.1 Class A pool tolerances. Dimensional tolerances for Class A pools shall be determined by the authority that ~~governs such pools.~~provides the accreditation of the pool for competitive events.

401.6 Dimensions for Class A pools. Class A pools shall be designed and constructed ~~to provide~~with the dimensions determined by the authority that ~~governs such pools.~~provides the accreditation of the pool for competitive events.

Reason: This is clarification about *who* determines the dimensions and dimensional tolerances for (Class A) competitive pools. There could be confusion that the code official is responsible as the code official is one authority who "governs" pools. The revised wording makes it clear that the accreditation organization such as FINA, NCAA, ETC.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 24-15 : 401.4.1-SNYDER4159

SP 25-15

402.1, 402.2, 402.3, 402.4, 402.5, 402.12, Table 402.12, Figure 402.12, Table 402.12(2) (New), Table 402.12(3) (New), Table 402.12(4) (New), Table 402.12(5) (New), Table 402.12(6) (New), Figure 402.12 (6) (New)

Proponent: Donald Leas, representing Self (donleas@hotmail.com)

2015 International Swimming Pool and Spa Code

Revise as follows:

402.1 General. This section covers diving requirements for Class A, Class B, Class C, and Class E pools. Manufactured and fabricated diving equipment and appurtenances shall not be installed on Type O pools.

402.2 Manufactured and fabricated diving equipment. Manufactured and fabricated diving equipment shall be in accordance with ~~Section 808~~this section and shall be designed for swimming pool use.

402.3 Installation. The installation of manufactured diving equipment shall be in accordance with Sections 402.3 through ~~402.12~~402.14. Manufactured diving equipment shall be located in the deep area of the pool so as to provide the minimum dimensions shown in ~~Table 402.12~~Tables 402.12(1) through (6) and shall be installed in accordance with the manufacturer's instructions. Installation and use instructions for manufactured diving equipment shall be provided by the manufacturer and shall specify the minimum water dimensions required for each diving board and diving stand combination. The manufacturer's instructions shall refer to the water envelope type by dimensionally relating their products to Point A on the water envelopes shown in ~~Table 402.12~~Tables 402.12(1) through (6). The diving board manufacturer shall specify which boards fit on the design pool geometry types as indicated in ~~Table 402.12.~~Tables 402.12(1) through (6) as related to Figures 402.12(1), (2), and (6), as applicable.

402.4 Slip resistance. Diving equipment shall have slipresistant walking surfaces.

402.5 Point A. For the application of ~~Table 402.12~~Tables 402.12(1) through (6), Point A shall be the point from which dimensions of width, length, depth, and ~~depth~~height are established for the minimum diving water envelope. If the tip of the diving board or diving platform is located at a distance of WA (see Figure 804.1) or A (see Figure 402.12(2)) or greater from the deep end wall and the water depth at that location is equal to or greater than the water depth requirement at Point A, the point on the water surface directly below the center of the tip of the diving board or diving platform shall be identified as Point A.

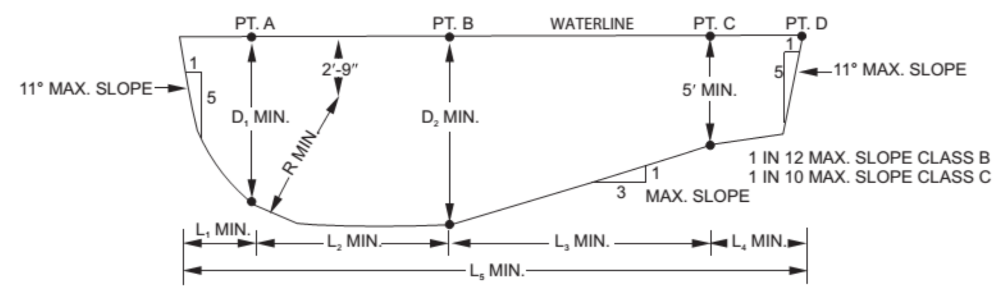
402.12 Water envelopes. The minimum diving water envelopes shall be in accordance with ~~Table 402.12.~~Tables 402.12(1) through (6).

TABLE 402.12(1)
MINUMUM DIVING WATER ENVELOPES FOR CLASS B AND C POOLS
(SEE FIGURE ~~402.12~~402.12(1))

POOL TYPE	MINIMUM DIMENSIONS								MINIMUM WIDTH OF POOL AT:		
	D_1	D_2	R	L_1	L_2	L_3	L_4	L_5	Pt. A	Pt. B	Pt. C
VI	7"-0"	8"-6"	5"-6"	2"-6"	8"-0"	10"-6"	7"-0"	28"-0"	16"-0"	18"-0"	18"-0"
VII	7"-6"	9"-0"	6"-0"	3"-0"	9"-0"	12"-0"	4"-0"	28"-0"	18"-0"	20"-0"	20"-0"
VIII	8"-6"	10"-0"	7"-0"	4"-0"	10"-0"	15"-0"	2"-0"	31"-0"	20"-0"	22"-0"	22"-0"
IX	11"-0"	12"-0"	8"-6"	6"-0"	10"-6"	21"-0"	0	37"-6"	22"-0"	24"-0"	24"-0"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

FIGURE ~~402.12~~402.12(1)
(MINIMUM DIVING WATER ENVELOPES)
CONSTRUCTION DIMENSIONS FOR WATER ENVELOPES FOR CLASS B AND CLASS C POOLS



For SI: 1 degree = 0.017 rad, 1 inch = 25.4 mm, 1 foot = 304.8 mm

Add new text as follows:

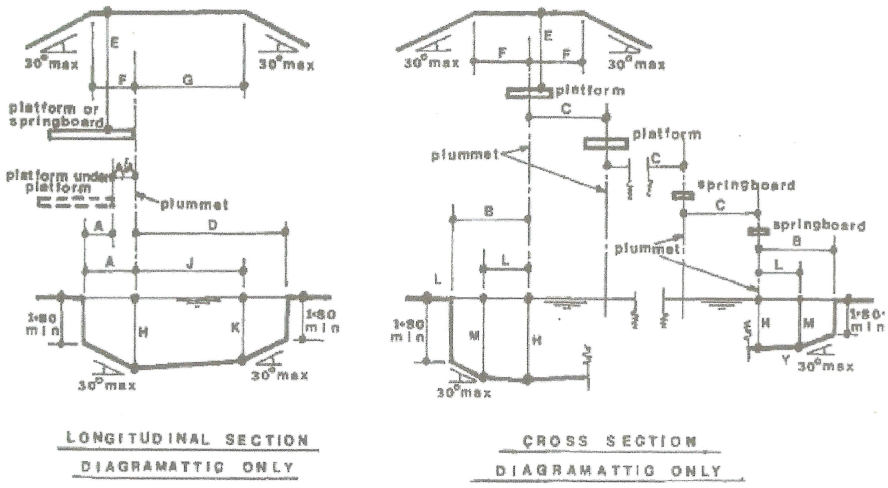
TABLE 402.12(2)
MINIMUM DIVING WATER ENVELOPES FOR CLASS A POOLS FOR FINA-SANCTIONED DIVING EVENTS
(meters)
(SEE FIGURE 402.12(2))
FINA DIVING WATER ENVELOPE IN METRIC DIMENSIONS
FROM FINA HANDBOOK 2013-2017

FINA Dimensions for Diving Facilities		SPRINGBOARD				PLATFORM									
		1 metre		3 metres		1 metre		3 metres		5 metres		7.5 metres		10 metres	
For pools constructed after September 26th, 2013 (see FR 5.3.1)	Length	4.80		4.80		5.00		5.00		6.00		6.00		6.00	
	Width	0.50		0.50		1.00 min 2.90 pre		1.00 min 2.90 pre		2.90		2.00		3.00	
	Height	1.00		3.00		0.60 min 1.00 pre		2.60 min 3.00 pre		5.00		7.50		10.00	
		Horiz	Vert	Horiz	Vert	Horiz	Vert	Horiz	Vert	Horiz	Vert	Horiz	Vert	Horiz	Vert

A	FROM PLUMMET BACK TO WALL FOR CONCRETE PLATFORM	Designation	A-1		A-3		A-1pl		A-3pl		A-5		A-7.5		A-10	
		Minimum	2.22		2.22											
		Preferred	2.22		2.22											
	FROM PLUMMET BACK TO POOL WALL FOR PEDESTALS AND METAL STANDS	Minimum	1.50		1.50		0.75		1.25		1.25		1.25		1.50	
		Preferred	1.80		1.80		0.75		1.25		1.25		1.25		1.50	
A/A	FROM PLUMMET BACK TO PLATFORM plummet directly below	Designation									A/A5/1		A/A7.5/3,1		A/A 10/5,3,1	
		Minimum									0.75		0.75		0.75	
		Preferred									1.25		1.25		1.25	
B	FROM PLUMMET TO POOL WALL AT SIDE	Designation	B-1		B-3		B-1pl		B-3pl		B-5		B-7.5		B-10	
		Minimum	2.50		3.50		2.50		3.00		4.00		4.50		5.75	
		Preferred	2.50		3.50		3.50		3.60		4.50		4.75		5.75	
C	FROM PLUMMET TO ADJACENT PLUMMET	Designation	C1-1		C-3-3,3-1		C1-1pl		C3-3pl,1pl		C5-3,5-1		C7.5-5,3,1		C10-7.5,5,3,1	
		Minimum	2.00		2.20		1.85		2.20*		2.85*		2.75*		3.00*	
		Preferred	2.00		2.60		2.15		2.35*		2.85*		2.75*		3.00*	
D	FROM PLUMMET TO POOL WALL AHEAD	Designation	D-1		D-3		D-1pl		D-3pl		D-5		D-7.5		D-10	
		Minimum	9.00		10.25		8.00		9.50		10.25		11.00		13.50	
		Preferred	9.00		10.25		8.00		9.50		10.25		11.00		13.50	
E	ON PLUMMET, FROM BOARD TO CEILING	Designation		E-1		E-3		E-1pl		E-3pl		E-5		E-7.5		E-10
		Minimum		5.00		5.00		3.25		3.25		3.25		3.25		4.00
		Preferred		5.00		5.00		3.50		3.50		3.50		3.50		5.00
F	CLEAR OVERHEAD BEHIND AND EACH SIDE OF PLUMMET	Designation	F-1	E-1	F-3	E-3	F-1pl	E-1pl	F-3pl	E-3pl	F-5	E-5	F-7.5	E-7.5	F-10	E-10
		Minimum	2.50	5.00	2.50	5.00	2.75	3.25	2.75	3.25	2.75	3.25	2.75	3.25	2.75	4.00
		Preferred	2.50	5.00	2.50	5.00	2.75	3.50	2.75	3.50	2.75	3.50	2.75	3.50	2.75	5.00
G	CLEAR OVERHEAD AHEAD OF PLUMMET	Designation	G-1	E-1	G-3	E-3	G-1pl	E-1pl	G-3pl	E-3pl	G-5	E-5	G-7.5	E-7.5	G-10	E-10
		Minimum	5.00	5.00	5.00	5.00	5.00	3.25	5.00	3.25	5.00	3.25	5.00	3.25	6.00	4.00
		Preferred	5.00	5.00	5.00	5.00	5.00	3.50	5.00	3.50	5.00	3.50	5.00	3.50	6.00	5.00
H	DEPTH OF WATER AT PLUMMET	Designation		H-1		H-3		H-1pl		H-3pl		H-5		H-7.5		H-10
		Minimum		3.40		3.70		3.20		3.50		3.70		4.10		4.50
		Preferred		3.50		3.80		3.30		3.60		3.80		4.50		5.00
J K	DISTANCE AND DEPTH AHEAD OF PLUMMET FOR ALL STANDS	Designation	J-1	K-1	J-3	K-3	J-1pl	K-1pl	J-3pl	K-3pl	J-5	K-5	J-7.5	K-7.5	J-10	K-10
		Minimum	5.00	3.30	6.00	3.60	4.50	3.10	5.50	3.40	6.00	3.60	8.00	4.00	11.00	4.25
		Preferred	5.00	3.40	6.00	3.70	4.50	3.20	5.50	3.50	6.00	3.70	8.00	4.40	11.00	4.75
L M	DISTANCE AND DEPTH EACH SIDE OF PLUMMET	Designation	L-1	M-1	L-3	M-3	L-1pl	M-1pl	L-3pl	M-3pl	L-5	M-5	L-7.5	M-7.5	L-10	M-10
		Minimum	1.50	3.30	2.00	3.60	1.40	3.10	1.80	3.40	3.00	3.60	3.75	4.00	4.50	4.25
		Preferred	2.00	3.40	2.50	3.70	1.90	3.20	2.30	3.50	3.50	3.70	4.50	4.40	5.25	4.75
N	MAXIMUM SLOPE TO REDUCE DIMENSION BEYOND FULL REQUIREMENTS FOR POOL DEPTH and CEILING HEIGHT					30 DEGREES										

	* Note: The minimum distance between adjacent platforms must be at least 0.25 metres. Note: Dimensions B (plummet to pool wall at side) and C (plummet to adjacent plummet) apply to Platforms with widths as detailed. If Platform widths are increased then B and C are to be increased by half the additional width(s). Note: The 10 Metre Platform must project 0.25 metres beyond any adjacent platform. Note: All platforms Note: The leading edge of the concrete platforms for springboards must be at least constructed to be directly above the pool wall or beyond.

FIGURE 402.12(2)([Add # Here])
Figure for Tables 402.12(2) through 402.12(5)



FINA, USA DIVING, and NCAA DIVING FACILITIES DIAGRAM

TABLE 402.12(3)
MINIMUM DIVING WATER ENVELOPES FOR CLASS A POOLS FOR USA DIVING-SANCTIONED DIVING EVENTS
(feet-decimal inches)
(SEE FIGURE 401.12(2))

FINA DIVING WATER ENVELOPE CONVERSIONS TO U.S. DIMENSIONS FOR NEW USA DIVING FACILITIES
FROM FINA HANDBOOK 2013-2017

USA DIVING Dimensions for Diving Facilities	SPRINGBOARD	PLATFORM

			1 meter		3 meters		1 meter		3 meters		5 meters		7.5 meters		10 meter	
For pools constructed after September 2013 Extrapolated from FINA HANDBOOK 2013-2017 (See F.R. 5.3.1)		Length	15' - 10.95"		15' - 10.95"		16' - 4.85"		16' - 4.85"		19' - 8.22"		19' - 8.22"		19' - 8.2	
		Width	1' - 7.69"		1' - 7.69"		3' - 3.37" minimum 9' - 6.18" preferred		3' - 3.37" minimum 9' - 6.18" preferred		9' - 6.18"		6' - 6.74 "		9' - 10.1	
		Height	3' - 3.37"		9' - 10.11"		1' - 11.63" minimum 3' - 3.37" preferred		8' - 6.37" minimum 9' - 10.11" preferred		16' - 4.85"		24' - 7.28"		32' - 9.7	
			Horizontal	**Vertical**	**Horizontal**	**Vertical**	**Horizontal**	**Vertical**	**Horizontal**	**Vertical**	**Horizontal**	**Vertical**	**Horizontal**	**Vertical**	**Horizontal**	**V**
A	FROM PLUMMET BACK TO POOL WALL FOR **CONCRETE PLATFORM**	Designation	A-1	--	A-3	--	A-1pl	--	A-3pl	--	A-5	--	A-7.5	--	A-10	
		Minimum	7' - 3.40"	--	7' - 3.40"	--	2' - 5.53"	--	4' - 1.22"	--	4' - 1.22"	--	4' - 1.22"	--	4' - 11.06"	
		Preferred	7' - 3.40"	--	7' - 3.40"	--	2' - 5.53"	--	4' - 1.22"	--	4' - 1.22"	--	4' - 1.22"	--	4' - 11.06"	
	FROM PLUMMET BACK TO POOL WALL FOR **PEDESTALS AND METAL STANDS**	Minimum	4' - 11.06"	--	4' - 11.06"	--	--	--	--	--	--	--	--	--	--	
		Preferred	5' - 10.87"	--	5' - 10.87"	--	--	--	--	--	--	--	--	--	--	
A/A	FROM PLUMMET BACK TO PLATFORM PLUMMET DIRECTLY BELOW	Designation	--	--	--	--	--	--	--	--	A/A 5/1		A/A 7.5/3,1		A/A 10/5,3	
		Minimum	--	--	--	--	--	--	--	--	2' - 5.53"	--	2' - 5.53"	--	2' - 5.53"	
		Preferred	--	--	--	--	--	--	--	--	4' - 1.22"	--	4' - 1.22"	--	4' - 1.22"	
B	FROM PLUMMET TO POOL WALL AT SIDE	Designation	B-1		B-3		B-1pl		B-3pl		B-5		B-7.5		B-10	
		Minimum	8' - 2.43"	--	11' - 5.80"	--	8' - 2.43"	--	9' - 10.11"	--	13' - 1.48"		14' - 9.17"	--	18' - 10.38"	
		Preferred	8' - 2.43"	--	11' - 5.80"	--	11' - 5.80"	--	11' - 9.74"	--	14' - 9.17"		15' - 7.01"	--	18' - 10.38"	
C	FROM PLUMMET TO ADJACENT PLUMMET	Designation	C1-1		C-3-3,3-1		C1-1pl		C3-3pl,1pl		C5-3,5-1		C7.5-5,3,1		C-10-7.5,5	
		Minimum	6' - 6.74"	--	7' - 2.62"	--	6' - 0.84"	--	7' - 2.62" *	--	9' - 4.21" *	--	9' - 0.27" *	--	9' - 10.11" *	

		Preferred	6' - 6.74"	--	8' - 6.37"	--	7' - 0.65"	--	7' - 8.52" *	--	9' - 4.21" *	--	9' - 0.27" *	--	9' - 10.11" *
D	FROM PLUMMET TO POOL WALL AHEAD	Designation	D-1		D-3	--	D-1pl	--	D-3pl	--	D-5	--	D-7.5	--	D-10
		Minimum	29' - 6.33"	--	33' - 7.55"	--	26' - 2.96"	--	31' - 2.02"	--	33' - 7.55"	--	36' - 1.07"	--	44' - 3.50"
		Preferred	29' - 6.33"	--	33' - 7.55"	--	26' - 2.96"	--	31' - 2.02"	--	33' - 7.55"	--	36' - 1.07"	--	44' - 3.50"
E	ON PLUMMET, FROM BOARD TO CEILING	Designation	--	E-1	--	E-3	--	E-1pl	--	E-3pl	--	E-5	--	E-7.5	--
		Minimum	--	16' - 4.85"	--	16' - 4.85"	--	10' - 7.96"	--	10' - 7.96"	--	10' - 7.96"	--	10' - 7.96"	--
		Preferred	--	16' - 4.85"	--	16' - 4.85"	--	11' - 5.80"	--	11' - 5.80"	--	11' - 5.80"	--	11' - 5.80"	--
F	CLEAR OVERHEAD BEHIND AND EACH SIDE OF PLUMMET	Designation	F-1	E-1	F-3	E-3	F-1pl	E-1pl	F-3pl	E-3pl	F-5	E-5	F-7.5	E-7.5	F-10
		Minimum	8' - 2.43"	16' - 4.85"	8' - 2.43"	16' - 4.85"	9' - 0.27"	10' - 7.96"	9' - 0.27"	10' - 7.96"	9' - 0.27"	10' - 7.96"	9' - 0.27"	10' - 7.96"	9' - 0.27"
		Preferred	8' - 2.43"	16' - 4.85"	8' - 2.43"	16' - 4.85"	9' - 0.27"	11' - 5.80"	9' - 0.27"	11' - 5.80"	9' - 0.27"	11' - 5.80"	9' - 0.27"	11' - 5.80"	9' - 0.27"
G	CLEAR OVERHEAD AHEAD OF PLUMMET	Designation	G-1	E-1	G-3	E-3	G-1pl	E-1pl	G-3pl	E-3pl	G-5	E-5	G-7.5	E-7.5	G-10
		Minimum	16' - 4.85"	16' - 4.85"	16' - 4.85"	16' - 4.85"	16' - 4.85"	10' - 7.96"	16' - 4.85"	10' - 7.96"	16' - 4.85"	10' - 7.96"	16' - 4.85"	10' - 7.96"	19' - 8.22"
		Preferred	16' - 4.85"	16' - 4.85"	16' - 4.85"	16' - 4.85"	16' - 4.85"	11' - 5.80"	16' - 4.85"	11' - 5.80"	16' - 4.85"	11' - 5.80"	16' - 4.85"	11' - 5.80"	19' - 8.22"
H	DEPTH OF WATER AT PLUMMET	Designation	--	H-1	--	H-3	--	H-1pl	--	H-3pl	--	H-5	--	H-7.5	--
		Minimum	--	11'	--	12'	--	10' - 5.99"	--	11' - 5.80"	--	12'	--	13' - 5.42"	--
		Preferred	--	11' - 5.80"	--	12' - 5.61"	--	10' - 9.92"	--	11' - 9.74"	--	12' - 5.61"	--	14' - 9.17"	--
J K	DISTANCE AND DEPTH AHEAD OF PLUMMET FOR ALL STANDS	Designation	J-1	K-1	J-3	K-3	J-1pl	K-1pl	J-3pl	K-3pl	J-5	K-5	J-7.5	K-7.5	J-10
		Minimum	16' - 4.85"	10' - 9.92"	19' - 8.22"	11' - 9.74"	14' - 9.17"	10' - 2.05"	18' - 0.54"	11' - 1.86"	19' - 8.22"	11' - 9.74"	26' - 2.96"	13' - 1.48"	36' - 1.07"
		Preferred	16' - 4.85"	11' - 1.86"	19' - 8.22"	12' - 1.67"	14' - 9.17"	10' - 5.99"	18' - 0.54"	11' - 5.80"	19' - 8.22"	12' - 1.67"	26' - 2.96"	14' - 5.23"	36' - 1.07"
L M	DISTANCE AND DEPTH EACH SIDE OF PLUMMET	Designation	L-1	M-1	L-3	M-3	L-1pl	M-1pl	L-3pl	M-3pl	L-5	M-5	L-7.5	M-7.5	L-10
		Minimum	4' - 11.06"	10' - 9.92"	6' - 6.74"	11' - 9.74"	4' - 7.12"	10' - 2.05"	5' - 10.87"	11' - 1.86"	9' - 10.11"	11' - 9.74"	12' - 3.64"	13' - 1.48"	14' - 9.17"
		Preferred	6' - 6.74"	11' - 1.86"	8' - 2.43"	12' - 1.67"	6' - 2.81"	10' - 5.99"	7' - 6.55"	11' - 5.80"	11' - 5.80"	12' - 1.67"	14' - 9.17"	14' - 5.23"	17' - 2.70"
N	MAXIMUM SLOPE TO REDUCE DIMENSION BEYOND MINIMUM REQUIREMENTS FOR POOL DEPTH and CEILING HEIGHT IS 30 DEGREES.														

Note 1:The leading edge of the concrete platforms for springboards must be at least constructed to be directly above the pool wall or beyond.

Note 2: All platforms must project 2'-5.53" (0.75 meters) beyond any plaform directly below.

Note 3: Dimensions B (plummet to pool wall at side) and C (plummet to adjacent plummet) apply to Platforms with widths as detailed. If Platform widths are increased then B and C are to be increased by half the additional width(s).

* Note 4: The minimum distance between adjacent platforms must be at least 0'-9.84" (0.25 meters).

Note 5: The 10 Metre Platform must project at least 0'-9.84" (0.25 meters) beyond any adjacent platform.

Note 6: In dimension H 'Dept of Water at Plummet', USA DIVING has approved 11' for 1m springboard and 12' for 3m springboard and 5m platform as the minimum depth.

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TABLE 402.12(4)
MINIMUM DIVING WATER ENVELOPES FOR CLASS A POOLS FOR USA DIVING-SANCTIONED DIVING EVENTS
(feet-fractional inches)
(SEE FIGURE 401.12(2))

FINA DIVING WATER ENVELOPE CONVERSIONS TO U.S. DIMENSIONS FOR NEW USA DIVING FACILITIES

FROM FINA HANDBOOK 2013-2017

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USA DIVING Dimensions for Diving Facilities		**SPRINGBOARD**				**PLATFORM**									
		1 meter		3 meters		1 meter		3 meters		5 meters		7.5 meters		10 meters	
For pools constructed after September 2013 Extrapolated from FINA HANDBOOK 2013-2017 (see F.R. 5.3.1)	Length	15' - 11"		15' - 11"		16' - 4 7/8"		16' - 4 7/8"		19' - 8 1/4"		19' - 8 1/4"		19' - 8 1/4"	
	Width	1' - 7 3/4"		1' - 7 3/4"		3' - 3 3/8" minimum 9' - 6 3/16" preferred		3' - 3 3/8" minimum 9' - 6 3/16" preferred		9' - 6 3/16"		6' - 6 3/4"		9' - 10 1/8"	
	Height	3' - 3 3/8"		9' - 10 1/8"		1' - 11 11/16" minimum 3' - 3 3/8" preferred		8' - 6 3/8" minimum 9' - 10 1/8" preferred		16' - 4 7/8"		24' - 7 5/16"		32' - 9 3/4"	
		Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
A	FROM PLUMMET BACK TO POOL WALL FOR **CONCRETE PLATFORM**	Designation	A-1	--	A-3	--	A-1pl	--	A-3pl	--	A-5		A-7.5		A-10
		Minimum	7' - 3 7/16"	--	7' - 3 7/16"	--	2' - 5 9/16"	--	4' - 1 1/4"	--	4' - 1 1/4"		4' - 1 1/4"		4' - 11 1/16"
		Preferred	7' - 3 7/16"	--	7' - 3 7/16"	--	2' - 5 9/16"	--	4' - 1 1/4"	--	4' - 1 1/4"		4' - 1 1/4"		4' - 11 1/16"
	FROM PLUMMET BACK TO POOL WALL FOR **PEDESTALS AND METAL STANDS**	Minimum	4' - 11 1/16"	--	4' - 11 1/16"	--	--	--	--	--	--				
		Preferred	5' - 10 7/8"	--	5' - 10 7/8"	--	--	--	--	--	--				
A/A	FROM PLUMMET BACK TO PLATFORM PLUMMET DIRECTLY BELOW	Designation									A/A5/1		A/A7.5/3,1		A/A 10/5,
		Minimum									2' - 5 9/16"		2' - 5 9/16"		2' - 5 9/16"
		Preferred									4' - 1 1/4"		4' - 1 1/4"		4' - 1 1/4"
B	FROM PLUMMET TO POOL WALL AT SIDE	Designation	B-1		B-3		B-1pl		B-3pl		B-5		B-7.5		B-10
		Minimum	8' - 2 7/16"		11' - 5 13/16"		8' - 2 7/16"		9' - 10 1/8"		13' - 1 1/2"		14' - 9 3/16"		18' - 10 7/16"
		Preferred	8' - 2 7/16"		11' - 5 13/16"		11' - 5 13/16"		11' - 9 3/4"		14' - 9 3/16"		15' - 7 1/16"		18' - 10 7/16"
C	FROM PLUMMET TO ADJACENT PLUMMET	Designation	C1-1		C-3-3,3-1		C1-1pl		C3-3pl,1pl		C5-3,5-1		C7.5-5,3,1		C-10-7.5,5
		Minimum	6' - 6 3/4"		7' - 2 5/8"		6' - 0 7/8"		7' - 2 5/8" *		9' - 4 1/4" *		9' - 0 5/16" *		9' - 10 1/8" *
		Preferred	6' - 6 3/4"		8' - 6 3/8"		7' - 0 11/16"		7' - 8 9/16" *		9' - 4 1/4" *		9' - 0 5/16" *		9' - 10 1/8" *

D	FROM PLUMMET TO POOL WALL AHEAD	Designation	D-1		D-3		D-1pl		D-3pl		D-5		D-7.5		D-10
		Minimum	29' - 6 3/8"		33' - 7 9/16"		26' - 3"		31' - 2 1/16"		33' - 7 9/16"		36' - 1 1/8"		44' - 3 1/2"
		Preferred	29' - 6 3/8"		33' - 7 9/16"		26' - 3"		31' - 2 1/16"		33' - 7 9/16"		36' - 1 1/8"		44' - 3 1/2"
E	ON PLUMMET, FROM BOARD TO CEILING	Designation		E-1		E-3		E-1pl		E-3pl		E-5		E-7.5	
		Minimum		16' - 4 7/8"		16' - 4 7/8"		10' - 8"		10' - 8"		10' - 8"		10' - 8"	
		Preferred		16' - 4 7/8"		16' - 4 7/8"		11' - 5 13/16"		11' - 5 13/16"		11' - 5 13/16"		11' - 5 13/16"	
F	CLEAR OVERHEAD BEHIND AND EACH SIDE OF PLUMMET	Designation	F-1	E-1	F-3	E-3	F-1pl	E-1pl	F-3pl	E-3pl	F-5	E-5	F-7.5	E-7.5	F-10
		Minimum	8' - 2 7/16"	16' - 4 7/8"	8' - 2 7/16"	16' - 4 7/8"	9' - 0 5/16"	10' - 8"	9' - 0 5/16"	10' - 8"	9' - 0 5/16"	10' - 8"	9' - 0 5/16"	10' - 8"	9' - 0 5/16"
		Preferred	8' - 2 7/16"	16' - 4 7/8"	8' - 2 7/16"	16' - 4 7/8"	9' - 0 5/16"	11' - 5 13/16"	9' - 0 5/16"	11' - 5 13/16"	9' - 0 5/16"	11' - 5 13/16"	9' - 0 5/16"	11' - 5 13/16"	9' - 0 5/16"
G	CLEAR OVERHEAD AHEAD OF PLUMMET	Designation	G-1	E-1	G-3	E-3	G-1pl	E-1pl	G-3pl	E-3pl	G-5	E-5	G-7.5	E-7.5	G-10
		Minimum	16' - 4 7/8"	16' - 4 7/8"	16' - 4 7/8"	16' - 4 7/8"	16' - 4 7/8"	10' - 8"	16' - 4 7/8"	10' - 8"	16' - 4 7/8"	10' - 8"	16' - 4 7/8"	10' - 8"	19' - 8 1/4"
		Preferred	16' - 4 7/8"	16' - 4 7/8"	16' - 4 7/8"	16' - 4 7/8"	16' - 4 7/8"	11' - 5 13/16"	16' - 4 7/8"	11' - 5 13/16"	16' - 4 7/8"	11' - 5 13/16"	16' - 4 7/8"	11' - 5 13/16"	19' - 8 1/4"
H	DEPTH OF WATER AT PLUMMET *See Note 6*	Designation		H-1		H-3		H-1pl		H-3pl		H-5		H-7.5	
		Minimum		11'		12'		10' - 6"		11' - 5 13/16"		12'		13' - 5 7/16"	
		Preferred		11' - 5 13/16"		12' - 5 5/8"		10' - 9 15/16"		11' - 9 3/4"		12' - 5 5/8"		14' - 9 3/16"	
J K	DISTANCE AND DEPTH AHEAD OF PLUMMET FOR ALL STANDS	Designation	J-1	K-1	J-3	K-3	J-1pl	K-1pl	J-3pl	K-3pl	J-5	K-5	J-7.5	K-7.5	J-10
		Minimum	16' - 4 7/8"	10' - 9 15/16"	19' - 8 1/4"	11' - 9 3/4"	14' - 9 3/16"	10' - 2 1/16"	18' - 0 9/16"	11' - 1 7/8"	19' - 8 1/4"	11' - 9 3/4"	26' - 3"	13' - 1 1/2"	36' - 1 1/8"
		Preferred	16' - 4 7/8"	11' - 1 7/8"	19' - 8 1/4"	12' - 1 11/16"	14' - 9 3/16"	10' - 6"	18' - 0 9/16"	11' - 5 13/16"	19' - 8 1/4"	12' - 1 11/16"	26' - 3"	14' - 5 1/4"	36' - 1 1/8"
L M	DISTANCE AND DEPTH EACH SIDE OF PLUMMET	Designation	L-1	M-1	L-3	M-3	L-1pl	M-1pl	L-3pl	M-3pl	L-5	M-5	L-7.5	M-7.5	L-10
		Minimum	4' - 11 1/16"	10' - 9 15/16"	6' - 6 3/4"	11' - 9 3/4"	4' - 7 1/8"	10' - 2 1/16"	5' - 10 7/8"	11' - 1 7/8"	9' - 10 1/8"	11' - 9 3/4"	12' - 3 11/16"	13' - 1 1/2"	14' - 9 3/16"
		Preferred	6' - 6 3/4"	11' - 1 7/8"	8' - 2 7/16"	12' - 1 11/16"	6' - 2 13/16"	10' - 6"	7' - 6 9/16"	11' - 5 13/16"	11' - 5 13/16"	12' - 1 11/16"	14' - 9 3/16"	14' - 5 1/4"	17' - 2 3/4"
N	MAXIMUM SLOPE TO REDUCE DIMENSION BEYOND MINIMUM REQUIREMENTS FOR POOL DEPTH and CEILING HEIGHT IS 30 DEGREES.														
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Note 1:The leading edge of the concrete platforms for springboards must be at least constructed to be directly above the pool wall or beyond.

Note 2: All platforms must project 2'-5 9/16" (0.75 meters) beyond any plaform directly below.

Note 3: Dimensions B (plummet to pool wall at side) and C (plummet to adjacent plummet) apply to Platforms with widths as detailed. If Platform widths are increased then B and C are to be increased by half the additional width(s).

* Note 4: The minimum distance between adjacent platforms must be at least 0'-9 7/8" (0.25 meters).

Note 5: The 10 Metre Platform must project at least 0'-9.84" (0.25 meters) beyond any adjacent platform.
Note 6: In dimension H 'Dept of Water at Plummet', USA DIVING has approved 11' for 1m springboard and 12' for 3m springboard and 5m platform as the minimum depth.

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TABLE 402.12(5)
MINIMUM DIVING ENVELOPES FOR CLASS A POOLS FOR NCAA-SANCTIONED DIVING EVENTS
(feet-inches)
(SEE FIGURE 402.12(2))
FINA DIVING WATER ENVELOPE CONVERSIONS TO U.S. DIMENSIONS FOR NEW NCAA DIVING FACILITIES
FROM FINA HANDBOOK 2013 - 2017

NCAA Recommended Dimensions for Diving Facilities		Dimensions are In Feet	SPRINGBOARD				PLATFORM									
			1 meter		3 meters		1 meter		3 meters		5 meters		7.5 meters		10 meters	
		LENGTH	16'		16'		16' - 5"		16' - 5"		20'		20'		20'	
		WIDTH	1' - 8"		1' - 8"		3' - 4" minimum 9' - 7" preferred		3' - 4" minimum 9' - 7" preferred		9' -7"		6' -7" minimum		9' - 10"	
Revised October 1, 2013		HEIGHT	3' - 4"		9' - 11"		2' minimum 3' - 4" preferred		8' - 7" minimum 9' - 11" preferred		16' - 5"		24' - 8"		32' - 10"	
			Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertica
A	FROM PLUMMET BACK TO POOL WALL FOR **CONCRETE PLATFORM**	Designation	A-1		A-3		A-1pl		A-3pl		A-5		A-7.5		A-10	
		Minimum	7' - 4"		7' - 4"		2' - 6"		4' - 2"		4' - 2"		4' - 2"		5'	
		Preferred	7' - 4"		7' - 4"		2' - 6"		4' - 2"		4' - 2"		4' - 2"		5'	
	FROM PLUMMET BACK TO POOL WALL FOR **PEDESTALS AND METAL STANDS**	Minimum	5'		5'											
		Preferred	5' - 11"		5' - 11"											
A/A	From plummet BACK TO PLATFORM plummet directly below	Designation									A/A5/1		A/A7.5/3,1		A/A 10/5,3,1	
		Minimum									2' - 6"		2' - 6"		2' - 6"	
		Preferred									4' - 2"		4' - 2"		4' - 2"	
B	From plummet to POOL WALL AT SIDE	Designation	B-1		B-3		B-1pl		B-3pl		B-5		B-7.5		B-10	
		Minimum	8' - 3"		11' - 6"		8' - 3"		9' - 11"		3' - 1"		14' - 10"		18' - 11"	
		Preferred	8' - 3"		11' - 6"		11' - 6"		11' - 10"		14' - 10"		15' - 8"		18' - 11"	
C	From plummet to ADJACENT PLUMMET *See Note 1*	Designation	C1-1		C-3-3,3-1		C1-1pl		C3-3pl,1pl		C5-3,5-1		C7.5-5,3,1		C-10-7.5,5,3,1	
		Minimum	6' - 7"		7' - 3"		6' - 1"		7' - 3" *		9' - 5" *		9' - 1"		9' - 11" *	
		Preferred	6' - 7"		8' - 7"		7' - 1"		7' - 9" *		9' - 5" *		9' - 1"		9' - 11" *	
D	From plummet to POOL WALL AHEAD	Designation	D-1		D-3		D-1pl		D-3pl		D-5		D-7.5		D-10	
		Minimum	29' - 7"		33' - 8"		26' - 3"		31' - 3"		33' - 8"		36' - 2"		44' - 4"	
		Preferred	29' - 7"		33' - 8"		26' - 3"		31' - 3"		33' - 8"		36' - 2"		44' - 4"	
E	On plummet, from BOARD TO CEILING	Designation		E-1		E-3		E-1pl		E-3pl		E-5		E-7.5		E-10
		Minimum		16' - 5"		16' - 5"		10' - 8"		10' - 8"		10' - 8"		10' - 8"		13' - 2'
		Preferred		16' - 5"		16' - 5"		11' - 6"		11' - 6"		11' - 6"		11' - 6"		16' - 5'

F	CLEAR OVERHEAD behind and each side of plummet	Designation	F-1	E-1	F-3	E-3	F-1pl	E-1pl	F-3pl	E-3pl	F-5	E-5	F-7.5	E-7.5	F-10	E-10
		Minimum	8' - 3"	16' - 5"	8' - 3"	16' - 5"	9' - 1"	10' - 8"	9' - 1"	10' - 8"	9' - 1"	10' - 8"	9' - 1"	10' - 8"	9' - 1"	13' - 2'
		Preferred	8' - 3"	16' - 5"	8' - 3"	16' - 5"	9' - 1"	11' - 6"	9' - 1"	11' - 6"	9' - 1"	11' - 6"	9' - 1"	11' - 6"	9' - 1"	16' - 5'
G	CLEAR OVERHEAD ahead of plummet	Designation	G-1	E-1	G-3	E-3	G-1pl	E-1pl	G-3pl	E-3pl	G-5	E-5	G-7.5	E-7.5	G-10	E-10
		Minimum	16' - 5"	16' - 5"	16' - 5"	16' - 5"	16' - 5"	10' - 8"	16' - 5"	10' - 8"	16' - 5"	10' - 8"	16' - 5"	10' - 8"	19' - 9"	13' - 2'
		Preferred	16' - 5"	16' - 5"	16' - 5"	16' - 5"	16' - 5"	11' - 6"	16' - 5"	11' - 6"	16' - 5"	11' - 6"	16' - 5"	11' - 6"	19' - 9"	16' - 5'
H	DEPTH OF WATER at plummet (minimum required)	Designation		H-1		H-3		H-1pl		H-3pl		H-5		H-7.5		H-10
		Minimum		11' - 2"		12' - 2"		10' - 6"		11' - 6"		12' - 2"		13' - 6"		14' - 10"
		Preferred		11' - 6"		12' - 6"		10' - 10"		11' - 10"		12' - 6"		14' - 10"		16' - 5'
J K	DISTANCE AND DEPTH ahead of plummet	Designation	J-1	K-1	J-3	K-3	J-1pl	K-1pl	J-3pl	K-3pl	J-5	K-5	J-7.5	K-7.5	J-10	K-10
		Minimum	16' - 5"	10' - 10"	19' - 9"	11' - 10"	14' - 10"	10' - 3"	18' - 1"	11' - 2"	19' - 9"	11' - 10"	26' - 3"	13' - 2"	36' - 2"	14'
		Preferred	16' - 5"	11' - 2"	19' - 9"	12' - 2"	14' - 10"	10' - 6"	18' - 1"	11' - 6"	19' - 9"	12' - 9"	26' - 3"	14' - 6"	36' - 2"	15' - 8'
L M	DISTANCE AND DEPTH each side of plummet	Designation	L-1	M-1	L-3	M-3	L-1pl	M-1pl	L-3pl	M-3pl	L-5	M-5	L-7.5	M-7.5	L-10	M-10
		Minimum	5'	10' - 10"	6' - 7"	11' - 10"	4' - 8"	10' - 3"	5' - 11"	11' - 2"	9' - 11"	11' - 10"	12' - 4"	13' - 2"	14' - 10"	14'
		Preferred	6' - 7"	11' - 2"	8' - 3"	12' - 2"	6' - 3"	10' - 6"	7' - 7"	11' - 6"	11' - 6"	12' - 2"	14' - 10"	14' - 6"	17' - 3"	15' - 8'
N	MAXIMUM SLOPE TO REDUCE DIMENSION beyond full requirements	Pool depth Ceiling Ht	30 degrees 30 degrees	Note 1: Dimensions C (plummet to adjacent plummet) apply for platforms with width as detailed. For wider platfors increase C by half the additional width(s). Note 2: All dimensions rounded up, even if only fractionally greater than the next lowest inch.												

TABLE 402.12(6)
MINIMUM DIVING WATER ENVELOPES FOR CLASS A POOLS FOR NFHS-SANCTIONED DIVING EVENTS
(SEE FIGURE 402.12(6))

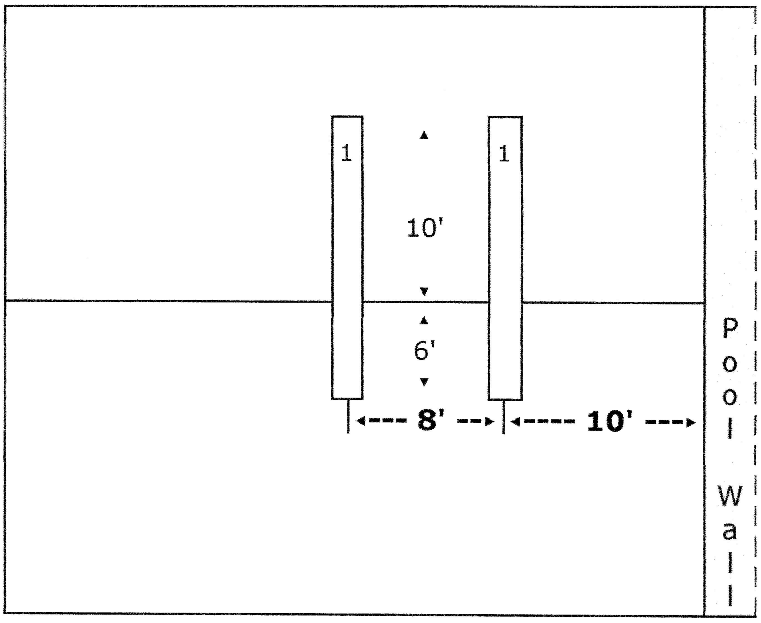
Matrix of Springboard Dimensions for High School Competitive Diving

NATIONAL FEDERATION OF STATE HIGH SCHOOL ASSOCIATIONS (NFHS)				
	Rule 9, Section 1, Article 1	**Board Height**	**U.S Dimensions**	**Metric Dimensions**
	Length of Board	1m	16'	4.877m
	Width of Board	1m	20"	.508m
a.	End of springboard Back to Pool Wall	1m	6'	1.829m
b.	Center of board to center of another board	1m	8'	2.438m
c.	Center of board to pool side wall	1m	10'	3.048m
d.	End of springboard to forward pool wall	1m	29'	8.839m
e.	Top of springboard to ceiling overhead	1m	16'	4.877m

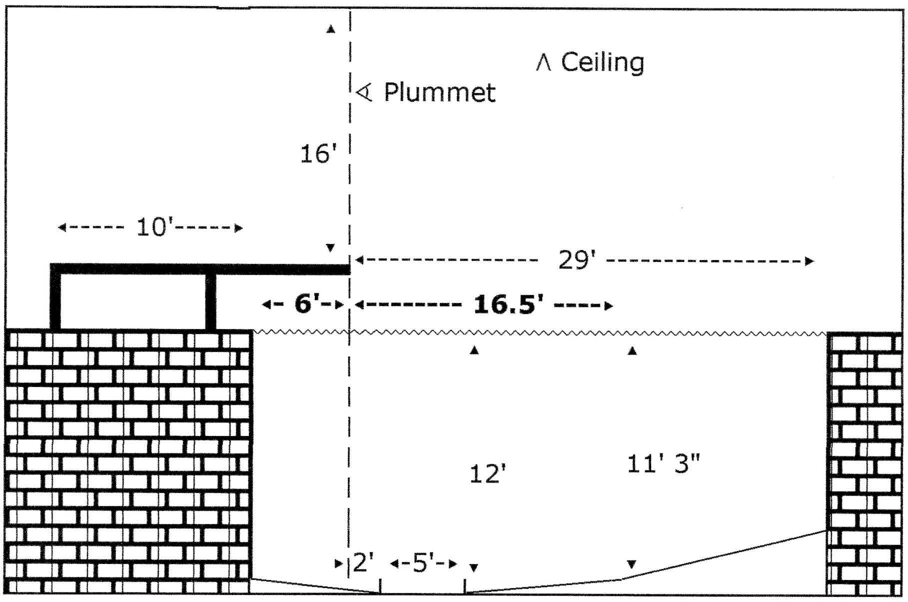
f.	Water depth at any point 2' to 5' in front of the end of the board, must be 12' (3.658m) or more, except for pools constructed prior to January 1987, where water depth 2 to 5 feet in front of the end of the board must be a minimum of 10 feet (3.045m).	1m	12'/10'	3.658 / 3.048m
g.	Maximum depth reduction rate of diving pools which do not exceed minimum depth requirement shall be 6 1/4% for a distance of 16.5' (5.0m) forward (6.096m) from the end of the board and 6' (1.829m) back and to the sides. Deeper pools may have proportionally steeper depth reduction rates.	1m	**	**

FIGURE 402.12(6)([Add # Here])
FIGURE FOR TABLE 402.12(6)

MINIMUM DIVING WATER ENVELOPE FOR HIGH SCHOOL POOLS WITH TWO 1 METER SPRINGBOARDS



Overhead View



Side View

Reason: Architects, contractors, and zoning officers have often asked for a conversion table of the FINA dimensions to U. S. dimensions. The three national governing bodies have different diemnsional conversion standards. This information needs to be in this publication so that there is not misinterpretation of what is required in USA Diving, NCAA, and high school diving facilities to guard against a facility not being able to a sanction for competition.

Cost Impact: Will not increase the cost of construction
These dimensions are already a requirement for competition pools and therefore, there is no change in the cost of construction. Having this information all in one place might eliminate rework costs and lower the cost of installing these pools.

SP 25-15 : 402.1-LEAS5115

SP 26-15

402.3

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

402.3 Installation. The installation of manufactured diving equipment shall be in accordance with Sections 402.3 through 402.12. Manufactured diving equipment shall be located in the deep area of the pool so as to provide the minimum dimensions shown in Table 402.12 and shall be installed in accordance with the manufacturer's instructions. Installation and use instructions for manufactured diving equipment shall be provided by the manufacturer and shall specify the minimum diving water envelope dimensions required for each diving board and diving stand combination. The manufacturer's instructions shall refer to the water envelope type by dimensionally relating their products to Point A on the diving water envelopes shown in Table 402.12. The diving board manufacturer shall specify which boards fit on the design pool geometry types as indicated in Table 402.12.

Reason: This is strictly an editorial clean up to correctly use the phrase "diving water envelope" where talking about diving features for a pool.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 73.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 26-15 : 402.3-SNYDER4160

SP 27-15

402.6

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

402.6 Location of pool features in a diving pool. Where a pool is designed for use with diving equipment, the location of steps, pool stairs, ladders, underwater benches, underwater ledges, special features and other accessory items shall be outside of the minimum diving water envelope~~. See~~ shape at the design waterline as depicted in Figure 322.2.

Reason: This is partially an editorial change in that the "See Figure 322.2" was dangling at the end of this section without a real connection to the other words. The words "shape at the design waterline" is an especially important addition to made clear that underwater elements such as benches and ledges cannot encroach on the *straight downward projection* of the shape of the diving water envelope at the waterline. It is one thing to make sure that the sloped side walls of a pool are outside of the 3-D shape of the diving water envelope indicated in Figure 804.1 but to allow a horizontal flat surface under the water to be close to the outside of the 3-D shape could be an unnecessarily risky interpretation. Therefore, this improved wording clarifies that those underwater features are to be kept outside of the diving water envelope shape at the design waterline.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 82.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 27-15 : 402.6-SNYDER4161

SP 28-15

410.1

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

410.1 ~~Dressing and sanitary~~<u>Toilet</u> facilities. ~~Dressing and sanitary facilities shall be provided for~~
Class A and B pools ~~as~~<u>shall be provided with toilet facilities having the</u> required ~~by~~<u>number of plumbing fixtures in accordance with</u> the *International Building Code*~~and~~<u> or the</u>*International Plumbing Code*.

Reason: As there is not a requirement for providing dressing rooms or bathing facilities in the IPC or IBC, it doesn't make sense to send the reader on a hunt for something that doesn't exist. Only plumbing fixtures are required by IPC/IBC so this section just needs to say that.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 110.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 28-15 : 410.1-SNYDER4162

SP 29-15

609.3.1

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

609.3.1 Deck shower. Not less than one ~~shower~~ and not greater than half of the total number of showers required by Section 609.2 shall be located on the deck of or at the entrance of each pool.

Reason: This proposal is a clarification of existing code and does not add new requirements.
This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 109.

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 29-15 : 609.3.1-SNYDER4163

SP 30-15

SECTION 612 (New)

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Add new text as follows:

SECTION 612
SPRAY PADS

612.1 General. Spray pads shall comply with this section.

612.2 Safety hazards. Parts of the spray pad that can be accessed by the users of the spray pad shall be designed and constructed to not present safety hazards to the users.

612.3 Walking surface at perimeter. A walking surface of not less than 4 foot (1296 mm) in width shall be provided around the perimeter of the splash zone. The walking surface shall be sloped away from the splash zone. The drainage from the perimeter walking surface shall be directed to deck drains or other surface water disposal systems. Walking surfaces shall not drain to the surge basin for the spray pad.

612.4 Splash zone. The splash zone shall comply with Sections 612.4.2 through 612.4.5.

612.4.1 Absence of standing water. Surfaces in the splash zone shall be designed to not have standing water.

612.4.2 Slope to drain. The surfaces of the splash zone shall slope to drain water to the surge basin of the circulation system for the spray pad.

612.4.3 Nozzles on walking surfaces. Water nozzles that spray from walking surfaces shall be flush with those surfaces. Openings in such nozzles shall not exceed ½ inch (12.7 mm).

612.4.4 Other nozzles. Nozzles, other than those on walking surfaces, shall be designed to be clearly visible.

612.4.5 Potable water for foggers and misters. Foggers and misters that produce finely atomized water mists shall be supplied only with potable water. Foggers and misters shall not be supplied with water from the surge basin.

612.5 Circulation system. The circulation system shall consist of the equipment covered in Sections 612.5.1 through 612.5.3

612.5.1 Catch screen. A catch screen or basket shall be provided for splash zone drainage piping connections to the surge basin. The screen or basket shall be designed to prevent larger debris from entering the surge basin.

612.5.2 Surge basin.
A surge basin shall be provided having a capacity of not less than 4000 gallons or the number of gallons that can be pumped in one minute by the combination of all spray pad and recirculation pumps, whichever is greater.

612.5.2.1 Basin materials and design. The basin shall be constructed of materials which are inert, corrosion resistant and non toxic. Basins shall be constructed of concrete, fiberglass, high density polyethylene, stainless steel or other approved materials. The design of basins shall anticipate all anticipated loadings under full and empty conditions. Such loading conditions shall be determined by a design professional who has experience with the design of public pools.

612.5.2.2 Basin access. The basin shall be designed for access for cleaning and inspection. Not less than one access of opening of not less than 3 foot by 3 foot (914mm by 914 mm) shall be provided for placement of a ladder into the basin. All access opening covers shall be locked or shall require tools to open.

612.5.2.3 Circulation pump.
The circulation pump shall be sized to turnover the surge basin capacity in ½ hour or less. The intake for the pump shall be located at the lowest elevation of the surge basin Where separate pumps are installed for the circulation system and the spray nozzles system, the suction intakes for those pumps shall be located on opposite ends of the basin.

612.5.2.4 Spray nozzles and water feature pumps. Spray nozzles and water feature systems shall be be supplied water from the discharge of the recirculation pump or from separate pumps. Where separate pumps are installed for the recirculation system and a spray nozzles or water feature system, the suction intakes for spray nozzles and water feature pump systems shall be located adjacent to the recirculation pump discharge point in the basin.

612.5.2.5 Pump control. The controls for spray nozzles and water feature pump systems shall prevent operation of those pumps when the recirculation pump is not operating.

612.5.2.6 Disinfection system. In addition to filtration and sanitizing equipment required by Chapter 3 and this chapter, the recirculation system shall be equipped with an ultraviolet light disinfection unit. The unit shall listed and labeled to NSF 50. Where a method other than ultraviolet disinfection is being considered as an alternative method in accordance with Section 104.9, such method shall provide a reduction in the level of cryptosporidium that is equal to or greater than the ultraviolet light method. The alternative method's cryptosporidium reduction capability shall be determined by a nationally recognized testing laboratory.

612.5.2.6.1 UV unit location.
The ultraviolet light disinfection unit shall be located on the recirculation system and upstream of any water connection for, or separate pump intake for, supplying spray nozzles or water features.

612.5.2.6.2 UV intensity meter. The chamber of the ultraviolet light disinfection unit shall be equipped with a ultraviolet light intensity meter that is located opposite and at the greatest water depth from the ultraviolet light source. The meter shall be filtered to restrict its sensitivity to the disinfection spectrum.

612.5.2.7 Control of pumps by UV meter.
The ultraviolet light intensity meter shall interlock with the controls for pumps that supply water for the spray nozzles and water features systems. Where the ultraviolet light intensity meter senses an ultraviolet dosage rate of less than 40 mJ/cm^2, the interlock shall lock out those pumps from operation.

612.5.2.8 Make-up water system.
The surge basin shall be provided with a make-up water system that is supplied with potable water. The portable water supply shall be protected against backflow in accordance with the *International Plumbing Code.*

612.5.3 Diverter valve. The drainage piping for the splash zone shall have a diverter valve to divert splash zone drainage away from the surge basin when the spray pad is not in operation. The diverted drainage shall be to an approved place of disposal.

612.6 Operating instructions. Operating instructions for spray pads shall require that the cicrculation system be operated continuously for not less than 4 turnovers prior to the pumps for the spray nozzles and water features systems being turned on for use of the spray pad.

612.7 Lighting. Where a spray pad will be in operation at night or during periods of inadequate natural lighting, artificial lighting shall be provided. Such lighting shall be installed in accordance with the manufacturer's instructions and NFPA 70.

Reason: In the last cycle, the APSP organization proposed similar language for these highly popular water play areas that are rapidly becoming an alternative for some public swimming pools in many jurisdictions across the country. The technical committee disapproved the proposal because the term that was used in the proposed language for naming these attractions was a trademarked term. (The proposed SPRAY PADS is not, to our knowledge, a trademarked term.) There was no disagreement by the committee that this information was needed for the code but the trademarked term just had to be changed. Unfortunately, the proposal was disapproved by the membership at final action hearing.
Waterparks have included these attractions in their array of fun things to do at the park for many years. As large waterparks are highly focused on the safety and cleanliness of all water used at the park, regulations didn't seem to be necessary for these attractions – the waterparks knew what to do, how to do it and have an excellent track record. However, as these types of attractions move into the public sector, many people who are responsible for choosing and operating this equipment might be lacking the (waterparks') knowledge about what is critical for a safe installation. Those involved in the pool and spa industry and those involved in operating public pools in jurisdictions across the country are well aware of a water contamination occurrence in one of these attractions at a Traverse City, MI city park not so long ago.

The ISPSC is the best place to install these requirements within the I-code family of codes as these attractions involve circulated and filtered water (similar to what a pool or spa uses) for recreational use even though such attractions do not involve users "bathing" (immersing themselves) in bodies of water.

The most recent edition of the California Building Code is reflective of many of the proposed concepts and details of the language of this proposal.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC). The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 10.

Cost Impact: Will increase the cost of construction
This proposal will increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code. Specifically, the code is currently silent about

these types of attractions which means that any supplier of these attractions could provide any kind of equipment (of safe design or not). In some cases, having these regulations in code will make the cost of some suppliers' attraction packages be more than if they did not have to comply with these minimum safety requirements. For other suppliers, these requirements are already included in their standard packages.

SP 30-15 : 612 (New)-SNYDER4164

SP 31-15

809.3

Proponent: Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

809.3 Secondary entries and exits. Where water depth in the deep area of a pool exceeds 5 feet (1524 mm), a means of entry and exit shall be provided in the deep area of the pool.
Exception: In pools where a deep end egress presents a potential hazard, handholds are permitted to be substituted for a means of egress.

Reason: The language being proposed is due to what was adopted on June 28, 2012 as ANSI approved errata to the 2011 edition of the ANSI/APSP/ICC - 5 American National Standard for Residential Inground Swimming Pools, which provides in Section 6.1.1 the following exception: "In pools where a deep end egress may present a potential hazard, handholds may be subsituted for a means of egress."
This code proposal attempts to take that errata and put it into code langauge that will ensure consistency between the ISPSC and what is in the APSP-5 Standard. The reason this change occured in the APSP-5 standard was due to concerns from pool builders and fiberglass manufacturers that the language in Section 6.1 of the standard, which correlates with Section 809.2 of the ISPSC, would create problems in both construction and fiberglass manufacturering with existing molds - if an exception were not added existing molds would no longer be able to be used.

"Vanishing edge pools that extend over the side of a mountain (recent issue of Aqua Magazine that provides an extreme example but an example nonetheless) or where the vanishing edge is in a backyard elevated 10 feet above the surrounding property line is a more common example. In these cases if you were to exit the deep end, you'd fall and get injured or in the case of the mountain you'd most likely die…so we do not want to have an egress in these type of situations. The reason handholds would be allowed is that the edge of the wall itself may serve as a handhold, if it slopes away from the pool interior toward the exterior."

The exception added to the APSP-5 standard and being proposed here for inclusion in the ISPSC will help clarify and remedy the concern by eliminating the problems encountered by builders and manufacturers, while at the same time, eliminate the misperception of a shallow end being the deep end basd on the assumption that a ladder signifies the deep end.

Bibliography: Refer to ANSI/APSP/ICC-5 2011 Residential Inground Swimming Pool Standard with June 28, 2012 Errata

Cost Impact: Will not increase the cost of construction
This proposal will not increase the cost of construction, rather, if it is not adopted there is a good chance the cost of construction would increase if it were determined that the existing molds builders and manufacturers use are no longer allowed to meet this requirement.

SP 31-15 : 809.3-HATFIELD5531

SP 32-15

809.3

Proponent: Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

809.3 Secondary entries and exits. Where water depth in the deep area of a pool exceeds 5 feet (1524 mm), a means of entry and exit shall be provided in the deep area of the pool.

Exception: Where a means of exit from the deep end of a pool would present a potential hazard, handholds shall be provided for the means of exit.

Reason: Since the APSP-5 2011 standard was published, several calls have been received from builders and fiberglass pool manufacturers expressing concern that the language in Section 6.1 of APSP-5 is creating problems both in construction and for fiberglass pool manufacturers with existing molds. According to the language in the 2011 edition of APSP-5, these existing molds can no longer be used.

The existing language has been modified to help clarify and remedy this section. Hopefully, it will eliminate the problems encountered by builders and manufacturers, while at the same time, eliminate the misperception of a shallow end being the deep end based on the assumption that a ladder signifies the deep end.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC). The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes. This is PMGCAC Item 9.

Cost Impact: Will not increase the cost of construction

This proposal will not increase the cost of construction because additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code.

SP 32-15 : 809.3-SNYDER4171

SP 33-15

809.5.1, 809.5.2

Proponent: Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org)

2015 International Swimming Pool and Spa Code

Revise as follows:

809.5.1 Tread dimension and area. Treads shall have a minimum unobstructed horizontal depth of 10 inches (254 mm) and a minimum unobstructed walking surface area of 240 square inches (0.15 m^2).

809.5.2 Riser heights. Risers, other than the top and bottom riser, shall have a uniform height of not greater than 12 inches (305 mm). The top riser height shall be any dimension not exceeding 12 inches (305 mm) for the width of the walking surface. The bottom riser height shall be any dimension not exceeding 12 inches (305 mm). The top and bottom riser heights shall not be required to be equal to each other or equal to the uniform riser height. Riser heights shall be measured at the horizontal centerline of the ~~stairs~~walking surface area.

Reason: The rationale for the changes being proposed is that when entry steps are installed on the side of a pool, they may extend in width to a point where the walking surface area may not be the "center" of the tread width. This proposal is consistent with the requirements found in the ANSI/APSP/ICC -5 American National Standard for Residential Inground Swimming Pools, specifically this can be found within the subsections to 6.2 of APSP-5.

Bibliography: Refer to ANSI/APSP/ICC - 5 Residential Inground Swimming Pool Standard

Cost Impact: Will not increase the cost of construction
This proposal clarifies current practice and will not increase the cost of construction.

SP 33-15 : 809.5.1-HATFIELD5729