

INTERNATIONAL CODE COUNCIL

2009/2010 CODE DEVELOPMENT CYCLE

PROPOSED CHANGES TO THE 2009 EDITIONS OF THE

INTERNATIONAL BUILDING CODE[®]
INTERNATIONAL ENERGY CONSERVATION CODE[®]
INTERNATIONAL EXISTING BUILDING CODE[®]
INTERNATIONAL FIRE CODE[®]
INTERNATIONAL FUEL GAS CODE[®]
INTERNATIONAL MECHANICAL CODE[®]
INTERNATIONAL PLUMBING CODE[®]
INTERNATIONAL PRIVATE SEWAGE DISPOSAL CODE[®]
INTERNATIONAL PROPERTY MAINTENANCE CODE[®]
INTERNATIONAL RESIDENTIAL CODE[®]
INTERNATIONAL WILDLAND-URBAN INTERFACE CODE[®]
INTERNATIONAL ZONING CODE[®]

October 24 2009 – November 11, 2009

Hilton Baltimore
Baltimore, MD



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By

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TABLE OF CONTENTS

	PAGE
Introduction	iii
2009 ICC Code Development Hearings	iii
Registration and Voting	iii
Advanced Registration	iv
Code Development Process Changes	iv
Procedures	iv
Assembly Action	v
Multiple Part Code Change Proposals	v
Administrative Code Development Committee	v
Analysis Statements	v
Reference Standards	vi
Referenced Standards Updates	vi
Modifications	vi
Code Correlation Committee	vi
2009/2010 Code Development Schedule	vii
2009/2010 Staff Secretaries	ix
Scoping Revisions — Within the IBC	x
ICC Website	xi
CP #28-05 Code Development	xii
Cross Index of Proposed Changes	xxiii
Hearing Schedule	xxxii
2009/2010 Proposed Changes	xxxiii
2009/2010 Registration Form	xxxiv

INTRODUCTION

The proposed changes published herein have been submitted in accordance with established procedures and are distributed 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. As part of ICC's green initiative, ICC will no longer print and distribute this document. The compilation of code change proposals will be posted on the ICC website, and CD copies will be distributed to all interested parties on our list.

2009 ICC CODE DEVELOPMENT HEARINGS

These proposed changes will be discussed in public hearings to be held on October 24, 2009 through October 31, 2009 and November 4-11, 2009 at the Hilton Baltimore, Baltimore, Maryland. The code committees will conduct their public hearings in accordance with the schedule shown on page xxxii.

REGISTRATION AND VOTING

All members of ICC may vote on any assembly motion on proposed code changes to all International Codes. **For identification purposes, eligible voting members must register, at no cost, in order to vote.** The registration desk will be open in the lobby of the convention center according to the following schedule:

Friday, October 23 rd	3:00 pm to 6:00 pm
Saturday, October 24 th through Wednesday November 11 th	7:30 am to 5:00 pm

Council Policy #28-Code Development (page xii) requires that ICC's membership records regarding ICC members reflect the eligible voters 10 days prior to the start of the Code Development Hearings. This process includes new as well as changes to voting status. Section 5.7.4 of CP #28 (page xix) reads as follows:

5.7.4 Eligible Voters: All members of ICC in attendance at the public hearing shall be eligible to vote on floor motions. Only one vote authorized for each eligible attendee. Code Development Committee member shall be eligible to vote on floor motions. Application, whether new or updated, for ICC membership must be received by the Code Council ten days prior to the commencement of the first day of the public hearing.

As such, new membership application as well as renewal applications must be received by ICC's Member Services Department by October 14, 2009. These records will be used to verify eligible voter status for the Code Development Hearings. 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 October 14, 2009 deadline. For information on application for new membership and membership renewal, please go to www.iccsafe.org/membership/join.html or call ICC Member Services at 1-888-ICC SAFE (422-7233)

It should be noted that a corporate member has a single vote. Only one representative of a corporate member will be issued a voting badge. ICC Staff will be contacting corporate members regarding who the designated voting representative will be.

ADVANCED REGISTRATION

You are encouraged to advance register by filling out the registration form available at www.iccsafe.org/codesforum.

CODE DEVELOPMENT PROCESS CHANGES

As noted in the posted Advisory Statement of February 4, 2009, the revised Code Development Process includes maintaining the current 3-year publication cycle with a single cycle of code development between code editions. The schedule for the 2009/2010 Code Development Cycle is the transitional schedule for the revised code development process. As noted, there will be two Final Action Hearings in 2010—one for the modified Group A, and one for the modified Group B. The codes that will comprise the Group A and Group B hearings will be announced prior to the Code Development Hearings in Baltimore. See the Code Development Process Notes included with the Schedule on page viii.

PROCEDURES

The procedures for the conduct of the public hearing are published in *Council Policy #28-Code Development (CP#28)* ("Procedures") on page xii. 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 in the ICC Code Development Process. Please review these procedures carefully to familiarize yourself with the process.

There have been a number of revisions to the procedures. Included among these revisions are the following:

- Section 2.3: **Supplements:** ICC will no longer produce a Supplement to each edition of the I-Codes. A new edition of the I-Codes will be based upon activity of a single code change cycle.
- Section 3.3.3: **Multiple code change proposals:** A proponent is not permitted to submit multiple code changes to one section of a code unless the subject matter of each proposal is different.
- Section 4.5.1: **Administrative update of standards:** Updating of standards without a change to code text (administrative update) shall be a code change proposal dealt with by the Administrative Code Development Committee. The updating of standards procedures have also changed. See discussion on updating of standards on page vi.
- Section 4.7: **Code change posting:** All code change proposals are required to be posted on the ICC website 30 days before the code development hearings. Published copies will not be provided.
- Section 5.2.2: **Conflict of interest:** Clarification is added that a committee member who steps down from the dais because of a conflict of interest is allowed to provide testimony from the floor on that code change proposal.
- Section 5.4.6.2: **Proponent rebuttal testimony:** Where the code change proposal is submitted by multiple proponents, only one proponent of the joint submittal to be allotted additional time for rebuttal.
- Section 5.5.2: **Modifications:** The chair rules a modification in or out of order. The chair's decision is final. No challenge in a point of order is allowed for this ruling.

Section 5.7.3: **Assembly Actions:** Several changes have been made to assembly actions. See explanation page v

Section 7.3.8.2: **Initial motion at final action hearings:** A successful assembly action becomes the initial motion at the final action hearings. See explanation page v.

ASSEMBLY ACTION

The procedures regarding assembly action at the Code Development Hearings have been revised to place more weight on the results of that action (see Section 5.7 of CP #28 on page viii). Some important items to note regarding assembly action are:

- A successful assembly action now requires a 2/3 majority rather than a simple majority.
- After the committee decision on a code change proposal is announced by the moderator, any one in the assembly may make a motion for assembly action.
- After a motion for assembly action is made and seconded, the moderator calls for a floor vote in accordance with Section 5.7.2. *No additional testimony will be permitted.*
- A successful assembly action becomes the initial motion considered at the Final Action Hearings. This also means that the required vote at the Final Action Hearings to uphold the assembly action is a simple majority.

MULTIPLE PART CODE CHANGE PROPOSALS

It is common for ICC to receive code change proposals for more than one code or more than 1 part of a code that is the responsibility of more than one committee. For instance, a code change proposal could be proposing related changes to the text of IBC Chapter 4 (IBC-General), IBC Chapter 7 (IBC-Fire Safety), and the IFC Chapter 27 (IFC). When this occurs, a single committee will now hear all of the parts, unless one of the parts is a change to the IRC, in which case the respective IRC committee will hear that part separately.

ADMINISTRATIVE CODE DEVELOPMENT COMMITTEE

A new committee for the 2009/2010 Code Change Cycle and going forward is the Administrative Code Development Committee. This committee will hear code change proposals to the administrative provisions of the I-Codes (Chapter 1 of each code.) The purpose of this committee is to achieve, inasmuch as possible, uniformity in the administrative provisions of all I-Codes when such uniformity is warranted.

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.

REFERENCE STANDARDS

Proposed changes that include the addition of a reference to a new standard (i.e. a standard that is not currently referenced in 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. Proponents of code changes which propose a new standard have been directed to forward copies of the standard to the Code Committee and an analysis statement will be posted on the ICC website indicating the status of compliance of the standard with the ICC referenced standards criteria in Section 3.6 of CP #28 (see page xiv). (See the ICC Website page xi) The analysis statements for referenced standards will be posted on or before September 24, 2009. This information will also be published and made available at the hearings.

REFERENCED STANDARDS UPDATES

At the end of the agenda of the Administrative Code Development Committee is a code change proposal that is an administrative update of the referenced standards contained in the I-Codes. This code change proposal, ADM39-09/10 contains a list of standards for which the respective promulgators have indicated that the standard has been updated. The codes that these standards appear in are indicated beside each listed referenced standard. This update will then apply to every code in which the standard appears.

It should be noted that in accordance with Section 4.5.1 of CP #28 (see page xvi), standards promulgators have until December 1, 2011 to finalize and publish any updates to standards in the administrative update. If the standard is not finalized by December 1, 2011, the code will be revised to reference the previously listed year edition of that standard.

MODIFICATIONS

Those who are submitting modification for consideration by the respective Code Development Committee are required to submit a Copyright Release in order to have their modifications considered (Section 3.3.4.5 of CP #28). It is preferred that such release be executed in advance – the form is at <http://www.iccsafe.org/cs/codes/publicforms.htm>. Copyright release forms will also be available at the hearings. Please note that an individual need only sign one copyright release for submittals of all code change proposals, modification, and public comments in this code change cycle for which the individual might be responsible. **Please be sure to review Section 5.5.2 of CP #28 for the modification process.** The Chair of the respective code development committee rules a modification in or out of order. That ruling is final, with no challenge allowed. The proponent submitting a modification is required to supply 20 printed copies. The minimum font size must be 12 point.

CODE CORRELATION COMMITTEE

In every code change cycle, there are code change proposals that are strictly editorial. The Code Correlation Committee approves all proposals deemed editorial. A list of code correlation committee actions will be posted on the ICC website by September 24, 2009.

2009/2010 ICC CODE DEVELOPMENT SCHEDULE

STEP IN CODE DEVELOPMENT CYCLE	DATE	
DEADLINE FOR RECEIPT OF APPLICATIONS FOR CODE COMMITTEES	January 2, 2009	
DEADLINE FOR RECEIPT OF CODE CHANGE PROPOSALS	June 1, 2009	
WEB POSTING OF "PROPOSED CHANGES TO THE I-CODES"	August 24, 2009	
DISTRIBUTION DATE OF "PROPOSED CHANGES TO THE I-CODES" (Limited distribution – see notes)	October 3, 2009	
CODE DEVELOPMENT HEARING (CDH) ALL CODES – see notes	October 24 2009 – November 11, 2009 Hilton Baltimore Baltimore, MD	
WEB POSTING OF "REPORT OF THE PUBLIC HEARING"	December 16, 2009	
DISTRIBUTION DATE OF "REPORT OF THE PUBLIC HEARING" (Limited distribution – see notes)	January 11, 2010	
IN ACCORDANCE WITH THE NEW CODE DEVELOPMENT PROCESS (see notes), THE CODES WILL BE SPLIT INTO TWO GROUPS WITH SEPARATE PUBLIC COMMENT DEADLINES AND FINAL ACTION HEARINGS		
	GROUP A (see notes)	GROUP B (see notes)
DEADLINE FOR RECEIPT OF PUBLIC COMMENTS	February 8, 2010	July 1, 2010
WEB POSTING OF PUBLIC COMMENTS "FINAL ACTION AGENDA"	March 15, 2010	August 26, 2010
DISTRIBUTION DATE OF PUBLIC COMMENTS "FINAL ACTION AGENDA" (Limited distribution see notes)	April 16, 2010	September 27, 2010
FINAL ACTION HEARINGS (FAH)	May 14 – 23, 2010 Dallas, TX	Oct 28 – Nov 1, 1020 Charlotte, NC
ANNUAL CONFERENCES	<p><u>October 24 – November 11, 2009</u> 2009 ICC Annual Conference and Code Development Hearing Balitmore, MD</p> <p><u>October 25 – November 1, 2010</u> 2010 ICC Annual Conference and Final Action Hearing Charlotte, NC</p>	
RESULTING PUBLICATION	2012 – I-Codes (available April, 2011)	

Code Development Process Notes:

As noted in the posted Advisory Statement of February 4, 2009, the revised Code Development Process includes maintaining the current 3-year publication cycle with a single cycle of code development between code editions. Implemented as follows:

- Transitional Process – 2009/2010 only
 - Single Code Development Hearing (CDH) for all codes in 2009
 - Two Final Action Hearings (FAH) in 2010 – modified Groups A and B (see below)
 - Public 2012 edition in April, 2011
- New Process – 2012/2013 and going forward
 - Code Committee application deadline (all codes); June 1, 2011
 - Codes split into two groups: Group A and Group B
 - Group A: IBC; IFGC; IMC; IPC; IPSDC
 - Code change deadline: January 3, 2012
 - Code Development Hearing: April/May 2012
 - Final Action Hearing: October/November 2012 (in conjunction with Annual Conference)
 - Group B: Admin (Ch. 1 of I-Codes); IEBC; IECC; IFC; IPerfC; IPMC; IRC; IWUIC; IZC
 - Code change deadline: January 3, 2013
 - Code Development Hearing: April/May 2013
 - Final Action Hearing: October/November 2013 (in conjunction with Annual Conference)
 - Publish 2015 edition in April, 2014
 - Repeat for subsequent editions

2009/2010 Cycle Notes:

- Revised code change deadline of June 1st posted on March 19th
- Distribution date: Complimentary code development cycle document distribution will be limited to CD's mailed to those who are on ICC's code change document mailing list.
- Code Development Hearings: The Baltimore Code Development Hearings will include 12 I-Codes (no changes to the ICC Performance Code. The hearings will be held in the conventional two track format with the hearings split before and after the Annual Conference during the periods of October 24 – 31 and November 4 – 11. The specific codes and hearing order to be determined based on code change volume.
- Final Action Hearing Groupings: Final Action Hearing logistics dictate that the hearings will not be split along established Group A and B codes (see above) due to hotel commitments which limit the amount of hearing time at the October/2010 FAH versus the May/2010 FAH. Tentatively, the May/2010 FAH will include Group A codes plus certain Group B codes to be determined based on code change volume.

2009/2010 STAFF SECRETARIES

IBC-General Chapters 1-6, 12, 13, 27-34	IBC-Fire Safety Chapters 7, 8, 9, 14, 26	IBC-Means of Egress Chapters 10, 11	IBC-Structural Chapters 15-25
Kermit Robinson ICC Whittier District Office 1-888-ICC-SAFE, ext. 3317 FAX: 562/699-4522 krobinson@iccsafe.org	Ed Wirtschoreck ICC Chicago District Office 1-888-ICC-SAFE, ext 4317 FAX: 708/799-0320 ewirtschoreck@iccsafe.org	Kim Paarlberg ICC Indianapolis Field Office 1-888-ICC-SAFE, ext 4306 FAX: 708/799-0320 kpearlberg@iccsafe.org	Alan Carr ICC NW Resource Center 1-888-ICC-SAFE, ext 7601 FAX: 425/637-8939 acarr@iccsafe.org

IEBC	IECC	IFC	IFGC
Beth Tubbs ICC Northbridge Field Office 1-888-ICC-SAFE, ext 7708 FAX: 419/ 730-6531 btubbs@iccsafe.org	Dave Bowman ICC Chicago District Office 1-888-ICC-SAFE, ext 4323 FAX: 708/799-0320 dmeyers@iccsafe.org	Bill Rehr/ Beth Tubbs ICC Chicago District Office 1-888-ICC-SAFE, ext 4342 FAX: 708/799-0320 brehr@iccsafe.org btubbs@iccsafe.org	Gregg Gress ICC Chicago District Office 1-888-ICC-SAFE, ext 4343 FAX: 708/799-0320 ggress@iccsafe.org

IMC	ICC PC	IPMC	IPC/IPSDC
Gregg Gress ICC Chicago District Office 1-888-ICC-SAFE, ext 4343 FAX: 708/799-0320 ggress@iccsafe.org	Beth Tubbs ICC Northbridge Field Office 1-888-ICC-SAFE, ext 7708 FAX: 419/ 730-6531 btubbs@iccsafe.org	Ed Wirtschoreck ICC Chicago District Office 1-888-ICC-SAFE, ext 4317 FAX: 708/799-0320 ewirtschoreck@iccsafe.org	Fred Grable ICC Chicago District Office 1-888-ICC-SAFE, ext 4359 FAX: 708/799-0320 fgrable@iccsafe.org

IRC-Building/Energy	IRC Mechanical	IRC Plumbing	IWUIC
Larry Franks/ Dave Bowman ICC Northbridge Field Office 1-888-ICC-SAFE, ext 5279 FAX: 205/592-7001 lfranks@iccsafe.org dbowman@iccsafe.org	Gregg Gress ICC Chicago District Office 1-888-ICC-SAFE, ext 4343 FAX: 708/799-0320 ggress@iccsafe.org	Fred Grable ICC Chicago District Office 1-888-ICC-SAFE, ext 4359 FAX: 708/799-0320 fgrable@iccsafe.org	Bill Rehr ICC Chicago District Office 1-888-ICC-SAFE, ext 4342 FAX: 708/799-0320 brehr@iccsafe.org

IZC	ADMINISTRATIVE Chapter 1 All Codes Except IRC
Ed Wirtschoreck ICC Chicago District Office 1-888-ICC-SAFE, ext 4317 FAX: 708/799-0320 ewirtschoreck@iccsafe.org	Dave Bowman ICC Chicago District Office 1-888-ICC-SAFE, ext 4323 FAX: 708/799-0320 dbowman@iccsafe.org

SCOPING REVISIONS – WITHIN THE IBC

The 2009/2010 Staff Secretaries assignments on page ix indicate which chapters of the International Building Code are generally within the responsibility of each IBC Code Committee. However, within each of these IBC Chapters are subjects that are most appropriately maintained by another IBC Code Committee. For example, the provisions of Section 3008.1 deal with occupant evacuation elevators. Therefore, even though Chapter 30 is within the responsibility of the IBC General Committee, this section would most appropriately be maintained by the IBC Means of Egress Committee. The following table indicates responsibilities by IBC Code Committees other than the main committee for those chapters, for code changes submitted for the 2009/2010 Cycle.

SECTION	CHAPTER MAINTAINED BY	SECTION MAINTAINED BY	CODE CHANGES
403.2.3	IBC-General	IBC-Structural	E5 Part I (Heard by IBC-MOE)
403.5.1	IBC-General	IBC-Structural	E5 Part I (Heard by IBC-MOE)
403.5.2	IBC-General	IBC-Means of Egress	G46
403.5.4	IBC-General	IBC-Structural	E5 Part I (Heard by IBC-MOE)
403.5.4	IBC-General	IBC-Means of Egress	G47
403.6.1	IBC-General	IBC-Means of Egress	G48, G49
408.3.8	IBC-General	IBC-Structural	E5 Part I (Heard by IBC-MOE)
410.5.3.1	IBC-General	IBC-Structural	E5 Part I (Heard by IBC-MOE)
419.3.0	IBC-General	IBC-Means of Egress	G79
1505.1.0	IBC-Structural	IBC-Fire Safety	S10, S11
1505.8.0	IBC-Structural	IBC-Fire Safety	S12, S13
1507.16.0	IBC-Structural	IBC-Fire Safety	S10, S11
1508.1.0	IBC-Structural	IBC-Fire Safety	S24
1508.2.0	IBC-Structural	IBC-Fire Safety	S25
1509.0.0	IBC-Structural	IBC-General	S26, S27
1509.6.(new)	IBC-Structural	IBC-General	S28
1704.15.0	IBC-Structural	IBC-Fire Safety	S126, S127,S128
3007.1.0	IBC-General	IBC-Means of Egress	G48,G157
3007.2.(new)	IBC-General	IBC-Means of Egress	G158, G159
3007.2.0	IBC-General	IBC-Means of Egress	G160
3007.3.(new)	IBC-General	IBC-Means of Egress	G158, G161
3007.4.(new)	IBC-General	IBC-Means of Egress	G162
3007.4.2	IBC-General	IBC-Means of Egress	G163
3007.4.3	IBC-General	IBC-Means of Egress	G176
3007.5.1.(NEW)	IBC-General	IBC-Means of Egress	G164
3007.7.1	IBC-General	IBC-Means of Egress	G165, G166
3007.8.0	IBC-General	IBC-Means of Egress	G167
3008.1.0	IBC-General	IBC-Means of Egress	G168, G170
3008.1.1	IBC-General	IBC-Means of Egress	G169
3008.10.0	IBC-General	IBC-Means of Egress	G174
3008.10.1	IBC-General	IBC-Means of Egress	G175
3008.11.3	IBC-General	IBC-Means of Egress	G176
3008.11.5	IBC-General	IBC-Means of Egress	G177
3008.3.(NEW)	IBC-General	IBC-Means of Egress	G165, G166
3008.4.(NEW)	IBC-General	IBC-Means of Egress	G171
3008.4.0	IBC-General	IBC-Means of Egress	G46
3008.7.0	IBC-General	IBC-Means of Egress	G172
3008.9.0	IBC-General	IBC-Means of Egress	G173
3401.4.0	IBC-General	IBC-Structural	G190
3401.4.1	IBC-General	IBC-Structural	G191
3401.4.3	IBC-General	IBC-Structural	G190
3401.5.(NEW)	IBC-General	IBC-Structural	G192

SECTION	CHAPTER MAINTAINED BY	SECTION MAINTAINED BY	CODE CHANGES
3402.1.0	IBC-General	IBC-Structural	G193
3403.4.1	IBC-General	IBC-Structural	G190
3404.4.1	IBC-General	IBC-Structural	G190
3405.1.1	IBC-General	IBC-Structural	G192
3405.2.0	IBC-General	IBC-Structural	G193, G194
3405.2.1	IBC-General	IBC-Structural	G193, G190
3405.2.2	IBC-General	IBC-Structural	G193
3405.2.3	IBC-General	IBC-Structural	G193, G195
3405.3.0	IBC-General	IBC-Structural	G193
3405.4.0	IBC-General	IBC-Structural	G193, G194
3405.5.0	IBC-General	IBC-Structural	G196
3408.4.0	IBC-General	IBC-Structural	G190, G197
3408.4.0	IBC-General	IBC-Structural	G190
403.2.3	IBC-General	IBC-Structural	E5 Part I (Heard by IBC-MOE)
403.5.1	IBC-General	IBC-Structural	E5 Part I (Heard by IBC-MOE)
403.5.2	IBC-General	IBC-Means of Egress	G46
403.5.4	IBC-General	IBC-Structural	E5 Part I (Heard by IBC-MOE)
403.5.4	IBC-General	IBC-Means of Egress	G47
403.6.1	IBC-General	IBC-Means of Egress	G48, G49
408.3.8	IBC-General	IBC-Structural	E5 Part I (Heard by IBC-MOE)
410.5.3.1	IBC-General	IBC-Structural	E5 Part I (Heard by IBC-MOE)
419.3.0	IBC-General	IBC-Means of Egress	G79

ICC WEBSITE – [WWW.ICCSAFE.ORG](http://www.iccsafe.org)

While great care has been exercised in the publication of this document, errata to proposed changes may occur. Errata, if any, identified prior to the Code Development Hearings will be posted on the ICC website at <http://www.iccsafe.org>. Users are encouraged to periodically review the ICC Website for updates to errata to the 2009/2010 Code Development Cycle Proposed Changes. Additionally, analysis statements for code changes which propose a new referenced standard will be updated to reflect the staff review of the standard for compliance with Section 3.6 of the Procedures.



CP# 28-05 CODE DEVELOPMENT

Approved: 9/24/05

Revised: 2/27/09

CP # 28-05 is an update to *ICC's Code Development Process for the International Codes* dated May 15, 2004.

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 proposals by all parties desiring to participate.
 - 1.2.3 The final determination of Code text by officials representing code enforcement and regulatory agencies and by honorary members.
- 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. Where a given subject matter or code text could appear in more than one Code, the ICC Board shall determine which Code shall be the primary document, and therefore which code development committee shall be responsible for review and maintenance of the code text. 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 4.4.
- 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 ICC codes are developed embodies core principles of the organization. One of those principles is that the final content of ICC codes is determined by a majority vote of the governmental and honorary members. It is the policy of the 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.
- 1.6 **Video Taping:** Individuals requesting permission to video tape any meeting, or portion thereof, shall be required to provide the ICC with a release of responsibility disclaimer and shall acknowledge that they have insurance coverage for liability and misuse of video tape materials. Equipment and the process used to video tape 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 videotaping. An unedited copy of the video tape shall be forwarded to ICC within 30 days of the meeting.

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 final action on the code change proposals (see Section 7.6).

- 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 last edition.
- 2.3 **Supplements:** The results of code development activity between editions may be published.
- 2.4 **Emergency Procedures:** In the event that the ICC Board determines that an emergency amendment to any Code 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 ICC Governmental Member 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.

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 Final Action Consideration of that proposal. A withdrawn code change proposal shall not be subject to a public hearing, motions, or Final Action Consideration.
- 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.
 - 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 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 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 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 proposal shall be in proper code format and terminology.
 - 3.3.4.4 Each 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 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 proposed code change (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 proposal is superior to the current provisions of the Code. 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 proposals will improve the Code.
 - 3.3.5.3 **Substantiation:** The proponent shall substantiate the proposed code change 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 proposed code change shall be identified as such. The proponent shall be notified that the 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.
 - 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 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. This information will be included in the published code change proposal.
- 3.4 **Number:** One copy of each code change proposal, two copies of each proposed new referenced standard and one copy of all substantiating information 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. A copy of the code change proposal in electronic form is preferred.
- 3.5 **Submittal Deadline:** Each code change proposal shall be received at the office of the Secretariat by the posted deadline. Such posting shall occur no later than 120 days prior to the code change deadline. The submitter of a proposed code change 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 shall comply with this section. The standard shall be completed and readily available prior to Final Action Consideration based on the cycle of code development which includes the proposed 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. Updating of standards without corresponding code text changes shall be accomplished administratively in accordance with Section 4.5.
- 3.6.3.2** The standard shall be developed and maintained through a consensus process such as ASTM or ANSI.

4.0 Processing of 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 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.
- 4.3 Incomplete 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 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 proposal that incorporates a new referenced standard shall be processed with an analysis of referenced standard's compliance with the criteria set forth in Section 3.6.
- 4.4 Editorial:** The Chief Executive Officer shall have the authority at all times to make editorial and format changes to the Code text, or any approved changes, consistent with the intent, provisions and style of the Code. An editorial or format change is a text change that does not affect the scope or application of the code requirements.

4.5 Updating Standards:

4.5.1 Standards referenced in the 2012 Edition of the I-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, 2011. The published version of the 2012 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.

4.5.2 Standards referenced in the 2015 Edition and following Editions of the I-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 multiple standards to be updated may be included in a single proposal. The standard shall be completed and readily available prior to Final Action Consideration of the Administrative code change proposal which includes the proposed update.

4.6 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.

4.7 Publication: All code change proposals shall be posted on the ICC website at least 30 days prior to the public hearing on those proposals and shall constitute the agenda for the public hearing. Code change proposals which have not been published shall not be considered.

5.0 Public Hearing

5.1 Intent: The intent of the public 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 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 Code Development Committees shall be appointed by the applicable ICC Council.

5.2.1 Chairman/Moderator: The Chairman and Vice-Chairman shall be appointed by the Steering Committee on Councils from the appointed members of the committee. The ICC President shall appoint one or more Moderators who shall act as presiding officer for the public 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 on the matter or any committee vote. Violation thereof shall result in the immediate removal of the committee member from the committee. A committee member who is a proponent of a 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 each public hearing shall be announced not less than 60 days prior to the date of the public hearing.

5.4 General Procedures: *The Robert's Rules of Order* shall be the formal procedure for the conduct of the public 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 Meetings:** Public hearings of the Code Development Committees are open meetings. Any interested person may attend and participate in the Floor Discussion and Assembly Consideration portions of the hearing. Only eligible voters (see Section 5.7.4) are permitted to vote on Assembly Considerations. Only Code Development Committee members may participate in the Committee Action portion of the hearings (see Section 5.6).
 - 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. Audio-visual presentations are not permitted. Substantiating material submitted in accordance with Section 3.3.4.4 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 an agenda for each public 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 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 proposed code change after it has been voted on by the committee in accordance with Section 5.6; or, in the case of assembly consideration, there shall be no reconsideration of a proposed code change after it has been voted on by the assembly in accordance with Section 5.7.
 - 5.4.6 **Time Limits:** Time limits shall be established as part of the agenda for testimony on all proposed changes at the beginning of each hearing session. Each person requesting to testify on a change 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 the eligible voters as determined in Section 5.7.4 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 proposal for their comments.
 2. *Opponents.* After discussion by those in support of a 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. *Rerebuttal in opposition.* Opponents shall then have the opportunity to respond to the proponent's rebuttal.
 - 5.5.2 **Modifications:** Modifications to 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 and Written Copies. All modifications must be written, unless determined by the Chairman to be either editorial or minor in nature. The modification proponent shall provide 20 copies to the Secretariat for distribution to the committee.

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 proposal; or
3. is not readily understood to allow a proper assessment of its impact on the original 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 public hearing shall be established by the committee's action. If a motion in accordance with Section 5.7.1 is brought forward and

is sustained in accordance with Section 5.7.3, both the committee's action and the assemblies' action shall be reported as the results of the public hearing. Where a motion is sustained in accordance with Section 5.7.3, such action shall be the initial motion considered at Final Action Consideration in accordance with Section 7.3.8.2.

5.7.1 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 Discussion:** On receipt of a second to the floor motion, the Moderator shall place the motion before the assembly for a vote. No additional testimony shall be permitted.
- 5.7.3 Assembly Action:** The assembly action shall be in accordance with the following majorities based on the number of votes cast by eligible voters (See 5.7.4).

Committee Action	Desired Assembly Action		
	ASF	AMF	DF
AS	--	2/3 Majority	2/3 Majority
AM	2/3 Majority	2/3 Majority	2/3 Majority
D	2/3 Majority	2/3 Majority	--

- 5.7.4 Eligible Voters:** All members of ICC in attendance at the public hearing shall be eligible to vote on floor motions. Only one vote authorized for each eligible attendee. Code Development Committee members shall be eligible to vote on floor motions. Application, whether new or updated, for ICC membership must be received by the Code Council ten days prior to the commencement of the first day of the public hearing.

- 5.8 Report of the Public Hearing:** The results of the public hearing, including committee action and successful assembly action, shall be posted on the ICC website not less than 60 days prior to Final Action Consideration except as approved by the ICC Board.

6.0 Public Comments

- 6.1 Intent:** The public comment process gives attendees at the Final Action Hearing an opportunity to consider specific objections to the results of the public hearing and more thoughtfully prepare for the discussion for Final Action Consideration. The public comment process expedites the Final Action Consideration at the Final Action Hearing by limiting the items discussed to the following:
- 6.1.1** Consideration of items for which a public comment has been submitted; and
 - 6.1.2** Consideration of items which received a successful assembly action at the public hearing.
- 6.2 Deadline:** The deadline for receipt of a public comment to the results of the public hearing shall be announced at the public hearing but shall not be less than 30 days from the availability of the report of the results of the public 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 Final Action Consideration of that comment. A withdrawn public comment shall not be subject to Final Action 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 7.3.4, 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 7.3.4, the proposal shall continue as part of the individual consent agenda in accordance with Section 7.3.5, however the public comment shall not be subject to Final Action 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 public 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. If 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 3.3.4.5 shall be provided with the public comment.

- 6.4.2 Code Reference:** Each public comment shall include the code change proposal number and the results of the public hearing, including successful assembly actions, on the code change proposal to which the public comment is directed.
- 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:** 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 (AM) by one or more specific modifications published in the Results of the Public Hearing or published in a public comment, or
 3. Disapprove the code change proposal (D)
- 6.4.5 Supporting Information:** The public comment shall include in 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 6.4 and determined as not germane to the technical issues addressed in the code change proposal or committee 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. 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 Final Action Hearing.
- 6.4.6 Number:** One copy of each public comment and one copy of all substantiating information shall be submitted. Additional copies may be requested when determined necessary by the Secretariat. A copy of the public comment in electronic form is preferred.

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 Final Action 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 Final Action Consideration.

6.6 Publication: The public hearing results on code change proposals that have not been public commented and the code change proposals with public commented public hearing results and successful assembly actions shall constitute the Final Action Agenda. The Final Action Agenda shall be posted on the ICC website at least 30 days prior to Final Action consideration.

7.0 Final Action Consideration

7.1 Intent: The purpose of Final Action Consideration is to make a final determination of all code change proposals which have been considered in a code development cycle by a vote cast by eligible voters (see Section 7.4).

7.2 Agenda: The final action consent agenda shall be comprised of proposals which have neither an 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 Sections 5.7 and 6.0).

7.3 Procedure: *The Robert's Rules of Order* shall be the formal procedure for the conduct of the Final Action Consideration except as these Rules of Procedure may otherwise dictate.

- 7.3.1 Open Meetings:** Public hearings for Final Action Consideration are open meetings. Any interested person may attend and participate in the Floor Discussion.
- 7.3.2 Agenda Order:** The Secretariat shall publish an agenda for Final Action Consideration, placing individual code change proposals and public comments in a logical order to facilitate the hearing. The proponents or opponents of any 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.
- 7.3.3 Presentation of Material at the Public Hearing:** Information to be provided at the hearing shall be limited to verbal presentations. Audio-visual presentations are not permitted. Substantiating material submitted in accordance with Section 6.4.4 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.
- 7.3.4 Final Action Consent Agenda:** The final action consent agenda (see Section 7.2) shall be placed before the assembly with a single motion for final action in accordance with the results of the public 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.
- 7.3.5 Individual Consideration Agenda:** Upon completion of the final action consent vote, all proposed changes not on the final action consent agenda shall be placed before the assembly for individual consideration of each item (see Section 7.2).
- 7.3.6 Reconsideration:** There shall be no reconsideration of a proposed code change after it has been voted on in accordance with Section 7.3.8.
- 7.3.7 Time Limits:** Time limits shall be established as part of the agenda for testimony on all proposed changes at the beginning of each hearing session. Each person requesting to testify on a change 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.
- 7.3.7.1 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.
- 7.3.8 Discussion and Voting:** Discussion and voting on proposals being individually considered shall be in accordance with the following procedures:
- 7.3.8.1 Allowable Final Action Motions:** The only allowable motions for final action are Approval as Submitted, Approval as Modified by one or more modifications published in the Final Action Agenda, and Disapproval.
- 7.3.8.2 Initial Motion:** The Code Development Committee action shall be the initial motion considered, unless there was a successful assembly action in accordance with Section 5.7.3. If there was a successful assembly action, it shall be the initial motion considered. If the assembly action motion fails, the code development committee action shall become the next motion considered.
- 7.3.8.3 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 Final Action Agenda may be made (see Section 6.4.3). 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.
- 7.3.8.4 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. If the motion fails to receive the majority required in Section 7.5, the Moderator shall ask for a new motion.
- 7.3.8.5 Subsequent Motion:** If the initial motion is unsuccessful, a motion for one of the other allowable final actions shall be made (see Section 7.3.8.1) and dispensed with until a successful final action is achieved. If a successful final action is not achieved, Section 7.5.1 shall apply.

7.3.9 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.

7.3.10 Points of Order: Any person participating in the public hearing may challenge a procedural ruling of the Moderator. A majority vote of the eligible voters as determined in Section 5.7.4 shall determine the decision.

7.4 Eligible voters: ICC Governmental Member Representatives and Honorary Members in attendance at the Final Action Hearing shall have one vote per eligible attendee on all International Codes. Applications, whether new or updated, for governmental member voting representative status must be received by the Code Council ten days prior to the commencement of the first day of the Final Action Hearing in order for any designated representative to be eligible to vote.

7.5 Majorities for Final Action: The required voting majority based on the number of votes cast of eligible voters shall be in accordance with the following table:

Public Hearing Action (see note)	Desired Final Action		
	AS	AM	D
AS	Simple Majority	2/3 Majority	Simple Majority
AM	2/3 Majority	Simple Majority to sustain the Public Hearing Action or; 2/3 Majority on additional modifications and 2/3 on overall AM	Simple Majority
D	2/3 Majority	2/3 Majority	Simple Majority

Note: The Public Hearing Action includes the committee action and successful assembly action.

7.5.1 Failure to Achieve Majority Vote: In the event that a code change proposal does not receive any of the required majorities for final action in Section 7.5, final action on the code change proposal in question shall be disapproval.

7.6 Publication: The Final action on all proposed code changes shall be published as soon as practicable after the determination of final action. The exact wording of any resulting text modifications shall be made available to any interested party.

8.0 Appeals

8.1 Right to Appeal: Any person may appeal an action or inaction in accordance with CP-1.

2009/2010 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 2009/2010 Staff Secretaries on page ix. 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 ix. For example, IBC Section 402.16.5 is proposed for revision in Part II of code change F58-09/10, which is to be heard by the IFC Committee. This section of the IBC is typically the responsibility of the IBC General Committee as listed in the table of 2009/2010 Staff Secretaries. It is therefore identified in this cross index. Another example is Section 905.4 of the International Fire Code. The International Fire Code is normally maintained by the IFC Committee, but Section 905.4 will be considered for revision in proposed code change G31-09/10 and will be placed on the IBC General 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. For example, numerous sections in Chapter 10 of the International Fire Code would be revised by the proposed changes to Chapter 10 of the IBC. This was done to keep the cross index brief enough for easy reference.

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 7 of the IBC, review the proposed code changes in the Volume 1 monograph for the IBC Fire Safety Committee (listed with a FS prefix) then review this cross reference for Chapter 7 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)
ADM	Administrative
E	International Building Code - Means of Egress
EB	International Existing Building Code
EC	International Energy Conservation Code
F	International Fire Code
FG	International Fuel Gas Code
FS	International Building Code - Fire Safety
G	International Building Code - General
M	International Mechanical Code
PC	ICC Performance Code
P	International Plumbing Code
PSD	International Private Sewage Disposal Code
PM	International Property Maintenance Code
RB	International Residential Code - Building
RE	International Residential Code - Energy
RM	International Residential Code - Mechanical
RP	International Residential Code - Plumbing
S	International Building Code - Structural
WUIC	International Wildland-Urban Interface Code
Z	International Zoning Code

INTERNATIONAL BUILDING CODE	
Chapter 1	ADM1 Part I
101.2	ADM2
101.3	ADM3
102.4	ADM4 Part I
104.10.1(New)	ADM5
105.2	ADM6 Part I
105.2.4	ADM7 Part I
106.1	S55-09/10
107.2	ADM9 Part I
107.2.2	ADM10
107.2.3	ADM11
107.2.6	ADM12
108.1	ADM13
109.3.10.1	ADM14 Part I
110.3	ADM8 Part II
110.3.6	ADM23 Part I (Heard by IBC-FS Committee)
110.6	ADM15 Part II
113.2.1	ADM5
117 (New)	ADM16 Part I
R202	EB3 , EB4
202	G2 Part I– Heard by Structural
303.1	E140, E141
Table 307.1(1)	F186, F187
307.2	F186, F190, F196
307.4	F187
402.11	F58, Part II
402.12.1	F58, Part II
402.16.5	F58, Part II
403.2.3	E5 – Part I
403.2.3.1	E5 – Part I
403.2.3.2	E5 – Part I
403.3.1.1 (IFC 914.3.1.1.1)	E5 – Part II
403.5.1	E5 – Part I
403.5.4	E5 – Part I
406.2.2	E151 Part I
406.6.6.1	F178
406.6.6.1.1 (New)	F178
408.3.8	E5 – Part I
410.5.3.1 (New)	E5 – Part I
414.2.1	F189
414.2.2	F190
Table 414.2.2	F189
414.2.4	F189
414.7.2 (IFC 2705.4.4)	E5 – Part II
Table 415.8.2.1.1	F165
415.8.2.6	F162, Part I
415.8.3	F167
415.8.4.6.2 (IFC 1803.12.1.2)	E5 – Part II
415.8.11.2	F161
416	F155
501.2	F18
505.3	E6
505.4	E6

705.2	E5 – Part I, E137
705.11	G81
707.3.2	E5 – Part I
707.3.3 (New)	E5 – Part I
707.3.10 new	G81
707.3.10 (New)	E132
707.4	E5 – Part I
707.5.1	G178
707.5.1	E5 – Part I
707.6	E5 – Part I
707.7.1	E5 – Part I
708.1	E5 – Part I
708.2	E5 – Part I
708.3 (New)	E5 – Part I
708.6	E5 – Part I
708.14.1	G44 Part I
709.1	G82
709.3	G81
709.4	G81
709.5	E5 – Part I
710.5	G15, G21
712.4	G178
717.3.2	G81
717.4.2	G81, G82
712.4	E5 – Part I
Table 715.4	E5 – Part I
715.4.4	E5 – Part I
715.4.6.1	E5 – Part I
715.4.7.2	E5 – Part I
716.5.1	F162, Part II
716.5.2	E5 – Part I
Table 803.9	E5 – Part I
804.4	E5 – Part I
804.4.1	E5 – Part I
806.1	F57
901.2.1	F62
901.6.3	F193, Part II
907.5.2.3.4	E151 Part II
909.5 (IFC 909.5, IMC 513.5)	E5 – Part II
911.1.2	F22
911.1.5	F23, F24, F25
911.1.5	G44 Part II
1006.1	G21
1007.1	EB10
1008.1.9.6	G65
1009.7	G67 – Heard by MOE
1013.1 (New)	FS154
1013.8 (New)	FS154
1015.1 and Table 1015.1	G16
1015.6	G67 – Heard by MOE
1015.6.1	G67 – Heard by MOE
1015.7 new	G16
1021.2	G16, G20
Table 1021.2	G20
1022.1	G52
1022.1	G67 – Heard by MOE

IBC (continued)	
1103.2.12	G16
1106.3	G65
1106.4	G65
1107.5.2	G22, G23
1107.5.3	G20
1107.6.4.1	G21
1110.3	G177 – Heard by MOE
Table 1604.5	G65
1703.5.4 (New)	FS101
1704.16	F135
1704.16.1	F135
1704.16.2	F135
2303.3 (New)	FS133
2606.7	E5 – Part I
2702 (New)	F31
2702.2.21 (New)	F33
2902.4	E151 Part III
2902.1	P20
Table 2902.1	P21, P22, P23, P24
2902.2	P25
2902.2.1 (New)	P26
2902.3	P27
2902.4.1	P28
2902.3.5 (New)	P30
2902.5 (New)	P31
2902.3.2	P35
2902.1.3	P46
2902.3	P162
3001.3	E151 Part I
3003.3 (New)	F20, Part II
3007.4.1	E5 – Part I
3007.5	E5 – Part I
3008.11.1	E5 – Part I
3108.1	S85-09/10
3403.5 (New)	F114, Part II
3404.6	E20 Part I, E21 Part I
3404.7 (New)	F114, Part II
3405.2	EB6
3405.2.1	EB6
3405.3.1	EB8 , EB9
3408.4	S41-09/10
3411.1	EB11 , EB14
3411.1	E156 Part I
3411.4	EB10 , EB11 , EB14 , EB32
3411.4.1	EB10 , EB32
3411.4.2	EB10 , EB14 , EB32 , EB33
3411.5	EB10 , EB11
3411.6	EB10 , EB11 , EB14
3411.6	E151 Part I
3411.7	EB14
3411.7 (New)	EB11
3411.8	EB11
3411.8	E 152 Part I
3411.8 (New)	EB10
3411.8.1(New)	EB10
3411.8.5	EB11
3411.8.8	EB14

3411.8.9	EB11 , EB14
3411.8.15 (New)	E 152 Part I
3411.8.15.1 (New)	E 152 Part I
3411.8.15.2 (New)	E 152 Part I
3411.8.16 (New)	E 152 Part I
3411.9	EB10 , EB14
3412.2.5	EB14
3412.6.11	E20 Part I, E21 Part I
Table 3412.6.11(1)	E20 Part I, E21 Part I
Chapter 35	F58, Part II
Chapter 35	ADM39
K101.3	ADM3
Appendix I	G2 – Heard by IBC -S
Appendix L (New)	F236, Part II
Appendix L (New)	S108-09/10
INTERNATIONALENERGY CONSERVATION CODE	
Chapter 1	ADM1 Part III
101.3	ADM3, ADM24 (Heard by IECC Committee)
101.4.4	ADM27 (Heard by IECC Committee)
101.4.6	ADM25 (Heard by IECC Committee)
101.5.1	ADM17
101.5.2	ADM26 (Heard by IECC Committee)
102.1.1	ADM28 (Heard by IECC Committee) ADM31 (Heard by IECC Committee)
102.1.2	ADM29 (Heard by IECC Committee)
103.1	ADM17
103.2	ADM9 Part I
104.2	ADM15 Part I
106.1	ADM4
110	ADM16 Part I
Ch. 6	ADM39
INTERNATIONAL EXISTING BUILDING CODE	
Chapter 1	ADM1 Part II
101.2	ADM2
101.3	ADM3
Table 101.5.4.1	S41-09/10
101.5.4.2	S41-09/10
Table 101.5.4.2	S41-09/10
101.5.4.2	ADM32 (Heard by IBC-S Committee) ADM33 (Heard by IBC-S Committee)
102.4	ADM4
106.2.1	ADM9 Part I
107.1	ADM13
109.3.6(New)	ADM23
109.6	ADM15 Part I
118	ADM16 Part I

IEBC (continued)	
202	S91-09/10
301.1	G187
301.1.1	G188
301.2	G190 – Heard by IBC –S
301.2.1	G191 – Heard by IBC-S
301.2.3	G190 – Heard by IBC – S
301.3	G192 – Heard by IBC-S
302.4.1	G190 – Heard by IBC – S
302.5 (New)	F114, Part III
303.4.1	G190 – Heard by IBC-S
303.6	E20 Part I, E21 Part I
303.7 (New)	F114, Part III
304.1.1	G192 – Heard by IBC-S
304.2	G193, G194 – Both heard by IBC-S
304.2.1	G190, G193, G194 – All heard by IBC - S
304.2.2	G193, G194 – Both heard by IBC-S
304.2.3	G193, G194, G195 – All heard by IBC-S
304.3	G193 – Heard by IBC-S
304.3.1	G193 – Heard by IBC-S
304.3.2	G193 – Heard by IBC-S
304.4	G193, G194 – Both heard by IBC-S
304.5	G193, G196 – Both heard by IBC-S
307.4	G190, G197 – Both heard by IBC-S
307.4	S41-09/10
309.1	G198, G199
310.1	E156 Part I
310.6	E151 Part I
310.8	E152
310.8.8	G200 – Heard by MOE
310.8.15 (New)	E152
310.8.15.1 (New)	E152
310.8.15.2 (New)	E152
310.8.16 (New)	E152
605.1	E 151 Part IV, E152 Part II, E156 Part II
605.1.15 (New)	E152 Part II
605.1.15.1 (New)	E152 Part II
605.1.15.2 (New)	E152 Part II
605.1.16 (New)	E152 Part II
704.4.3	F114, Part III
907.3.1	S41-09/10
907.3.2	S41-09/10
1004.1	F114, Part III
1202.2	S146-09/10
1202.2.1	S146-09/10
1301.6.2.1	G201
1301.6.14	G202
1301.6.14.1	G202
1301.6.19	G203
1301.6.11	E20 Part I, E21 Part I
Table 1301.6.11(1)	E20 Part I, E21 Part I

1401.3.1 new	G184
1401.5 new	G185
Chapter 15	ADM39
A102.2	S41-09/10
INTERNATIONAL FIRE CODE	
Chapter 1	ADM1 Part IV
101.2	ADM19
101.3	ADM3
102.5	ADM20
102.7	ADM4
105.1.1	ADM21
105.4.2	ADM9 Part I
105.4.2.1	ADM10
105.4.3	ADM9 Part I
105.6.2	ADM34 (Heard by IFC Committee)
107.2.1	ADM35 (Heard by IFC Committee)
114 (New)	ADM16 Part I
202	
Def of Group A	G10, G11, G12, G13, G14
Def of Group B	G6, G15
Def of Group E	G16
Def of Group F	G18, G19
Def of Group I	G16, G20, G21, G22, G23, G24
Def of Group M	G25
Def of Group R	G20, G21, G22, G23, G26, G27, G28, G29
Def of Group S	G19
508.1.5 (IBC 911.1.5)	G44, Part II
603.4	M8 PII
607.4	G153, Part II
803.8	FS136 Part II
901.4.3 (New)	FS29
903.2.2	G15
903.2.3	G15
903.2.4.2 (new)	G19
903.2.6	G16, G20, G21
903.2.6.1	G21
903.2.8	G20
903.2.9.1	G19
903.3.1.3	G20
903.3.2	G20
904.5.2.3.3	G21
905.3.3.	G31
905.4	G31
907.2.2	G15
907.2.2.1	G15
907.2.6	G20
907.2.6.2	G20
907.5.2.3.4	E151 Part II
909.5 (IBC 909.5, IMC 513.5)	E5 – Part II
914.3.1.1.1 (IBC 403.3.1.1)	E5 – Part II

IFC (continued)	
914.6.1	G70 – Heard by IFC
914.8.2.2	G71 – Heard by IFC
Chapter 10 See IBC MOE changes	
1007.1	EB10
1030.4.1	E93 Part II
1404.5	G185 Part II
IFC 1803.12.1.2 (IBC 415.8.4.6.2)	E5 – Part II
2303.2	G64
IFC 2705.4.4 (IBC 414.7.2)	E5 – Part II
3904.1.2	G73 Part II – Heard by IFC
4604.7	E20 Part II, E21 Part II
Table 4604.7	E20 Part II, E21 Part II
Chapter 47	ADM39
INTERNATIONAL FUEL GAS CODE	
Chapter 1	ADM1 Part V
101.4	ADM3
102.8	ADM4
107.2	ADM8 Part I
111 (New)	ADM16 Part I
301.11	S92-09/10, Part III
306.5	M11, M12
306.5.1	M13
410.4 (New)	F148, Part II
Chapter 8	ADM39
INTERNATIONAL MECHANICAL CODE	
Chapter 1	ADM1 Part VI
102.8	ADM4
102.3	ADM36 (Heard by IMC Committee)
102.4	ADM37 (Heard by IMC Committee)
107.2	ADM8 Part I
202	FG14 PII
301.3 thru 301.5	FG14 PII
301.6	FG10 PI
301.13	S92-09/10, Part IV
307.3	FG11 PI
401.4	S92-09/10, Part IV
501.2.1	S92-09/10, Part IV
502.4	F43
502.5	F43
502.5.2	F43
502.8.4	F194
502.10.2	F162, Part I
510.7	F161, Part II
513.3	F135
513.10.2	F137
513.12	F138
513.12.1	F139
513.13.1	F140
602.4	S92-09/10, Part IV
603.13	S92-09/10, Part IV
606.2	F120

606.2.1 (New)	F120
606.2.2	F120
607.1	FS108, FS117
607.1.1	FS108, FS117
607.2	FS108, FS117
607.2.1	FS117
607.2.2	FS108, FS117
607.3.1	FS70, FS109
607.3.2.2	FS110
607.3.2.3	FS110
607.5	FS117
607.5.1	FS117
607.5.1	F162, Part II
607.5.1.1	FS117
607.5.2	FS117
607.5.2.1	FS117
607.5.3	FS114, FS117
607.5.4	FS117
607.5.5	FS111, FS112, FS113, FS117
607.5.6	FS117
607.5.7	FS117
607.6	FS117
607.6.1	FS115, FS117
607.6.2	FS117
607.6.2.1	FS117
607.6.3	FS116, FS117
607.7	FS117
918.6	FG32 PII
513.5 (IBC 909.5, IFC 909.5)	E5 – Part II
IMC 601.2 (IBC 1018.5, IFC 1018.5)	E116
1106.5	F39
1106.5.1	F39
1305.2.1	S92-09/10, Part IV
INTERNATIONAL PLUMBING CODE	
Chapter 1	ADM1 Part VII
101.3	ADM3
102.8	ADM4
107.2	ADM8 Part I
111 (New)	ADM16 Part I
202	FS124 Part II
309.2	S92-09/10, Part II
Table 403.1	G16, G20, G65
403.1	G16
403.2	G16
403.4	E151 Part III
1107.1	S2-09/10, Part I (Heard by IPC)
Chapter 13	ADM39
INT. PRIVATE SEWAGE DISPOSAL CODE	
Chapter 1	ADM1 Part IX
101.3	ADM3
102.10	ADM4
105.4	P1 Part II

IPSDC (continued)	
105.4.1	P1 Part II
105.4.2	P1 Part II
105.4.3	P1 Part II
105.4.4	P1 Part II
105.4.5	P1 Part II
105.4.6	P1 Part II
111 (New)	ADM 16 Part I
Section 304 (New)	P1 Part II
INTERNATIONAL PROPERTY MAINTENANCE CODE	
Chapter 1	ADM1 Part VIII
101.3	ADM3
102.3	ADM22
102.7	ADM4
108.1.3	ADM38 (Heard by IPMC Committee)
110.1	ADM38 (Heard by IPMC Committee)
113 (New)	ADM16 Part I
304.18.1	E60 Part II
606.1	G153 Part III
704.2	F114, Part I
704.3	F114, Part I
704.4	F114, Part II ; F115
Chapter 8	ADM39
INTERNATIONAL RESIDENTIAL CODE	Note: All Code Change Parts for IRC are heard by the applicable IRC Committee except ADM39
Chapter 1	ADM 1 Part XII
R101.2	G28 Part II
R101.4	ADM3 Part II
R102.4	ADM4 Part II
R105.2	ADM6 Part II
R105.2.4 (New)	ADM7 Part II
R106.1.1	ADM9 Part II
R109.1.6.1	ADM14 Part II
R109.4	ADM15 Part II
110.3	ADM8 Part I
R115 (New)	ADM16 Part II
R202	FS124 Part III
R202	FG14 PIII
R202	M1 PII
R202	E8 Part II, E100 Part II, E156 Part III, E194 Part II
R202	F108, Part II; F132, Part II
R202	P2 Part II, P92 Part II, P128 Part II, P152 Part II
R202	G2 Part II, G5 Part II, G28 Part II
301.13	S92-09/10, Part IV
Figure R301.2(2)	S97-09/10, Part II
R301.2.1.1	S87-09/10, Part II
Table R301.5	S57-09/10, Part II, S61-09/10, Part II, S62-09/10, Part II, S66-09/10, Part II

R302.1	FS155 Part II
R302.1.2	FS155 Part II
R302.6	G56 Part II
R302.11.1	FS118 Part II
R308.3.1	S219-09/10, Part II
R308.4	S218-09/10, Part II
R308.4.1 (New)	S218-09/10, Part II
R308.4.2 (New)	S218-09/10, Part II
R308.4.3 (New)	S218-09/10, Part II
R308.4.4 (New)	S218-09/10, Part II
R308.4.5 (New)	S218-09/10, Part II
R308.4.6 (New)	S218-09/10, Part II
R308.4.7 (New)	S218-09/10, Part II
R308.6.1	S144-09/10, Part II
R310.1	E150 Part II
R311.2	E60 Part III
R311.2.1 (New)	E60 Part III
R311.3.1	E58 Part II
R311.4	E122 Part II
R311.7.4	E70 Part II, E71 Part II, E72 Part II
R311.7.4.1	E74 Part II
R311.7.4.2	E74 Part II
R311.7.4.3	E75 Part II
R311.7.4.3.1 (New)	E75 Part II
R311.7.4.3.2 (New)	E75 Part II
R311.7.4.3.3 (New)	E75 Part II
R311.7.7.3	E97 Part II
R312.2	E100 Part II
R314.1	F108, Part II; F112, Part II
R314.2	F108, Part II
R314.3	F108, Part II; F115, Part II
R314.4	F108, Part II; F115, Part II
R314.5	F115, Part II
R314.5 (New)	F116, Part II
R314.5.1 (New)	F116, Part II
R314.5.2 (New)	F116, Part II
R314.5.3 (New)	F116, Part II
R315	F132, Part II
R316.4	FS160 Part II
R316.5.3	FS168 Part II, FS169 Part II
R316.5.4	FS168 Part II, FS169 Part II
R316.5.13 (New)	FS171 Part II
R316.7	FS176 Part II
R316.8	FS176 Part II
R317.3	S203-09/10, Part II
R317.3.1	S203-09/10, Part II
R317.3.2	S203-09/10, Part II
R317.3.3	S203-09/10, Part II
R317.3.4	S203-09/10, Part II
R317.4.1 (New)	S207-09/10, Part II
R317.4.2	S207-09/10, Part II
R320.2 (New)	E156 Part III
R402.2	S162-09/10, Part II
R403.3.4	FS176 Part II
R404.1.2.3.6.1	FS176 Part II
R503.2.1	S200-09/10, Part II
R503.2.1.1	S200-09/10, Part II

IRC (continued)	
Table R601.3.1	FS147 Part II
R602.3	S200-09/10, Part II
R602.9	S214-09/10, Part II
R604.1	S199-09/10, Part II
R606.1	S171-09/10, Part II
R606.1.1	S171-09/10, Part II
R606.12.1	S171-09/10, Part II
R606.12.3.1	S171-09/10, Part II
R702.2.1	S222-09/10, Part II
R702.2.2	S222-09/10, Part II
R702.3.1	S222-09/10, Part II
R702.4.2	S224-09/10, Part II
R703.1.1	FS140 Part II
R703.3	FS156 Part II
R703.4	FS156 Part II
R703.4	S199-09/10, Part II
Table R703.4	FS156 Part II
R703.5.1	FS156 Part II
R703.6.1	FS156 Part II
R703.6.3	S225-09/10, Part II
R703.7.4.1	FS156 Part II
R703.11.2	FS156 Part II
R703.11.2.1	FS156 Part II
R703.11.2.2	FS156 Part II
R703.11.2.3	FS156 Part II
R703.12	FS150 Part II, FS151 Part II
703.12.1	FS150 Part II, FS151 Part II
R802.1.3	S201-09/10, Part II
R802.1.3.1	S201-09/10, Part II
R802.1.3.2	S201-09/10, Part II
R802.1.3.3	S201-09/10, Part II
R803.2.1	S200-09/10, Part II
R806.1	G146 Part II
R806.2	G145 Part II
R903.2.2	S3-09/10, Part II
R903.4	S2-09/10, Part III (heard by IRC Plumbing)
R903.4.1	S2-09/10, Part III (heard by IRC Plumbing)
Table R905.2.4.1(2)	S14-09/10, Part II
R905.2.7.2	S15-09/10, Part II
R905.2.8.5 (New)	S16-09/10, Part II
R905.3.3.3	S15-09/10, Part II
R905.4.3.2 (New)	S15-09/10, Part II
R905.4.5.1 (New)	S17-09/10, Part II
R905.5.3.2 (New)	S15-09/10, Part II
R905.6.3.2 (New)	S15-09/10, Part II
R905.7.3.2 (New)	S15-09/10, Part II
R905.8.3.2 (New)	S15-09/10, Part II
R905.9.2	S18-09/10, Part II
R905.10.5.1 (New)	S15-09/10, Part II
R905.14.3	S20-09/10, Part II
Table R905.14.3 (New)	S20-09/10, Part II
R905.15	S21-09/10, Part II
R905.15.1	S21-09/10, Part II
R905.15.2	S21-09/10, Part II

R905.15.3	S21-09/10, Part II
R905.16 (New)	S22-09/10, Part III, S23-09/10. Part, II
R905.16.1 (New)	S22-09/10, Part III, S23-09/10. Part II
R905.16.1.1 (New)	S23-09/10, Part II
R905.16.2 (New)	S22-09/10, Part III
R905.16.3 (New)	S22-09/10, Part III
R907.3	S30-09/10, Part II
R1003.9.1 (New)	S182-09/10, Part II
R1003.9.3 (New)	S182-09/10, Part II
R1003.11.1	M114 PII
R1005.7	M117 PII
R1004.2	M119 PII
T N1101.2	EC1 Part II
N1101.4.2.1(New)	EC2 Part II
N1101.6	EC4
Chapter 11	EC11 Part II, EC 13 Part II, EC16, Part II, EC19 Part II, EC25 Part II
N1101.2.2	EC21
N1101.7	EC28
N1101.9	EC22 Part II, EC23 Part II
N1102	EC26
N1102.1	EC31
N1103.2.1	EC26
Table N1102.1, Table N1102.1.2, Table1102.2.5	EC27, EC29, EC30, EC31, EC32, EC34, EC35, EC36, EC38, EC39, EC40, EC41, EC42, EC43, EC45, EC46, EC47, EC48, EC50, EC54, EC55, EC60, EC102 (All Part II)
Table N1102.1.4 (New) N1102.1.4(New)	EC56 Part II
N1102.2.2	EC59 Part II
N1102.2.2.1(New)	EC64 Part II
N1102.2.3 (New)	EC63 Part II
Table N1102.2.5	EC66 Part II
N1102.2.11	EC68 Part II
N1102.2.12(New)	EC69 Part II
Table N1102.4.2	EC26 Part II, EC59 Part II
Table N1102.1.4 (New) N1102.1.4(New)	EC57 Part II
N1102.3 (New)	EC71 Part II
N1102.3.3 (New)	EC72 Part II
N1102.3.3 (New)	EC73 Part II
N1102.3.3 (New)	EC74 Part II
N1102.3.4	EC76 Part II
N1102.3.5	EC68 Part II
N1102.3.6 (New)	EC96 Part II
N1102.3.7(New)	EC78 Part II
N1102.4.1	EC79, EC82, EC83
N1102.4.1.1(New)	EC79 Part II
N1102.4.1.2 (New)	EC79 Part II
N1102.4.2	EC81, EC82, EC83, EC86, EC90

IRC (continued)	
N1102.4.2.1.1 (New)	EC80 Part II
N1102.4.2.1.1 (New)	EC87 Part II
N1102.4.3	EC79 Part II, EC89 Part II
N1102.4.4	EC91 Part II
N1102.4.5	EC92 Part II
N1102.4.6	EC84
N1103.1	EC100 Part II
N1103.1.1	EC101 Part II
N1103.1.3 (New)	EC100 Part II
N1103.2.1	EC103 Part II
N1103.2.2	EC103, EC104, EC107 (All Part II)
N1103	
N1103.2.3	EC103 Part II, EC109 Part II,
N1103.3	EC117 Part II
N1103.3	EC123 Part II
N1103.4	EC115 Part II, EC116
N1103.4 (New)	EC114 Part II
N1103.4 (New)	EC118 Part II
N1103.4.1	EC112 Part II
N1103.4.2	EC112 Part II
N1103.5	EC79 Part II, EC131 Part II
N1103.5 (New)	EC119 Part II
N1103.5.1	EC99 Part II
N1103.6	EC120 Part II
T N1103.6 (New)	EC121 Part II
N1103.8	EC124 Part II
N1103.9	EC125 Part II
N1103.10 (New)	EC126 Part II
N1104 (New)	EC131 Part II
N1104.1	EC127, EC129, EC130 (All Part II)
N1104.1.1	EC18
M1301.2 thru M1301.5	FG14 PIII
M1303.1	M6 PII
M1303.1	FG10 PIII
M1307.3, P2801.6	M10 PII
M1401.1	M9 PII
M1407.1	M121 PII
M1411.5	FG11 PIII
M1411.6	M130 PII, M131 PII
M1411.6.1	M133 PII
M1413.1	M126 PII
M1413.2	M126 PII
M1502.4.1	M35 PII, M36 PII
M1502.4.2	M35 PII
M1502.4.4.1	M35 PII
M1502.4.4	M38 PII, M39 PII, M40 PII
M1502.4.4.2	M38 PII
M1502.4.4.3	M39 PII, M40 PII
M1503.1	M45 PII
M1503.2	M46 PII
M1506.1	M31 PII
M1601.1.1	M97 PII
Table M1601.1.1(2)	M98 PII

M1601.1.2	M102 PII, M103 PII
M1601.4.1	M105 PII
M1601.4	M110 PII
M1601.3	M111 PII, M112 PII
M1602.2	FG32 PIII
M2005.1	M127 PII
M2001.1.1	M128 PII
Table M2101.1	M140 PII, M141 PII, M142 PII
M2104.5	M148 PII
M2201.5	M151 PII
M2201.5	M151 PII
M2204.2	M152 PII
P2503.6	P18 Part II
P2503.8.2	P19 Part II, P106 Part II
P2601.2	P152 Part II
P2603.3	P8 Part II
P2603.4	P16 Part II
P2603.5	P10 Part II
Table P2605.1	P70 Part II
P2608.1	P7 Part II
P2608.4	P7 Part II
Table P2608.4	P7 Part II
Table P2701.1	P37 Part II
P2706.1	P121 Part II
P2708.1.1	P52 Part II
P2708.4 (New)	P53 Part II
P2709.2.1	P54 PartII
P2709.2.2	P54 PartII
P2709.2.4 (New)	P55 PartII
P2713.1	P40 Part II, P41 Part II
P2721.2	P42 Part II
P2722.5 (New)	P60 Part II
P2724.1 (New)	P61 Part II
P2803.6	P62 Part II
P2803.6 (New)	P63 Part II
P2803.6.1	P64 Part II
P2801.1.2	EC122 Part II
P2801.5	P65 Part II. P66 Part II P67 Part II
P2801.5.1	P67 Part II
P2801.5.3 (New)	P158 Part II
P2901.1	P87 Part II
P2902.1	P102 Part II
Table P2902.3	P83 Part II, P93 Part II
P2902.3.2	P93 Part II
P2902.3.3	P103 Part II
P2902.3.4	P96 Part II, P104 Part II
P2902.3.5	P95 Part II
P2902.3.6	P94 Part II
P2902.4	P94 Part II
P2902.4.2	P94 Part II
P2902.4.3	P86 Part II
P2902.5.1	P103 Part II
P2902.5.2	P154 Part II, P160 Part II
P2902.5.3	P100 Part II

IRC (continued)	
P2902.5.4	P99 Part II
P2902.5.4.1	P99 Part II
P2902.5.5	P94 Part II
P2902.6	P90 Part II
P2903.3.1	P157 Part II
P2903.5	P72 Part II
P2503.5.1	P156 Part II
Table P2903.6(1)	P153 Part II
P2903.9.5	P86 Part II
P2903.11 (New)	P75 Part II
P2904.3.1	P70 Part II
P2904.4.3	P94 Part II
Table P2904.6.2(8)	P70 Part II
Table P2904.6.2(9)	P70 Part II
P2905.4	P69 Part II
Table P2905.4	P68 Part II, P70 Part II
Table P2905.5	P70 Part II, P71 Part II
Table P2905.6	P70 Part II
P2905.9.1.2	P84 Part II
P2905.19 (New)	P70 Part II, P73 Part II
P2905.19.1(New)	P70 Part II
P2905.19.2 (New)	P70 Part II
P2908.1	P108 Part II
P2908.2	P108 Part II
P3001.4 (New)	P109 Part II
P3002.3.1	P111 Part II
P3003.9.2	P110 Part II
P3003.14.2	P110 Part II
P3003.19	P36 Part II
P3007.3.2.1 (New)	P114 Part II
P3007.3.3 (New)	P115 Part II
P3007.3.3.1 (New)	P115 Part II
P3007.3.3.2 (New)	P115 Part II
P3007.3.5	P116 Part II
P3009 (New)	P152 Part II
P3103.4	P124 Part II
P3103.5	P159 Part II
P3111.2	P128 Part II
P3111.3	P127 Part II
P3113.4.1	P131 Part II
P3201.5	P135 Part II
P3201.2	P136 Part II
Chapter 44	P60 Part II, P68 Part II, P69 Part II, P70 Part II, P71 Part II, P73 Part II, P83 Part II, P106 Part II, P108 Part II, P135 Part II, P136 Part II, P157 Part II
Chapter 44	F108, Part II; F132, Part II
Chapter 44	ADM39
Appendix H	G2 Part II
Appendix K	G147 Part II
Appendix L	G204 Part II

INT. WILDLAND-URBAN INTERFACE CODE	
Chapter 1	ADM1 Part X
101.3	ADM3
102.4	ADM4
115 (New)	ADM16 Part I
Chapter 15	ADM39
INTERNATIONAL ZONING CODE	
Chapter 1	ADM1 Part XI
101.2	ADM3
112 (New)	ADM16 Part I
Chapter 14	ADM39

2009/2010 ICC CODE DEVELOPMENT HEARING SCHEDULE

October 24 – November 11, 2009

Hilton Baltimore

Unless noted by “Start no earlier than X am/pm,” each Code Committee will begin immediately upon completion of the hearings for the prior Committee. Thus the actual start times for the various Code Committees are tentative. The hearing volume is higher than previous cycles. The schedule anticipates that the hearings will finish by the times noted as “Finish” for each track and each week.

CODE DEVELOPMENT HEARINGS: OCTOBER 24 - 31

	Saturday October 24	Sunday October 25	Monday October 26	Tuesday October 27	Wednesday October 28	Thursday October 29	Friday October 30	Saturday October 31
TRACK 1	Start 8 am IWUIC IFC End 8 pm	Start 10 am IFC End 8 pm	Start 8 am IFC IRC-Energy (Start no earlier than 1 pm) End 8 pm	Start 8 am IRC – Energy End 8 pm	Start 8 am IRC-Building (Start no earlier than 8 am) End 8 pm	Start 8 am IRC- Building End 8 pm	Start 8 am IRC – Building Admin (Start no earlier than 3 pm) End 8 pm	Start 8 am Admin Finish 3 pm
	Start 8 am IBC- Structural End 8 pm	Start 10 am IBC- Structural End 8 pm	Start 8 am IBC- Structural End 8 pm	Start 8 am IBC- Structural End 8 pm	Start 8 am IECC (Start no earlier than 8 am) End 8 pm	Start 8 am IECC End 8 pm	Start 8 am IECC End 8 pm	Start 8 am IECC Finish 8 pm

ANNUAL CONFERENCE: NOVEMBER 1 - 4

CODE DEVELOPMENT HEARINGS: NOVEMBER 4 - 11

	Wednesday November 4	Thursday November 5	Friday November 6	Saturday November 7	Sunday November 8	Monday November 9	Tuesday November 10	Wednesday November 11
TRACK 1	Start 8 am IPM/ZC IEBC IBC-Fire Safety End 5 pm	Start 8 am IBC-Fire Safety End 8 pm	Start 8 am IBC – Fire Safety IBC – General (Start no earlier than 3 pm) End 8 pm	Start 8 am IBC - General End 8 pm	Start 10 am IBC – General IBC – Egress (Start no earlier than 3 pm) End 8 pm	Start 8 am IBC - Egress End 8 pm	Start 8 am IBC - Egress End 8 pm	Start 8 am IBC - Egress Finish 12 pm
	Start 8 am IPC/IPSDC End 5 pm	Start 8 am IPC/IPSDC End 9 pm	Start 8 am IMC (Start no earlier than 8 am) End 9 pm	Start 8 am IMC IRC- Plumbing/ Mechanical (Start no earlier than 1 pm) End 9 pm	Start 10 am IRC – Plumbing/ Mechanical End 9 pm	Start 8 am IRC – Plumbing/ Mechanical IFGC (Start no earlier than 8 am) Finish 9 pm	NO HEARINGS TRACK 2 COMPLETED	

Notes:

- Hearing times may be modified at the discretion of the Chairman. Breaks will be announced.
- Proposed code changes submitted to the International Wildland-Urban Interface Code (IWUIC) to be heard by the IFC Committee.
- Proposed code changes submitted to the International Zoning (Z) and Property Maintenance (PM) Codes to be heard by the IPM/Z Committee.
- “Admin” is a new code committee who will hear changes that affect coordination of Chapter 1 of all the I-Codes, except the IRC, and referenced standards updates.

2009/2010 PROPOSED CHANGES TO THE INTERNATIONAL CODES

CODE	PAGE
Administrative Provisions (All Codes)	ADM1
International Building Code	
Fire Safety	IBC-FS1
General	IBC-G1
Means of Egress	IBC-E1
Structural	IBC-S1
International Energy Conservation Code.....	EC1
International Existing Building Code	EB1
International Fuel Gas Code.....	FG1
International Fire Code	F1
International Mechanical Code	M1
International Plumbing Code	P1
International Private Sewage Disposal Code	PSD1
International Property Maintenance Code	PM1
International Residential Code	
Building/Energy	IRC-RB1
Plumbing	IRC-RP1
Mechanical	IRC-RM1
International Wildland-Urban Interface Code (To be heard by the IFC Committee).....	WUIC1
International Zoning Code (To be heard by the IPM/IZC Committee)	Z1



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2009/2010 PROPOSED CHANGES TO THE INTERNATIONAL EXISTING BUILDING CODE

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TENTATIVE ORDER OF DISCUSSION

2009/2010 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.

EB1-09/10
EB2-09/10
EB10-09/10 Part I
EB10-09/10 Part II
EB10-09/10 Part III
EB32-09/10 Part I
EB32-09/10 Part II
EB33-09/10 Part I
EB33-09/10 Part II
EB34-09/10
EB11-09/10 Part I
EB11-09/10 Part II
EB14-09/10 Part I
EB14-09/10 Part II
EB18-09/10
EB26-09/10
EB35-09/10
EB39-09/10
EB23-09/10
EB19-09/10
EB20-09/10
EB27-09/10
EB28-09/10
EB29-09/10
EB30-09/10
EB31-09/10

EB1-09/10

101.5, Chapter 3 (New)

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

Relocate current Section 101.5 to become new Chapter 3 as follows:

CHAPTER 3 **COMPLIANCE METHODS**

SECTION 301 **COMPLIANCE METHODS**

401.5 301.1 General. Compliance methods. The *repair, alteration, change of occupancy, addition* or relocation of all *existing buildings* shall comply with one of the methods listed in Sections ~~401.5.4~~ 301.1.1 through ~~401.5.3~~ 301.1.3 as selected by the applicant. Application of a method shall be the sole basis for assessing the compliance of work performed under a single permit unless otherwise approved by the *code official*. Sections ~~401.5.4~~ 301.1.1 through ~~401.5.3~~ 301.1.3 shall not be applied in combination with each other. Where this code requires consideration of the seismic-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 ~~401.5.4~~ 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 907.5.3 ~~807-5.3~~. New structural members added as part of the *alteration* shall comply with the *International Building Code*. *Alterations of existing buildings in flood hazard areas* shall comply with Section 601.3.

401.5.4 301.1.1 Prescriptive compliance method. *Repairs, alterations, additions* and changes of occupancy complying with Chapter ~~34~~ of this code in buildings complying with the *International Fire Code* shall be considered in compliance with the provisions of this code.

401.5.2 301.1.2 Work area compliance method. *Repairs, alterations, additions*, changes in occupancy and relocated buildings complying with the applicable requirements of Chapters ~~45~~ through ~~4213~~ of this code shall be considered in compliance with the provisions of this code.

401.5.3 301.1.3 Performance compliance method. *Repairs, alterations, additions*, changes in occupancy and relocated buildings complying with Chapter ~~4314~~ of this code shall be considered in compliance with the provisions of this code.

401.5.4 301.1.4 Evaluation and design procedures. The seismic evaluation and design shall be based on the procedures specified in the *International Building Code*, ASCE 31 or ASCE 41. The procedures contained in Appendix A of this code shall be permitted to be used as specified in Section ~~401.5.4.2~~ 301.1.4.2.

401.5.4.1 301.1.4.1 Compliance with IBC level seismic forces. Where compliance with the seismic design provisions of the *International Building Code* is required, the procedures shall be in accordance with one of the following:

1. The *International Building Code* using 100 percent of the prescribed forces. The values of R , Ω_o and C_d used for analysis in accordance with Chapter 16 of the *International Building Code* shall be those specified for structural systems classified as "Ordinary" in accordance with Table 12.2-1 of ASCE 7, unless it can be demonstrated that the structural system satisfies the proportioning and detailing requirements for systems classified as "Detailed," "Intermediate" or "Special."
2. Compliance with ASCE 41 using both the BSE-1 and BSE-2 earthquake hazard levels and the corresponding performance levels shown in Table ~~401.5.4.1~~ 301.1.4.1.

**TABLE 401.5.4.1 301.1.4.1
PERFORMANCE CRITERIA FOR IBC LEVEL SEISMIC FORCES OCCUPANCY**

OCCUPANCY CATEGORY (Based on IBC Table 1604.5)	PERFORMANCE LEVEL FOR USE WITH ASCE 41 BSE-1 EARTHQUAKE HAZARD LEVEL	PERFORMANCE LEVEL FOR USE WITH ASCE 41 BSE-2 EARTHQUAKE HAZARD LEVEL
I	Life safety (LS)	Collapse prevention (CP)
II	Life safety (LS)	Collapse prevention (CP)
III	Note a	Note a
IV	Immediate occupancy (IO)	Life safety (LS)

a. Acceptable criteria for Occupancy Category III shall be taken as 80 percent of the acceptance criteria specified for Occupancy Category IV performance levels.

401.5.4.2 301.1.4.2 Compliance with reduced IBC level seismic forces. Where seismic evaluation and design is permitted to meet reduced *International Building Code* seismic force levels, the procedures used shall be in accordance with one of the following:

1. The *International Building Code* using 75 percent of the prescribed forces. Values of R , Ω_0 and C_d used for analysis shall be as specified in Section 401.5.4.1 301.1.4.1 of this code.
2. Structures or portions of structures that comply with the requirements of the applicable chapter in Appendix A as specified in Items 2.1 through 2.5 shall be deemed to comply with this section.
 - 2.1. The seismic evaluation and design of unreinforced masonry bearing wall buildings in Occupancy Category I or II are permitted to be based on the procedures specified in Appendix Chapter A1.
 - 2.2. Seismic evaluation and design of the wall anchorage system in reinforced concrete and reinforced masonry wall buildings with flexible diaphragms in Occupancy Category I or II are permitted to be based on the procedures specified in Chapter A2.
 - 2.3. Seismic evaluation and design of cripple walls and sill plate anchorage in residential buildings of light-frame wood construction in Occupancy Category I or II are permitted to be based on the procedures specified in Chapter A3.
 - 2.4. Seismic evaluation and design of soft, weak, or open-front wall conditions in multiunit residential buildings of wood construction in Occupancy Category I or II are permitted to be based on the procedures specified in Chapter A4.
 - 2.5. Seismic evaluation and design of concrete buildings and concrete with masonry infill buildings in all occupancy categories are permitted to be based on the procedures specified in Chapter A5.
3. Compliance with ASCE 31 based on the applicable performance level as shown in Table 401.5.4.2 301.1.4.2. It shall be permitted to use the BSE-1 earthquake hazard level as defined in ASCE 41 and subject to the limitations in Item 4 below.
4. Compliance with ASCE 41 using the BSE-1 Earthquake Hazard Level and the performance level shown in Table 401.5.4.2 301.1.4.2. The design spectral response acceleration parameters S_{XS} and S_{X1} specified in ASCE 41 shall not be taken less than 75 percent of the respective design spectral response acceleration parameters S_{DS} and S_{D1} defined by the *International Building Code*.

**TABLE 401.5.4.2 301.1.4.2
PERFORMANCE CRITERIA FOR REDUCED IBC LEVEL SEISMIC FORCES OCCUPANCY CATEGORY**

OCCUPANCY CATEGORY (Based on IBC Table 1604.5)	PERFORMANCE LEVEL FOR USE WITH ASCE 31	PERFORMANCE LEVEL FOR USE WITH ASCE 41 BSE-1 EARTHQUAKE HAZARD LEVEL
I	Life safety (LS)	Life safety (LS)
II	Life safety (LS)	Life safety (LS)
III	Note a, b	Note a
IV	Immediate occupancy (IO)	Immediate occupancy (IO)

- a. Performance levels for Occupancy Category III shall be taken as halfway between the performance levels specified for Occupancy Categories II and IV.
- b. For Occupancy Category III, the ASCE 31 screening phase checklists shall be based on the life safety performance level.

(Renumber subsequent chapters)

Reason: The proposed relocation remedies the situation of having technical criteria in the administration chapter. Section 101.5, which includes the basic procedural provisions of the IEBC, as well as specific seismic evaluation and design criteria, does not belong in Chapter 1. Many jurisdictions do not adopt Chapter 1, but instead replace it with local administrative provisions. Having technical provisions in Chapter 1 makes this substitution more complicated and increases the possibility that the technical provisions of current Section 101.5 will be deleted or modified by mistake. The solution to these inconsistencies and potential problems is simply to relocate Section 101.5 in its entirety to a new chapter. (Note that Section 101.5 should not be relocated into either current Chapter 3 or Chapter 4 because the technical criteria in Section 101.5 are meant to apply to all three compliance methods per code change proposal EB1-07/08.)

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: Any references to other chapters or sections not in current Section 101.5 (new Chapter 3) will be done editorially if the proposal is approved.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB34-101.5-CHP 3.DOC

EB2-09/10

101.5, Chapter 4, Section 401, 401.1, 101.5.1, 101.5.2, 101.5.3, 101.5.4, 101.5.4.1, Table 101.5.4.1, 101.5.4.2, Table 101.5.4.2, 401.1.1, 401.2, 401.3, Section 402, 402.1, 402.2, 402.3, Section 403, 403.1, 403.2, Section 404, 404.1, 404.2, Section 405, 405.1, 405.2, Section 406, 406.1, 406.2, 407, 407.1, 407.2, 408, 408.1, 408.2, 409, 409.1, 409.2, Chapter 3, 301, 301.1, 301.1.1, 506.2.2.1, 506.2.2.3, 606.2.1, 606.3.1, 807.4.2, 807.4.3, 907.3.1, 1003.3.1, 1003.3.2, 1301.1, 1301.1.1, 1301.2

Proponent: Lawrence Brown, CBO, representing National Association of Home Builders (NAHB)

Change current Chapter 3 (Prescriptive Compliance Method) to Chapter 4, and change current Chapter 4 to Chapter 3, and incorporate current Section 101.5 provisions into the new Chapter 3 as follow:

~~**101.5 Compliance methods.** The *repair, alteration, change of occupancy, addition* or relocation of all existing buildings shall comply with one of the methods listed in Sections 101.5.1 through 101.5.3 as selected by the applicant. Application of a method shall be the sole basis for assessing the compliance of work performed under a single permit unless otherwise approved by the code official. Sections 101.5.1 through 101.5.3 shall not be applied in combination with each other. Where this code requires consideration of the seismic 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 101.5.4 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 807.4.3. New structural members added as part of the alteration shall comply with the *International Building Code*. Alterations of existing buildings in flood hazard areas shall comply with Section 601.3.~~

CHAPTER 3 4 CLASSIFICATION OF WORK

SECTION 301 401 GENERAL

~~**301.1 401.1 Compliance methods Scope.** The provisions of this chapter shall be used in conjunction with Chapters 5 through 12 and shall apply to the *alteration, repair, addition* and *change of occupancy* of existing structures, including historic and moved structures, as referenced in Section 101.5.2. The work performed on an existing building shall comply with one of the methods listed in Sections 301.1.1 through 301.1.3 be classified in accordance with this chapter. 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-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 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 807.5.3. *New structural members added as part of the alteration shall comply with the International Building Code. Alterations of existing buildings in flood hazard areas shall comply with Section 601.3.*

301.1.1 401.5.1 Prescriptive compliance method. *Repairs, alterations, additions* and changes of occupancy complying with Chapter 43 of this code in buildings complying with the *International Fire Code* shall be considered in compliance with the provisions of this code.

301.1.2 401.5.2 Work area compliance method. *Repairs, alterations, additions*, changes in occupancy and relocated buildings complying with the applicable requirements of Chapters 54 through 12 of this code shall be considered in compliance with the provisions of this code. The work performed on an existing building shall be classified in accordance with Sections 302 through 309.

301.1.3 401.5.3 Performance compliance method. *Repairs, alterations, additions*, changes in occupancy and relocated buildings complying with Chapter 13 of this code shall be considered in compliance with the provisions of this code.

301.1.4 401.5.4 Evaluation and design procedures. The seismic evaluation and design shall be based on the procedures specified in the *International Building Code*, ASCE 31 or ASCE 41. The procedures contained in Appendix A of this code shall be permitted to be used as specified in Section 301.1.4.2 401.5.4.2.

301.1.4.1 401.5.4.1 Compliance with IBC level seismic forces. Where compliance with the seismic design provisions of the *International Building Code* is required, the procedures shall be in accordance with one of the following:

1. The *International Building Code* using 100 percent of the prescribed forces. The values of R , Ω_0 and C_d used for analysis in accordance with Chapter 16 of the *International Building Code* shall be those specified for structural systems classified as "Ordinary" in accordance with Table 12.2-1 of ASCE 7, unless it can be demonstrated that the structural system satisfies the proportioning and detailing requirements for systems classified as "Detailed," "Intermediate" or "Special."
2. Compliance with ASCE 41 using both the BSE-1 and BSE-2 earthquake hazard levels and the corresponding performance levels shown in Table 301.1.4.1 401.5.4.1.

**TABLE 301.1.4.1 401.5.4.1
PERFORMANCE CRITERIA FOR IBC LEVEL SEISMIC FORCES**

(No changes to table contents)

301.1.4.2 401.5.4.2 Compliance with reduced IBC level seismic forces. Where seismic evaluation and design is permitted to meet reduced *International Building Code* seismic force levels, the procedures used shall be in accordance with one of the following:

1. The *International Building Code* using 75 percent of the prescribed forces. Values of R , Ω_0 and C_d used for analysis shall be as specified in Section 301.1.4.1 401.5.4.1 of this code.
2. Structures or portions of structures that comply with the requirements of the applicable chapter in Appendix A as specified in Items 2.1 through 2.5 shall be deemed to comply with this section.
 - 2.1. The seismic evaluation and design of unreinforced masonry bearing wall buildings in Occupancy Category I or II are permitted to be based on the procedures specified in Appendix Chapter A1.
 - 2.2. Seismic evaluation and design of the wall anchorage system in reinforced concrete and reinforced masonry wall buildings with flexible diaphragms in Occupancy Category I or II are permitted to be based on the procedures specified in Chapter A2.
 - 2.3. Seismic evaluation and design of cripple walls and sill plate anchorage in residential buildings of light-frame wood construction in Occupancy Category I or II are permitted to be based on the procedures specified in Chapter A3.

- 2.4. Seismic evaluation and design of soft, weak, or open-front wall conditions in multiunit residential buildings of wood construction in Occupancy Category I or II are permitted to be based on the procedures specified in Chapter A4.
- 2.5. Seismic evaluation and design of concrete buildings and concrete with masonry infill buildings in all occupancy categories are permitted to be based on the procedures specified in Chapter A5.
3. Compliance with ASCE 31 based on the applicable performance level as shown in Table ~~301.1.4.2~~ ~~401.5.4.2~~. It shall be permitted to use the BSE-1 earthquake hazard level as defined in ASCE 41 and subject to the limitations in Item 4 below.
4. Compliance with ASCE41 using the BSE-1 Earthquake Hazard Level and the performance level shown in Table ~~301.1.4.2~~ ~~401.5.4.2~~. The design spectral response acceleration parameters S_{XS} and S_{X1} specified in ASCE 41 shall not be taken less than 75 percent of the respective design spectral response acceleration parameters S_{DS} and S_{D1} defined by the *International Building Code*.

**TABLE ~~301.1.4.2~~ ~~401.5.4.2~~
PERFORMANCE CRITERIA FOR REDUCED IBC
LEVEL SEISMIC FORCES**

(No change to table contents)

~~**401.1.1 Compliance with other alternatives.** Alterations, repairs, additions and changes of occupancy to existing structures shall comply with the provisions of Chapters 4 through 12 or with one of the alternatives provided in Section 401.5.~~

301.2 401-2 Work area. The *work area*, as defined in Chapter 2, shall be identified on the construction documents.

301.3 401-3 Occupancy and use. When determining the appropriate application of the referenced sections of this code, the occupancy and use of a building shall be determined in accordance with Chapter 3 of the *International Building Code*.

**SECTION ~~302~~ ~~402~~
REPAIRS**

302.1 402-1 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.

302.2 402-2 Application. *Repairs* shall comply with the provisions of Chapter 5.

302.3 402-3 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 6, 7, 8, 9 or 10.

**SECTION ~~303~~ ~~403~~
ALTERATION—LEVEL 1**

303.1 403-1 Scope. Level 1 alterations include the removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose.

303.2 403-2 Application. Level 1 *alterations* shall comply with the provisions of Chapter 6.

**SECTION ~~304~~ ~~404~~
ALTERATION—LEVEL 2**

304.1 404-1 Scope. 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.

304.2 404-2 Application. Level 2 alterations shall comply with the provisions of Chapter 6 for Level 1 *alterations* as well as the provisions of Chapter 7.

**SECTION ~~305~~ ~~405~~
ALTERATION—LEVEL 3**

305.1 405-1 Scope. Level 3 *alterations* apply where the *work area* exceeds 50 percent of the aggregate area of the building.

305.2 405-2 Application. Level 3 alterations shall comply with the provisions of Chapters 6 and 7 for Level 1 and 2 alterations, respectively, as well as the provisions of Chapter 8.

SECTION ~~306~~ 406 CHANGE OF OCCUPANCY

306.1 406-1 Scope. *Change of occupancy* provisions apply where the activity is classified as a *change of occupancy* as defined in Chapter 2.

306.2 406-2 Application. Changes of occupancy shall comply with the provisions of Chapter 9.

SECTION ~~307~~ 407 ADDITIONS

307.1 407-1 Scope. Provisions for *additions* shall apply where work is classified as an *addition* as defined in Chapter 2.

307.2 407-2 Application. *Additions* to existing buildings shall comply with the provisions of Chapter 10.

SECTION ~~308~~ 408 HISTORIC BUILDINGS

308.1 408-1 Scope. Historic buildings provisions shall apply to buildings classified as historic as defined in Chapter 2.

308.2 408-2 Application. Except as specifically provided for in Chapter 11, historic buildings shall comply with applicable provisions of this code for the type of work being performed.

SECTION ~~309~~ 409 RELOCATED BUILDINGS

309.1 409-1 Scope. Relocated buildings provisions shall apply to relocated or moved buildings.

309.2 409-2 Application. Relocated buildings shall comply with the provisions of Chapter 12.

CHAPTER ~~43~~ PRESCRIPTIVE COMPLIANCE METHOD

[B] SECTION ~~401~~ 304 GENERAL

401.1 304-1 Scope. The provisions of this chapter shall control the *alteration, repair, addition* and *change of occupancy* of existing structures, including historic and moved structures as referenced in Section ~~301.1.1401-5-4~~.

Exception: Existing bleachers, grandstands and folding and telescopic seating shall comply with ICC 300-02.

401.1.1 304-1.1 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 ~~301.1401-5~~

(Renumber remaining Chapter 3 accordingly)

506.2.2.1 Evaluation. The building shall be evaluated by a registered design professional, and the evaluation findings shall be submitted to the *code official*. The evaluation shall establish whether the damaged building, if repaired to its predamaged state, would comply with the provisions of the *International Building Code*, except that the seismic design criteria shall be the reduced level seismic forces specified in Section ~~301.1.4.2 404-5-4-2~~.

506.2.2.3 Extent of repair for noncompliant buildings. If the evaluation does not establish that the building in its predamage condition complies with the provisions of Section 506.2.2.1, then the building shall be rehabilitated to comply with the provisions of this section. The wind load for the *repair* and rehabilitation shall be those 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 in accordance with the *International Building Code*. The seismic loads for this rehabilitation design shall be those required by the building code in effect at the time of original construction, but not less than the reduced-level seismic forces specified in Section ~~301.1.4.2 404-5-4-2~~.

606.2.1 Wall anchors for concrete and masonry buildings. Where a permit is issued for reroofing more than 25 percent of the roof area of a building assigned to Seismic Design Category D, E or F with a structural system consisting of concrete or reinforced masonry walls with a flexible roof diaphragm or unreinforced masonry walls with any type of roof diaphragms, the work shall include installation of wall anchors at the roof line to resist the reduced *International Building Code* level seismic forces as specified in Section 301.1.4.2 ~~404.5.4.2~~ of this code and design procedures of Section 301.1.4 ~~404.5.4~~, unless an evaluation demonstrates compliance of existing wall anchorage.

606.3.1 Bracing for unreinforced masonry bearing wall parapets. Where a permit is issued for reroofing for more than 25 percent of the roof area of a building assigned to Seismic Design Category D, E or F that has parapets constructed of unreinforced masonry, the work shall include installation of parapet bracing to resist the reduced *International Building Code* level seismic forces as specified in Section 301.1.4.2 ~~404.5.4.2~~ of this code, unless an evaluation demonstrates compliance of such items.

807.4.2 Substantial structural alteration. Where more than 30 percent of the total floor and roof areas of the building or structure have been or are proposed to be involved in structural *alteration* within a 12-month period, the evaluation and analysis shall demonstrate that the altered building or structure complies with the *International Building Code* for wind loading and with reduced *International Building Code* level seismic forces as specified in Section 301.1.4.2 ~~404.5.4.2~~ for seismic loading. For seismic considerations, the analysis shall be based on one of the procedures specified in Section 301.1.4 ~~404.5.4~~. The areas to be counted toward the 30 percent shall be those areas tributary to the vertical load-carrying components, such as joists, beams, columns, walls and other structural components that have been or will be removed, added or altered, as well as areas such as mezzanines, penthouses, roof structures and in-filled courts and shafts.

807.4.3 Limited structural alteration. Where not more than 30 percent of the total floor and roof areas of the building are involved in structural *alteration* within a 12-month period, the evaluation and analysis shall demonstrate that the altered building or structure complies with the loads applicable at the time of the original construction or of the most recent substantial structural *alteration* as defined by Section 807.4.2. Any existing structural element whose seismic demand-capacity ratio with the *alteration* considered is more than 10 percent greater than its demand-capacity ratio with the *alteration* ignored shall comply with the reduced *International Building Code* level seismic forces as specified in Section 301.1.4.2 ~~404.5.4.2~~.

907.3.1 Compliance with the International Building Code level seismic forces. Where a building or portion thereof is subject to a *change of occupancy* that results in the building being assigned to a higher occupancy category based on Table 1604.5 of the *International Building Code*; or where such *change of occupancy* results in a reclassification of a building to a higher hazard category as shown in Table 912.4; or where a change of a Group M occupancy to a Group A, E, I-1, R-1, R-2 or R-4 occupancy with two-thirds or more of the floors involved in Level 3 *alteration* work, the building shall comply with the requirements for *International Building Code* level seismic forces as specified in Section 301.1.4.1 ~~404.5.4.4~~ for the new occupancy category.

Exceptions:

1. Group Occupancies being changed to Group A, E, I-1, R-1, R-2 or R-4 occupancies for buildings less than six stories in height and in Seismic Design Category A, B or C.
2. Where approved by the *code official*, specific detailing provisions required for a new structure are not required to be met where it can be shown that an equivalent level of performance and seismic safety is obtained for the applicable occupancy category based on the provision for reduced *International Building Code* level seismic forces as specified in Section 301.1.4.2 ~~404.5.4.2~~.
3. Where the area of the new occupancy with a higher hazard category is less than or equal to 10 percent of the total building floor area and the new occupancy is not classified as Occupancy Category IV. For the purposes of this exception, buildings occupied by two or more occupancies not included in the same occupancy category, shall be subject to the provisions of Section 1604.5.1 of the *International Building Code*. The cumulative effect of the area of occupancy changes shall be considered for the purposes of this exception.
4. Unreinforced masonry bearing wall buildings in Occupancy Category III when assigned to Seismic Design Category A or B shall be allowed to be strengthened to meet the requirements of Appendix Chapter A1 of this code [Guidelines for the Seismic Retrofit of Existing Buildings (GSREB)].

1003.3.1 Vertical addition. Any element of the lateral-force-resisting system of an *existing building* subjected to an increase in vertical or lateral loads from the vertical *addition* shall comply with the *International Building Code* wind provisions and the *International Building Code* level seismic forces specified in Section 301.1.4.1 ~~404.5.4.4~~ of this code.

1003.3.2 Horizontal addition. Where horizontal *additions* are structurally connected to an existing structure, all lateral-force-resisting elements of the existing structure affected by such *addition* shall comply with the *International Building Code* wind provisions and the *International Building Code* level seismic forces specified in Section 301.1.4.1 ~~401.5.4.4~~ of this code.

1301.1 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 ~~401.5.3~~. 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 the applicable requirements of Chapters 5 through 12 ~~Chapters 4 through 12~~, except where compliance with other provisions of this code is specifically required in this chapter.

1301.1.1 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 ~~401.5~~.

[B] 1301.2 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 or the provisions of Chapters 5 through 12 ~~Chapters 4 through 12~~. The provisions of Sections 1301.2.1 through 1301.2.5 shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, M, R, and S. These provisions shall not apply to buildings with occupancies in Group H or Group I.

Reason: IEBC: This proposal moves (swaps) current Chapter 3 (Prescriptive Compliance Method) to Chapter 4, and moves current Chapter 4 (Classification of Work) to Chapter 3, and expands the general language in current Section 401 (now Section 301) to cover all of the compliance methods. In addition, the appropriate language of Chapter 1, Section 101.5 is moved into the revised Chapter 3. The seismic evaluation and design requirements currently located in IEBC Section 101.5 are also brought over and placed under the expanded and re-titled Section 301.1. Thus, an appropriate location for the technical requirements is created without the need to carve out an additional chapter and renumber the entire code.

Note: The provisions for seismic evaluation and design of existing buildings were relocated last cycle from Chapter 5 to Chapter 1, for the purpose of making them available to all the compliance methods allowed under the IEBC (prescriptive method, work area method, and performance method). This relocation was approved by the IEBC committee (and upheld by the floor in Minneapolis) despite concerns that the administrative chapter is an inappropriate place for technical requirements.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BROWN-EB2-ITEM_#2_IEBC_101-5_MOVED.DOC

EB3–09/10

Chapter 2; IBC Chapter 2

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE AS 2 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE COMMITTEE.

PART I – IEBC

Revise definition as follows:

DANGEROUS. Any building, structure or portion thereof that meets any of the conditions described below shall be deemed dangerous:

1. The building or structure has collapsed, has partially collapsed, has moved off its foundation, or lacks the necessary support of the ground ~~necessary to support it~~.
2. There exists a significant risk of collapse, detachment or dislodgement of any portion, member, appurtenance or ornamentation of the building or structure under service loads.

PART II – IBC GENERAL

Revise definition as follows:

DANGEROUS. Any building-~~er~~ _structure or portion thereof that meets any of the conditions described below shall be deemed dangerous:

1. The building or structure has collapsed, has partially collapsed, has moved off its foundation, or lacks the necessary support of the ground ~~necessary to support it~~.
2. There exists a significant risk of collapse, detachment, or dislodgment of any portion, member, appurtenance, or ornamentation of the building or structure under service loads.

Reason: This is an editorial change intended to correct awkward grammar and sentence structure. A coordinating proposal is being submitted for IBC Chapter 34.

Cost Impact: The code change proposal will not increase the cost of construction.

PART I – IEBC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

PART II – IBC GENERAL

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB16-CHPT 2-DANGEROUS.DOC

EB4–09/10

Chapter 2; IBC Chapter 2

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE AS 2 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THE FIRE CODE COMMITTEE.

PART I – IEBC

Revise definition as follows:

SUBSTANTIAL STRUCTURAL DAMAGE. A condition where:

1. In any story, the vertical elements of the lateral force-resisting system have suffered damage such that the lateral load-carrying capacity of the structure in any horizontal direction has been reduced by more than ~~20~~ 33 percent from its pre-damage condition; or
2. The capacity of any vertical gravity load-carrying component, or any group of such components, that supports more than 30 percent of the total area of the structure's floor(s) and roof(s) has been reduced more than 20 percent from its pre-damage condition and the remaining capacity of such affected elements, with respect to all dead and live loads, is less than 75 percent of that required by this code for new buildings of similar structure, purpose and location.

PART II – IBC GENERAL

Revise definition as follows:

SUBSTANTIAL STRUCTURAL DAMAGE. A condition where:

1. In any story, the vertical elements of the lateral force-resisting system have suffered damage such that the lateral load-carrying capacity of the structure in any horizontal direction has been reduced by more than ~~20~~ 33 percent from its pre-damage condition; or
2. The capacity of any vertical gravity load-carrying component, or any group of such components, that supports more than 30 percent of the total area of the structure's floor(s) and roof(s) has been reduced more than 20 percent from its pre-damage condition and the remaining capacity of such affected elements, with respect to all dead and live loads, is less than 75 percent of that required by this code for new buildings of similar structure, purpose and location.

Reason (Part I): In the IEBC, lateral system upgrades are triggered where lateral system damage from any cause is classified as Substantial Structural Damage (SSD). The idea of repair-based upgrade triggers is well within the scope and intent of the code, as long as the triggers are not pulled too easily.

This proposal redefines SSD to help assure reasonable lateral upgrade triggers. While the proposed “33 percent” is no more and no less arbitrary than the current “20 percent” – that is, neither figure is based on theory, or analysis, or historic performance – it is felt that the proposed higher threshold is appropriate. Conceptually, the 33 percent value means that the loss of less than half of one wall line at a single story – potentially a 25 percent capacity reduction in the critical direction – would no longer be enough to trigger a full lateral assessment.

This proposal is made in coordination with a similar proposal for the IBC.

Reason (Part II): In the 2009 IBC, for the first time, lateral system upgrades are triggered where lateral system damage from any cause is classified as Substantial Structural Damage (SSD). Similar triggers have been in the IEBC for several code cycles. The idea of repair-based upgrade triggers is well within the scope and intent of both codes, as long as the triggers are not pulled too easily.

This proposal redefines SSD to help assure reasonable lateral upgrade triggers. While the proposed “33 percent” is no more and no less arbitrary than the current “20 percent” – that is, neither figure is based on theory, or analysis, or historic performance – it is felt that the proposed higher threshold is appropriate. Conceptually, the 33 percent value means that the loss of less than half of one wall line at a single story – potentially a 25 percent capacity reduction in the critical direction – would no longer be enough to trigger a full lateral assessment.

A coordination change is being submitted for IEBC Chapter 2.

Cost Impact: The code change proposal will not increase the cost of construction.

PART I – IEBC

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

PART II – IBC GENERAL

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB17-CHPT 2-SUB STR DAMAGE.DOC

EB5–09/10

501.1, 1102.1, 1102.4, 1102.5

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

501.1 Scope. Repairs as described in Section 402 shall comply with the requirements of this chapter. Repairs to historic buildings ~~shall need only comply with this chapter, except as modified in Chapter 11.~~

1102.1 General. 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. 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.

~~**1102.4 Chapter 5 compliance.** Historic buildings undergoing repairs shall comply with all of the applicable requirements of Chapter 5, except as specifically permitted in this chapter.~~

~~**1102.5 1102.4 Replacement.** Replacement of existing or missing features using original materials shall be permitted. Partial replacement for repairs that match the original in configuration, height, and size shall be permitted. Such replacements shall not be required to meet the materials and methods requirements of Section 501.2.~~

~~**Exception:** Replacement glazing in hazardous locations shall comply with the safety glazing requirements of Chapter 24 of the *International Building Code*.~~

Replacement glazing in hazardous locations shall comply with the safety glazing requirements of Chapter 24 of the *International Building Code*.

Exception: Glass block walls, louvered windows, and jalousies repaired with like materials.

Reason: This is an editorial clarification. It will not change the scope or effect of the 2009 provisions. Currently, Chapters 5 and 11 refer to each other in a confusing way with respect to historic buildings. Sections 501.1 and 1102.4 both say that repairs shall be in accordance with Chapter 5 except as modified by Chapter 11, but the exceptions are not clearly stated and are thus difficult to decipher. Further, whenever Chapter 5 is revised, as it has been substantially in the 2006 and 2009 editions, Chapter 11 must be checked to see which of those revisions should apply to historic buildings.

This proposal offers a cleaner approach. It proposes a general exemption for historic buildings in Chapter 5 along with an explicit list of requirements in Chapter 11, without the need for reference back and forth between the chapters. Specifically, the proposal does the following:

- In 501.1, it sends the user to Chapter 11 for historic buildings.
- In 1102.4, it removes the circular reference back to Chapter 5.
- In 1102.5, it corrects (by deletion) the mistaken waiver of section 501.2. This waiver should be referencing 2009 section 502.2 because the provision in question was moved there with the 2009 edition; but the reference in 2009 1102.5 was not properly corrected. If the rest of this proposal is approved, this waiver is no longer needed.
- It restates all the Chapter 5 requirements for historic buildings in Chapter 11.

A study of 2009 Chapters 5 and 11 finds that the only provisions of Chapter 5 not already waived by Chapter 11 for repairs are the following:

- Per 2009 Sections 502.1 and 506.1, dangerous conditions must be eliminated. This requirement is already covered by Sections 1102.2 and 1106.2.
- Per 2009 Section 502.2, hazardous materials shall not be used for repair. This proposal restates the prohibition in Section 1102.1.
- Per 2009 Section 1102.5 and its exception, replacement glazing in hazardous locations must comply with IBC Chapter 24, but 2009 Section 502.3 makes an exception for "glass block walls, louvered windows, and jalousies repaired with like materials." This proposal brings the exception into section 1102.5, stating it in identical terms.

Thus, this proposal captures all the current requirements and exemptions for repairs of historic buildings and presents them more clearly.

Additional background. Examples of how the current provisions lead to confusion over scope and applicability for historic buildings: Section 1102.1 allows repairs with original or like materials and original methods of construction, but Section 502.2 requires materials for new construction, and Section 506.1 requires detailing as for new construction. Section 1102.5 waives Section 501.2 (mistakenly, see above) but does not explicitly mention related provisions in Sections 503 through 508. Section 1102.5 requires glazing in hazardous locations to comply with IBC Chapter 24, but it must do so through an exception to the exception in 502.3. Most significantly, Section 1102.1, regarding repairs, does not explicitly exempt the upgrades required by Section 506, but this is in conflict with the apparent intent of Sections 1102.2 and 1106.2.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB19-501.1.DOC

EB6–09/10

506.2.2, 506.2.2.1; IBC 3405.2 (IEBC [B] 304.2), 3405.2.1(IEBC [B] 304.2.1)

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE AS 2 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THE FIRE CODE COMMITTEE.

PART I – IEBC

Revise as follows:

506.2.2 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 in accordance with Section 506.2.2.1, and either repaired in accordance with Section 506.2.2.2 or repaired and rehabilitated in accordance with Section 506.2.2.3, depending on the results of the evaluation.

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.

506.2.2.1 Evaluation. The building shall be evaluated by a registered design professional, and the evaluation findings shall be submitted to the *code official*. The evaluation shall establish whether the damaged building, if repaired to its predamaged state, would comply with the provisions of the *International Building Code* for load combinations that include wind or earthquake effects, except that the seismic design criteria shall be the reduced IBC-level seismic forces specified in Section 101.5.4.2.

PART II – IBC GENERAL

Revise as follows:

3405.2 (IEBC [B] 304.2) 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 3405.2.1 through 3405.2.3.

Exceptions:

- 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.
- One- and two-family dwellings need not be evaluated or rehabilitated for load combinations that include earthquake effects.

3405.2.1 (IEBC [B] 304.2.1) Evaluation. The building shall be evaluated by a *registered design professional*, and the evaluation findings shall be submitted to the code official. The evaluation shall establish whether the damaged building, if repaired to its pre-damage state, would comply with the provisions of this code for wind and earthquake loads. ~~Evaluation for earthquake loads shall be required if the substantial structural damage was caused by or related to earthquake effects or if the building is in Seismic Design Category C, D, E, or F.~~

Wind loads for this evaluation shall be those prescribed in Section 1609. Earthquake loads for this evaluation, if required, shall be permitted to be 75 percent of those prescribed in Section 1613. Values of R , W_0 and C_d for the existing seismic force-resisting system shall be those specified by this code for an ordinary system unless it is demonstrated that the existing system will provide performance equivalent to that of an intermediate or special system.

Reason (Part I): The purpose of this proposal is to exempt certain combinations of buildings, seismic risk, and damage from triggered seismic upgrades. In general, seismic evaluation and possibly upgrade is triggered when damage to the lateral system, independent of cause, reaches the level defined as Substantial Structural Damage, regardless of occupancy, structure type, or seismic design category. NCSEA acknowledges that this broad applicability might be unnecessary to the general purpose of the code and could discourage or delay certain repairs by imposing the additional costs of seismic upgrade. Therefore, this proposal exempts two classes of buildings from seismic upgrades triggered by substantial structural repairs. Basic repair – that is, restoring the pre-damage condition – will still be required, and this proposal considers such repairs appropriate for the two classes in question:

- Buildings in areas of low or moderate seismicity, where the damage was caused by something other than earthquake. Where earthquakes are rare, it serves no significant public purposes to trigger seismic upgrades following damage caused by fire, collision, wind, etc.
- One- and two-family dwellings, where the public risk is especially low.

In section 506.2.2.1, the proposed language is intended to clarify, not change, the scope of the section. This proposal is made in coordination with a similar proposal for IBC Chapter 34.

Reason (Part II): The purpose of this proposal is to exempt certain combinations of buildings, seismic risk, and damage from triggered seismic upgrades. In general, seismic evaluation and possibly upgrade is triggered when damage to the lateral system, independent of cause, reaches the level defined as Substantial Structural Damage, regardless of occupancy, structure type, or seismic design category. NCSEA acknowledges that this broad applicability might be unnecessary to the general purpose of the code and could discourage or delay certain repairs by imposing the additional costs of seismic upgrade. Therefore, this proposal exempts two classes of buildings from seismic upgrades triggered by substantial structural repairs. Basic repair – that is, restoring the pre-damage condition – will still be required, and this proposal considers such repairs appropriate for the two classes in question:

- Buildings in areas of low or moderate seismicity, where the damage was caused by something other than earthquake. Where earthquakes are rare, it serves no significant public purposes to trigger seismic upgrades following damage caused by fire, collision, wind, etc.
- One- and two-family dwellings, where the public risk is especially low.

With Exception 1 added to 3405.2, the final sentence of the first paragraph of 3405.2.1 is no longer necessary. The current sentence in 3405.2.1 says seismic evaluation is necessary wherever the damage was caused by earthquake OR the building is in SDC C-F. That is, the current provision exempts buildings in SDC A-B if the damage was not caused by earthquake. Proposed Exception 1 merely adds SDC C to the exempted cases.

A coordinating proposal is being submitted for IEBC Chapter 5.

Cost Impact: The code change proposal will not increase the cost of construction.

PART I – IEBC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

PART II – IBC GENERAL

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB24-506.2.2.DOC

EB7-09/10

506.2.2.3

Proponent: Gary R. Searer, Wiss, Janney, Elstner Associates, Inc., representing self

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

506.2.2.3 Extent of repair for noncompliant buildings. If the evaluation does not establish that the building in its predamage condition complies with the provisions of Section 506.2.2.1, then the building shall be rehabilitated to comply with the provisions of this section. The wind load for the repair and rehabilitation shall be those 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 in accordance with the International Building Code. ~~The seismic loads for this rehabilitation design shall be those required by the building code in effect at the time of original construction, but not less than the reduced-level seismic forces specified in Section 101.5.4.2.~~ If the damage was caused by earthquake and the Instrumental Intensity of the earthquake at the site of the building as determined using data from the United States Geological Survey was VII or greater, the seismic design forces for the repair shall be those required by the building code in effect at the time of original construction. If the damage was not caused by earthquake or if the damage caused by an earthquake with an Instrumental Intensity of less than VII at the site of the building, the seismic design forces for the rehabilitation shall be those required by the building code in effect at the time of original construction, but not less than the reduced-level seismic forces specified in Section 101.5.4.2.

Reason: This change is intended to make seismic upgrades of the lateral force resisting system after a large earthquake logical. Suppose that a large, design-level earthquake (the "big one") occurs in a major city. On the basis even of today's IBC design criteria, it is reasonable to expect that large numbers of buildings will experience significant damage as a result of the earthquake, even to buildings that conform or nearly conform to current code. Yet despite these damaged buildings all performing within the expectation of the current code, the proposed upgrade triggers would require further potentially massive and costly upgrades beyond the repairs already needed, because the proposed upgrade triggers do not permit any consideration of the intensity of the earthquake shaking responsible for the damage. Why would any engineer conclude that a city full of buildings that went through a major earthquake but protected life safety should be seismically upgraded? Why would any community want to mandate those upgrades? Why should the federal government, insurance companies, building owners, or taxpayers pay for those upgrades? Regarding this scenario, in their study of upgrade triggers, SEAONC concluded, "Requirements to upgrade such a large stock of buildings could put an undue economic burden on the private sector and delay regional recovery."

What this proposal does:

This proposal requires seismic upgrades of existing structures if the damage was not the result of earthquake activity or if the damage was caused by earthquake but was disproportionate to the intensity of the earthquake (i.e. significant structural damage when the Instrumental Intensity of the earthquake at the site was less than VII, as measured by the United States Geological Survey).

If an earthquake had a moderate or heavy damage potential at a particular site (Instrumental Intensity of VII or greater) and a structure at that site experienced substantial structural damage, this would not necessarily be unexpected even for a new building and seismic upgrade of the whole building to current code (or close to current code) would generally not be warranted. If, on the other hand, the Instrumental Intensity of say V or VI (very light or light potential damage) and significant structural damage occurred, then the structure may be overly susceptible to earthquake damage and strengthening is arguably prudent.

For copies of articles dealing with the problems with the "substantial structural damage" trigger, please email me at gsearer@wje.com.

Bibliography:

"Evaluation of the Effects of Oakland's Earthquake Damage Repair Ordinance" by Gary R. Searer, Terrence F. Paret, Sigmund A. Freeman, and Una M. Gilmartin, 8th US Conference on Earthquake Engineering, San Francisco, April 2006.

Handbook to the Uniform Building Code: An Illustrative Commentary, International Conference of Building Officials (ICBO), 1998, Whittier, CA.

"Repair of Existing Structures and the International Existing Building Code" by Gary R. Searer and Terrence F. Paret, 8th US Conference on Earthquake Engineering, San Francisco, April 2006.

"Repercussions of the International Existing Building Code on the Repair of Existing Structures" by Terrence F. Paret and Gary R. Searer, ASCE Structures Congress, Forensics Congress, April 2005.

"SEAONC's SFBC Structural Damage Repair Study Group Report and Recommendations" by the Structural Engineers Association of Northern California (SEAONC), April 3, 2008.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: SEARER-EB1-506.2.2.3.DOC

EB8–09/10

506.2.3.1; IBC 3405.3.1 (IEBC [B] 304.3.1)

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE AS 2 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THE FIRE CODE COMMITTEE.

PART I – IEBC

Revise as follows:

506.2.3.1 Lateral force-resisting elements. Regardless of the level of damage to gravity elements of the lateral force-resisting system, if substantial structural damage to gravity load-carrying components was caused primarily by wind or seismic effects, then the building shall be evaluated in accordance with Section 506.2.2.1 and, if noncompliant, rehabilitated in accordance with Section 506.2.2.3.

Exception: One- and two-family dwellings need not be evaluated or rehabilitated for load combinations that include earthquake effects.

PART II – IBC GENERAL

Revise as follows:

3405.3.1 (IEBC [B] 304.3.1) 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 3405.2.1 and, if noncompliant, rehabilitated in accordance with Section 3405.2.3.

Exception: One- and two-family dwellings need not be evaluated or rehabilitated for load combinations that include earthquake effects.

Reason: The purpose of this proposal is to exempt certain buildings from triggered seismic upgrades. In general, seismic evaluation and possibly upgrade is triggered when damage to the lateral system, independent of cause, reaches the level defined as Substantial Structural Damage, regardless of occupancy, structure type, or seismic design category. NCSEA acknowledges that this broad applicability might be unnecessary to the general purpose of the code and could discourage or delay certain repairs by imposing the additional costs of seismic upgrade.

Therefore, this proposal exempts 1- and 2-family dwellings, where the risk to the public of poor earthquake performance is especially low.

Basic repair – that is, restoring the pre-damage condition – will still be required, and this proposal considers such repairs appropriate for the buildings in question.

Cost Impact: The code change proposal will not increase the cost of construction.

PART I – IEBC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

PART II – IBC GENERAL

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB30-506.2.3.1.DOC

EB9–09/10

506.2.3.1; IBC 3405.3.1 (IEBC [B] 304.3.1)

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IBC STRUCTURAL CODE COMMITTEE AS 2 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THE FIRE CODE COMMITTEE.

PART I – IEBC

Revise as follows:

506.2.3.1 Lateral force-resisting elements. Regardless of the level of damage to gravity elements of the lateral force-resisting system, if *substantial structural damage* to gravity load-carrying components was caused primarily by wind or seismic effects, then the building shall be evaluated in accordance with Section 506.2.2.1 and, if noncompliant, rehabilitated in accordance with Section 506.2.2.3.

Exception: 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.

PART II – IBC GENERAL

Revise as follows:

3405.3.1 (IEBC [B] 304.3.1) 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 3405.2.1 and, if noncompliant, rehabilitated in accordance with Section 3405.2.3.

Exception: 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.

Reason: The purpose of this proposal is to exempt certain buildings from triggered seismic upgrades. In general, seismic evaluation and possibly upgrade is triggered when damage to the lateral system, independent of cause, reaches the level defined as Substantial Structural Damage, regardless of occupancy, structure type, or seismic design category. NCSEA acknowledges that this broad applicability might be unnecessary to the general purpose of the code and could discourage or delay certain repairs by imposing the additional costs of seismic upgrade. Therefore, this proposal exempts buildings in areas of low or moderate seismicity, where the damage was caused by something other than earthquake. Where earthquakes are rare, it serves no significant public purposes to trigger seismic upgrades following damage caused by fire, collision, wind, etc.

Basic repair – that is, restoring the pre-damage condition – will still be required, and this proposal considers such repairs appropriate for the buildings in question.

Cost Impact: The code change proposal will not increase the cost of construction.

PART I – IEBC

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

PART II – IBC GENERAL

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB31-506.2.3.1-2.DOC

EB10–09/10

IEBC 605.1, 705.2, 706.1, 805.4 (New), 805.4.1 (New), 912.4.1, 912.4.2, 912.8.2, 1004.1(New), 1005.1, 1103.3, 1105.6; IBC 3411.4, 3411.4.1, 3411.4.2, 3411.5, 3411.6, 3411.8(New), 3411.8.1(New), 3411.9; (IEBC [B] 310.4, 310.4.1, 310.4.2, 310.5, 310.6, 310.8(New), 310.8.1 (New), 310.9), 1007.1 (IFC [B] 1007.1)

Proponent: Gene Boecker, Code Consultants, Inc.

THIS IS A 3 PART CODE CHANGE. ALL 3 PARTS WILL BE HEARD BY THE INTERNATIONAL EXISTING BUILDING COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THIS COMMITTEE.

PART I – IEBC

CHAPTER 5 REPAIRS

SECTION 504 MEANS OF EGRESS

504.1 General. Repairs shall be done in a manner that maintains the level of protection provided for the means of egress.

SECTION 505 ACCESSIBILITY

505.1 General. Repairs shall be done in a manner that maintains the level of accessibility provided.

CHAPTER 6 ALTERATIONS—LEVEL 1

SECTION 604 MEANS OF EGRESS

604.1 General. Repairs shall be done in a manner that maintains the level of protection provided for the means of egress.

SECTION 605 ACCESSIBILITY

605.1 General. A building, facility or element that is altered shall comply with the applicable provisions in Sections 605.1.1 through 605.1.14, Chapter 11 of the International Building Code and ICC A117.1 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 building, facility or element 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 605.2.
2. ~~Accessible means of egress required by Chapter 10 of the International Building Code are not required to be provided in existing buildings and facilities.~~ The altered element or space is not required to provide accessible means of egress, unless required by Section 805.4.
3. 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.
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 and shall comply with the applicable provisions in Chapter 11 of the *International Building Code* and ICC A117.1.

605.2 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 or 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 an existing building, facility or element.

**CHAPTER 7
ALTERATIONS—LEVEL 2**

**SECTION 705
MEANS OF EGRESS**

705.1 Scope. 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.

705.2 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 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.
3. The altered element or space is not required to provide accessible means of egress, unless required by Section 805.4.

705.3 Number of exits. The number of exits shall be in accordance with Sections 705.3.1 through 705.3.3.

705.3.1 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 comply with Sections 705.3.1.1 and 705.3.1.2.

**SECTION 706
ACCESSIBILITY**

706.1 General. A building, facility, or element that is altered shall comply with Section 605 and 706.

706.2 Stairs and escalators in existing buildings. In alterations where an escalator or stair 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*.

706.3 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 and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of spaces being added.

706.4 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.

706.5 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 the spaces being added.

CHAPTER 8 ALTERATIONS—LEVEL 3

SECTION 805 MEANS OF EGRESS

805.1 General. The means of egress shall comply with the requirements of Section 705 except as specifically required in Sections 805.2 and 805.3.

805.2 Means-of-egress lighting. Means of egress from the highest work area floor to the floor of exit discharge shall be provided with artificial lighting within the exit enclosure in accordance with the requirements of the *International Building Code*.

805.3 Exit signs. Means of egress from the highest work area floor to the floor of exit discharge shall be provided with exit signs in accordance with the requirements of the *International Building Code*.

805.4 Accessible means of egress. Additions and buildings or portions thereof undergoing a change of occupancy or alterations shall provide accessible means of egress in accordance with Section 805.4.1 and Section 1007 of the *International Building Code*.

Exceptions:

1. Accessible means of egress is not required in existing buildings where the alterations are less than Level 3.
2. Accessible means of egress is not required in existing building undergoing a change of occupancy where the change or occupancy is in conjunction with alterations that are less than Level 3.

805.4.1 Means of egress through the existing building. Where the accessible means of egress from any portion of a building being altered, undergoing a change of occupancy or addition requires occupants to egress through portions of the existing building, compliance with Section 1007 of the *International Building Code* is required, unless technically infeasible. Where compliance with this provision is *technically infeasible*, the accessible means of egress through the existing building shall provide access to the maximum extent technically feasible.

SECTION 806 ACCESSIBILITY

806.1 General. A building, facility or element that is altered shall comply with Sections 605 and 706.

CHAPTER 9 CHANGE OF OCCUPANCY

SECTION 905 MEANS OF EGRESS

905.1 General. Means of egress in portions of buildings undergoing a change of occupancy classification shall comply with Section 912.

SECTION 906 ACCESSIBILITY

906.1 General. Accessibility in portions of buildings undergoing a change of occupancy classification shall comply with Section 912.8.

SECTION 912 CHANGE OF OCCUPANCY CLASSIFICATION

912.4 Means of egress, general. Hazard categories in regard to life safety and means of egress shall be in accordance with Table 912.4.

**TABLE 912.4
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
4	B, F-1, R-3, S-1
5 (Lowest Hazard)	F-2, S-2, U

912.4.1 Means of egress for change to higher hazard category. When a change of occupancy classification is made to a higher hazard category (lower number) as shown in Table 912.4, the means of egress shall comply with the requirements of Chapter 10 of the *International Building Code*.

Exceptions:

1. Stairways shall be enclosed in compliance with the applicable provisions of Section 803.1.
2. Existing stairways including handrails and guards complying with the requirements of Chapter 8 shall be permitted for continued use subject to approval of the code official.
3. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
4. Existing corridor walls constructed of wood lath and plaster in good condition or 1/2-inch-thick (12.7 mm) gypsum wallboard shall be permitted. Such walls shall either terminate at the underside of a ceiling of equivalent construction or extend to the underside of the floor or roof next above.
5. Existing corridor doorways, transoms and other corridor openings shall comply with the requirements in Sections 705.5.1, 705.5.2 and 705.5.3.
6. Existing dead-end corridors shall comply with the requirements in Section 705.6.
7. An existing operable window with clear opening area no less than 4 square feet (0.38 m²) and minimum opening height and width of 22 inches (559 mm) and 20 inches (508 mm), respectively, shall be accepted as an emergency escape and rescue opening.
8. Accessible means of egress is not required for areas undergoing a change of occupancy unless required by Section 805.4.

912.4.2 Means of egress for change of use to equal or lower hazard category. When a change of occupancy classification is made to an equal or lesser hazard category (higher number) as shown in Table 912.4, existing elements of the means of egress shall comply with the requirements of Section 805 for the new occupancy classification. Newly constructed or configured means of egress shall comply with the requirements of Chapter 10 of the *International Building Code*.

Exceptions:

1. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
2. Accessible means of egress is not required for areas undergoing a change of occupancy unless required by Section 805.4.

912.4.3 Egress capacity. Egress capacity shall meet or exceed the occupant load as specified in the *International Building Code* for the new occupancy.

912.4.4 Handrails. Existing stairways shall comply with the handrail requirements of Section 705.9 in the area of the change of occupancy classification.

912.4.5 Guards. Existing guards shall comply with the requirements in Section 705.10 in the area of the change of occupancy classification.

912.8 Accessibility. Existing buildings that undergo a change of group or occupancy classification shall comply with this section.

912.8.1 Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification, any alterations shall comply with Sections 605 and 706, as applicable.

912.8.2 Complete change of occupancy. Where an entire building undergoes a change of occupancy, it shall comply with Section 912.8.1 and shall have all of the following accessible features unless technically infeasible. Where compliance with this provision is technically infeasible, provide access to the maximum extent technically feasible.

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 1110 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.

CHAPTER 10 ADDITIONS

SECTION 1004 MEANS OF EGRESS

1004.1 General. The means of egress shall comply with the requirements of Chapter 10 of the *International Building Code*.

Exception: Accessible means of egress is not required for additions unless required by Section 805.4.

SECTION 1005 ACCESSIBILITY

1005.1 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 605, and 706 and 806, as applicable.

CHAPTER 11 HISTORIC BUILDINGS

SECTION 1103 FIRE SAFETY

1103.1 Scope. Historic buildings undergoing alterations, changes of occupancy, or that are moved shall comply with Section 1103.

1103.2 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.

1103.3 Means of egress. Existing door openings and corridor and stairway widths less than those specified elsewhere in this code may be approved, provided that, in the opinion of the code official, there is sufficient width and height for a person to pass through the opening or traverse the means of egress. When approved by the code official, the front or main exit doors need not swing in the direction of the path of exit travel, provided that other approved means of egress having sufficient capacity to serve the total occupant load are provided.

Exception: Accessible means of egress are not required in historic buildings being altered or undergoing a change of occupancy.

SECTION 1104 ALTERATIONS

1104.1 Accessibility requirements. The provisions of 605 and 706, as applicable, shall apply to buildings and facilities designated as historic structures that undergo alterations, unless technically infeasible. Where compliance with the requirements for accessible routes, entrances or toilet facilities would threaten or destroy the historic significance of the building or facility, as determined by the code official, the alternative requirements of Sections 1104.1.1 through 1104.1.4 for that element shall be permitted.

1104.1.1 Site arrival points. At least one main entrance shall be accessible.

1104.1.2 Multilevel buildings and facilities. An accessible route from an accessible entrance to public spaces on the level of the accessible entrance shall be provided.

1104.1.3 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.

1104.1.4 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.

SECTION 1105 CHANGE OF OCCUPANCY

1105.6 Means of egress. Existing door openings and corridor and stairway widths less than those that would be acceptable for nonhistoric buildings under these provisions shall be approved, provided that, in the opinion of the code official, there is sufficient width and height for a person to pass through the opening or traverse the exit and that the capacity of the exit system is adequate for the occupant load, or where other operational controls to limit occupancy are approved by the code official.

Exception: Accessible means of egress are not required in historic buildings undergoing a change of occupancy.

1105.15 Accessibility requirements. The provisions of Section 912.8 shall apply to buildings and 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 facilities would threaten or destroy the historic significance of the building or facility, as determined by the authority having jurisdiction, the alternative requirements of Sections 1104.1.1 through 1104.1.5 for those elements shall be permitted.

PART II – IBC GENERAL

3411.4 (IEBC [B] 310.4) Change of occupancy. Existing buildings that undergo a change of group or occupancy shall comply with this section. Accessible means of egress shall be provided in accordance with Section 3411.8.

3411.4.1 (IEBC [B] 310.4.1) Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification, any alterations shall comply with Sections 3411.6, 3411.7, ~~and~~ 3411.8 and 3411.9.

3411.4.2 (IEBC [B] 310.4.2) Complete change of occupancy. Where an entire building undergoes a change of occupancy, it shall comply with Section 3411.4.1 and shall have all the following accessible features unless technically infeasible. Where compliance with this provision is technically infeasible, provide access to the maximum extent technically feasible.

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 1110.
4. Accessible parking, where parking is provided.
5. At least one accessible passenger loading zone, when loading zones are provided.
6. At least on accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.

3411.5 (IEBC [B] 310.5) 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 3411.7 and 3411.8.

3411.6 (IEBC [B] 310.6) Alterations. A building, facility or element that is altered shall comply with the applicable provisions in Section 1007, Chapter 11 of this code and ICC A117.1, 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 3411.7.
2. Accessible means of egress required by Chapter 10 are not required to be provided in existing buildings and facilities being altered unless required by Section 3411.8.
3. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall meet the provision for a Type B dwelling unit and shall comply with the applicable provisions in Chapter 11 and ICC A117.1.

3411.7 (IEBC [B] 310.7) 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 or 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 an existing building, facility or element.

3411.8 (IEBC [B] 310.8) Accessible means of egress. Additions and buildings or portions thereof undergoing a change of occupancy or alterations shall provide accessible means of egress in accordance with Sections 1007 and 3411.8.1.

Exceptions:

1. Accessible means of egress is not required in existing buildings where the alterations are less than 50 percent of the aggregate building area.
2. Accessible means of egress is not required in existing building undergoing a change of occupancy where the change or occupancy is in conjunction with alterations that are less than 50 percent of the aggregate building area.

3411.8.1 (IEBC [B] 310.8.1) Means of egress through the existing building. Where the accessible means of egress from any portion of a building being altered, undergoing a change of occupancy or addition requires occupants to egress through portions of the existing building, compliance with Section 1007 is required, unless technically infeasible. Where compliance with this provision is technically infeasible, the accessible means of egress through the existing building shall provide access to the maximum extent technically feasible.

(Renumber subsequent sections)

3411.9 3411.10 (IEBC [B] 310.9 310.10) Historic buildings. These provisions shall apply to buildings and 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 facilities would threaten or destroy the historic significance of the building or facility, as determined by the applicable governing authority, the alternative requirements of Sections 3411.9.4 3411.10.1 through 3411.9.4 3411.10.4 for that element shall be permitted.

Exception: Accessible means of egress are not required in historic buildings being altered or undergoing a change of occupancy.

(Renumber subsequent sections)

PART III – IBC MEANS OF EGRESS

Revise as follows:

1007.1 (IFC [B] 1007.1) 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 is required by Section 1015.1 or 1021.1 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 in alterations to~~ for existing buildings shall be provided as required in Section 3411.8.
2. One accessible means of egress is required from an accessible mezzanine level in accordance with Section 1007.3, 1007.4 or 1007.5.
3. In assembly areas with sloped or stepped aisles, one accessible means of egress is permitted where the common path of travel is accessible and meets the requirements in Section 1028.8.

Reason: The interplay between an existing building and additions or alterations is not well defined. While the text is clear that the addition is required to meet the accessibility provisions it is not clear how the addition will impact the accessibility requirements for the existing building. Similarly, although the statement exists that alterations do not require a retroactive requirement for accessible means of egress, this statement negates the scope of the alteration. Federal Accessibility regulations and common sense dictate that where major changes occur consideration for the accessible means of egress should also occur. Additionally, the simple idea that accessibility should be intentionally denied to a segment of the population does not seem appropriate. The proposal seeks to finesse some of these issues.

It is important to remember that the requirements in the IBC only require a maximum of two accessible means of egress (based on travel distance limitations) as noted in Section 1007.1. And, an elevator can be counted as being one of the accessible means of egress. Thus, it may be easier in some cases to provide an accessible means of egress than one that fully complies with the requirements for new construction.

Some sections shown do not contain changes, but were shown for context and appropriate referencing.

IEBC:

In addition to the items noted above which relate to only Chapter 3, specific direction is provided for each condition as elaborated in the various chapters of the IEBC. Chapter 3 of the IEBC parallels Chapter 34 in the IBC. However, the IEBC also contains provisions that are more in depth than the prescriptive methods described.

The existing language is maintained that requires repairs to not reduce the level of current accessibility; but there is no additional requirement for accessibility in Chapter 5.

605.1, exception #2: Rather than refer to the IBC, specific provisions are being added to the IEBC. The wording is changed to reflect that.

705.2, exception #3: Similar to 605.1, reference to the accessible means of egress is added to allow the code user to understand where the scope of changes will require work in this area. Without this exception, it is unclear whether the reference to making the means of egress comply is intended to include the accessible means of egress as well as other aspects of egress design.

706.1: A reflective reference is added which was lacking. Compliance with another section was mandated but not the section itself.

805.4: The language and intent is the same as noted above for IEBC Section 310.8 and its two exceptions. The exceptions in this case use the language of the IEBC which define the level of work in more definitive terms – using Levels to describe the threshold rather than percentages of work.

805.4.1: This language is replicating that noted above from Section 310.8.1 relative to egress through an existing building.

912.4.1, exception #8: The added exception continues the scoping by including with the Change of Occupancy Chapter a reference back to the main section addressing when accessible means of egress must be provided – 805.4.

912.4.2, exception #2: A new exception is added to this section so that it is clear that whether the change in occupancy is to a higher category or lower category, the requirement to provide accessible means of egress is found in Section 805.4.

912.8.2: This added language does not address accessible means of egress. It addresses the consistent recognition of technical infeasibility. The language informs the code user of this application as it relates to changes in occupancy.

1004.1: Chapter 10 (Additions) does not address means of egress specifically. A reference to compliance with the means of egress provisions in Chapter 10 of the IBC is included. This is consistent with the first sentence in Section 302.1. The added language is inserted before the accessibility section in like manner to other chapters.

1004.1, exception: The exception is consistent with the other changes noted above that refer to Section 805.4 for the thresholds for compliance with the accessible means of egress requirements.

1005.1: Reference is currently provided to the sections relative to accessibility in Chapter 6 and 7 but not 8. The proposal corrects that.

1105.6: Similar to the language in 3411.10 in the IBC, this clearly indicates that accessible means of egress is not required for historic buildings.

IBC/IEBC:

1007.1: The section is changed to indicate that existing building provisions are noted in Chapter 34. This is the proper scoping location for issues dealing with existing buildings – not Chapter 10.

3411.4/310.4: A cross reference is added to direct the code user to the central location for issues relative to existing buildings and accessible means of egress; the proposed 3411.8.

3411.4.2/310.4.2: The paragraph following the text already mentions what happens when the effort is “technically infeasible” but there is no language that states that these items are limited to conditions where technical infeasibility is not a problem. The added language clarifies the intent with respect to technical infeasibility.

3411.5/310.5: A cross reference to the section addressing accessible means of egress is added.

3411.6/310.6: Where accessible means of egress are required, it is necessary to direct the code user to the proper section. The reference to 1007 does that.

3411.6/310.6, exception #2:The exception seems to imply that nothing is required for the existing building relative to accessible means of egress. However, since the addition is impacting the existing building, the egress through the existing building is more similar to an alteration of the existing egress system. The revised text points to the central section addressing what must be done.

3411.8/310.8: A new section is added to specifically address the accessible means of egress. Rather than the blanket statement in Section 1007.1 of the building code, this section will address the scope and extent of work necessary to address accessible means of egress. It directs the code user to Section 1007 for the technical requirements when an accessible means of egress is necessary as well as clearly delineate that when a change of occupancy or alteration occurs, the accessible means of egress must be provided. This is no different than the general requirements in 3404.1/303.1 and 3408.1/307.1 which require alterations and changes in occupancy to meet "new code."

3411.8/310.8, exception #1: Alterations with some magnitude should address accessible means of egress, if the alteration is relatively small then there is reason to limit the requirement. The threshold of 50% of the building area is intended to delineate the difference between IEBC Alterations – Level 2 and Alterations – Level 3

3411.8/310.8, exception #2: Similarly, if the change in occupancy is only to a portion of the building, full compliance with the accessible means of egress is not required. The position should be that if the occupancy is totally changed then the building should be made to comply with the new requirements. For "regular" egress this may mean that the occupant load changes resulting in wider or additional stairways. The least that should be done is to make an effort to provide accessible means of egress.

3411.8.1/310.8.1: If an addition is designed such that the means of egress must enter the existing building then the egress design must meet the requirements for the addition as it passes through the existing building. As this relates to egress design, it includes a continuation of the design in the addition for egress width, corridor protection, panic hardware (as applicable) and similar concerns. The same should be true for the design of the accessible means of egress. If one of the accessible egress paths leads through the existing building, it too needs to meet/continue the level of protection as designed in the addition. The limitation to this is if the effort to make the existing means of egress accessible is "technically infeasible" then work should be done to what is possible. One example of this may be making sure that the slopes along the path in the existing building's corridor are proper even if the width cannot be altered to allow the proper approach to the exit door.

3411.10: The language requires compliance with the accessible means of egress as written with the only defense being the "technically infeasible" option. The exception makes it clear that for historic buildings undergoing major alterations of a change in occupancy an accessible means of egress is not required.

A companion change is being proposed for the IEBC so that the changes here are reflected in that code as well.

While more can always be done if possible, the code identifies the minimums necessary for life safety. The proposed changes identify what is appropriate so that the disabled community has similar levels of life safety to the general public and still sets reasonable thresholds based on the extent of work for the project. The standard of "technical Infeasible" is identified clearly in new sections where it may have been interpreted previously as not applying. The "20% of the cost" criteria identified in 3411.7, exception #1 of the IBC (605.2, exception #1 of the IEBC) relative to alterations affecting the primary function is also maintained.

Cost Impact: The code change proposal will increase the cost of construction.

PART I – IEBC

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

PART II – IBC GENERAL

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

PART III – IBC MEANS OF EGRESS

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BOECKER-E5-1007.1

EB11–09/10

IEBC 605.1, 605.1.10 (New), 706.1, 912.8, 1005.1, 1005.2 (New); IBC 3411.1, 3411.4, 3411.5, 3411.6, 3411.7 (New), 3411.8, 3411.8.9 (IEBC [B] 310.1, 310.4, 310.5, 310.6, 310.7(New), 310.8, 310.8.9)

Proponent: Cheryl Kent, U. S. Department of Housing and Urban Development

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

PART I – IEBC

Revise as follows:

CHAPTER 6 ALTERATIONS—LEVEL 1

SECTION 605 ACCESSIBILITY

605.1 General. A building, facility or element that is altered shall comply with the applicable provisions in Sections 605.1.1 through ~~605.1.14~~ 605.1.15, Chapter 11 of the *International Building Code* and ICC A117.1 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 building, facility or element 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 605.1.10 or 605.2.
2. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing buildings and 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 buildings and facilities.~~
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 and shall comply with the applicable provisions in Chapter 11 of the *International Building Code* and ICC A117.1.

605.1.8 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 and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being altered.

605.1.9 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.

605.1.10 Alterations in Group I and R, and in structures, facilities, or elements serving Groups I or R. Where four or more dwelling units or sleeping units intended to be occupied as a residence in Group I-1, I-2, and R occupancies are altered, the unit that is altered shall comply with the applicable provisions of Section 1107 of the *International Building Code* for Type B units. Additionally, where common use structures, facilities, or elements serving Type B units in Groups I-1, I-2, I-3 and R occupancies are altered, the altered structures, facilities, or elements shall comply with Section 1107 of the *International Building Code*.

Exceptions:

1. Structures built for first occupancy before March 13, 1991 are not required to provide Type B units.
2. Type B units are not required to be provided where Type B dwelling units and sleeping units were not required at the time of first occupancy in structures designed and constructed after March 13, 1991.

3. Structures that are not required to provide Type B dwelling units and structures not serving Type B dwelling units in accordance with Section 1107 of the *International Building Code* shall comply with Section 605.1.9 and 605.1.10.
4. Alterations limited to one individually owned dwelling unit or sleeping unit are not required to comply with this section.

(Renumber subsequent sections)

CHAPTER 7 ALTERATIONS—LEVEL 2

SECTION 706 ACCESSIBILITY

706.1 General. A building, facility, or element that is altered shall comply with this section and Section 605.

706.3 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 and Chapter 9 of the International Building Code for visible alarms apply only to the quantity of spaces being added.

706.4 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.

706.5 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 the spaces being added.

CHAPTER 8 ALTERATIONS—LEVEL 3

SECTION 806 ACCESSIBILITY

806.1 General. A building, facility or element that is altered shall comply with Sections 605 and 706.

CHAPTER 9 CHANGE OF OCCUPANCY

SECTION 906 ACCESSIBILITY

906.1 General. Accessibility in portions of buildings undergoing a *change of occupancy* classification shall comply with Section 912.8.

912.8 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.

912.8.1 Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification, any alterations shall comply with Sections 605 and 706, as applicable.

912.8.2 Complete change of occupancy. Where an entire building undergoes a change of occupancy, it shall comply with Section 912.8.1 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 1110 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.

CHAPTER 10 ADDITIONS

SECTION 1005 ACCESSIBILITY

1005.1 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 this section and Sections 605 and 706, as applicable.

1005.2 Type B dwelling units or sleeping units. Where Group I-1, I-2, or R dwelling units or sleeping units are being added, the requirements of Section 1107 of the *International Building Code* for Type B dwelling units or sleeping units and Section 907 of the *International Building Code* for visible alarms apply only to the quantity of spaces being added.

PART II – IBC GENERAL

Revise as follows:

SECTION 3411 (IEBC [B] 310) ACCESSIBILITY FOR EXISTING BUILDINGS

3411.1 (IEBC [B] 310.1) Scope. The provisions of Sections 3411.1 through ~~3411.9~~ 3411.10 apply to maintenance, change of occupancy, additions and alterations to existing buildings, including those identified as *historic buildings*.

~~**Exception:** Type B *dwelling* or sleeping units required by Section 1107 of this code are not required to be provided in existing buildings and facilities being altered or undergoing a change of occupancy.~~

3411.4 (IEBC [B] 310.4) 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 this code are not required to be provided in existing buildings and facilities undergoing a change of occupancy.

3411.4.1 (IEBC [B] 310.4.1) Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification, any alterations shall comply with Sections 3411.6, ~~3411.7~~ 3411.8 and ~~3411.8~~ 3411.9.

3411.4.2 (IEBC [B] 310.4.2) Complete change of occupancy. Where an entire building undergoes a change of occupancy, it shall comply with Section 3411.4.1 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 1110.
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.

3411.5 (IEBC [B] 310.5) 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 ~~3411.7~~ 3411.8.

Exception: Where Group I-1, I-2, or R dwelling units or sleeping units are being added, the requirements of Section 1107 for Type B dwelling units or sleeping units and Section 907 for visible alarms shall apply where the quantity of units being added is four or more.

3411.6 (IEBC [B] 310.6) Alterations. A building, facility or element that is altered shall comply with the applicable provisions in Chapter 11 of this code and ICC A117.1, 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 ~~3411.7~~ 3411.8.
2. Accessible means of egress required by Chapter 10 are not required to be provided in existing buildings and facilities.
3. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall meet the provision for a Type B dwelling unit and shall comply with the applicable provisions in Chapter 11 and ICC A117.1.

3411.7 (IEBC 310.7) Alterations in Group I-1, I-2 and R, and in structures, facilities, or elements serving Groups I or R. Where four or more dwelling units or sleeping units intended to be occupied as a residence in Group I-1, I-2 and R occupancies are altered the altered units shall comply with the applicable provisions of Section 1107 for Type B units. Additionally, where common use structures, facilities, or elements serving Type B units in Groups I-1, I-2 and R occupancies are altered, the altered structures, facilities or element shall comply with Section 1107.

Exceptions:

1. Structures built for first occupancy before March 13, 1991 are not required to provide Type B units.
2. Type B units are not required to be provided where Type B dwelling units and sleeping units were not required at the time of first occupancy in structures designed and constructed after March 13, 1991.
3. Structures that are not required to provide Type B dwelling units and structures not serving Type B dwelling units in accordance with Section 1107 shall comply with Section 3409.6.
4. Alterations limited to one individually owned dwelling unit or sleeping unit are not required to comply with this section.

~~3411.7~~ 3411.8 (IEBC [B] 340.7 310.8) Alterations affecting an area containing a primary function. *(No change to text)*

~~3411.8~~ 3411.9 (IEBC [B] 340.8 310.9) Scoping for alterations. The provisions of Sections ~~3411.8.4~~ 3411.9.1 through ~~3411.8.12~~ 3411.9.12 shall apply to alterations to existing buildings and facilities.

~~3411.8.7~~ 3411.9.7 (IEBC [B] 340.8.7 310.9.7) 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 or added, the requirements of Section 1107 for Accessible units apply only to the quantity of spaces being altered or added.

~~3411.8.8~~ 3411.9.8 (IEBC [B] 340.8.8 310.9.8) 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 for Type A units apply only to the quantity of the spaces being added.

~~3411.8.9~~ 3411.9.9 (IEBC [B] 340.8.9 310.9.9) 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 or added, the requirements Section 1107 for Type B units apply only to the quantity of the spaces being altered or added.

Reason: HUD continues to believe that it is in the public interest to ensure that buildings with 4 or more dwelling units that are covered by the Fair Housing Act's design and construction requirements (that is, were built for first occupancy after March 13, 1991) but were not built in compliance with those requirements, are in fact brought into compliance. However, rather than requiring the entire building to be brought into compliance, HUD is proposing to limit the scope of these proposed changes to only the portions of the building that are being altered. While the changes being proposed may not be sufficient for HUD to recognize Chapter 34 of the IBC and corresponding provisions in the IEBC as being consistent with the

design and construction requirements of the Fair Housing Act, we believe it will at least begin to incorporate Type B dwelling units and their related requirements into buildings that should have been built in compliance with the Fair Housing Act in the first place. It is our intention that the proposal apply only to buildings that were not built in compliance with the requirements of the Fair Housing Act and should have been built in compliance, therefore, this proposal would not apply to buildings built in compliance with those editions of the IBC that HUD has previously recognized as a safe harbor for compliance (i.e., the 2000 IBC as amended by the 2001 Supplement, the 2003 IBC and the 2006 IBC). If the code requires such buildings to come into compliance with the current edition of the code when altered, including accessibility requirements that may have changed from one edition to the next, we believe that is a standard code practice and that it should not be insurmountable with respect to accessibility any more than it is with respect to all other code matters.

Cost Impact: There will be a cost impact on buildings that were NOT built in compliance with the accessibility requirements of the Fair Housing Act, but should have been in compliance with the law, however, the cost impact will be mitigated by making the alterations to bring the building into compliance at the time those elements that are affected are altered, which will be considerably less expensive for owners of such buildings than bringing the building into compliance as a result of litigation.

PART I – IEBC

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

PART II – IBC GENERAL

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: KENT-EB1-605

The following code change (EB12) is withdrawn. The Code Correlation Committee has accepted this proposal as editorial.

EB12–09/10

IEBC 605.1, 605.1.1, 605.1.4, 605.1.14, 605.2, 1104.1, 1105.15; IBC 3402, 3411.2, 3411.3, 3411.6, 3411.7, 3411.8.1, 3411.8.5, 3411.9 (IEBC [B] 202, 310.2, 310.3, 310.6, 310.7, 310.8.1, 310.8.5, 310.9)

Proponent: Maureen Traxler, City of Seattle, WA, Seattle Dept of Planning & Development

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IEBC CODE COMMITTEE AS 2 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THE IEBC CODE COMMITTEE.

PART I – IEBC

**SECTION 605
ACCESSIBILITY**

605.1 General. A ~~building, facility or element~~ that is altered shall comply with the applicable provisions in Sections 605.1.1 through 605.1.14, Chapter 11 of the *International Building Code* and ICC A117.1 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 ~~building, facility or element~~ 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 605.2.
2. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing ~~buildings and 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 ~~buildings and facilities~~.
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 and shall comply with the applicable provisions in Chapter 11 of the *International Building Code* and ICC A117.1.

605.1.1 Entrances. Where an *alteration* includes alterations to an entrance, and the ~~building or facility~~ has an accessible entrance on an accessible route, the altered entrance is not required to be accessible unless required by Section 605.2. Signs complying with Section 1110 of the *International Building Code* shall be provided.

605.1.4 Ramps. Where steeper slopes than allowed by Section 1010.2 of the *International Building Code* are necessitated by space limitations, the slope of ramps in or providing access to existing ~~buildings or facilities~~ shall comply with Table 605.1.4.

605.1.14 Extent of application. An *alteration* of an existing ~~element, space, or area of a building or 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 ~~building, portion of a building, or facility~~ or portion of a facility.

605.2 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 or 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 ~~an existing building, a facility or element~~.

1104.1 Accessibility requirements. The provisions of 605 and 706, as applicable, shall apply to ~~buildings and facilities~~ designated as historic structures that undergo alterations, unless *technically infeasible*. Where compliance with the requirements for accessible routes, entrances or toilet facilities would threaten or destroy the historic significance of the building or facility, as determined by the *code official*, the alternative requirements of Sections 1104.1.1 through 1104.1.4 for that element shall be permitted.

1105.15 Accessibility requirements. The provisions of Section 912.8 shall apply to ~~buildings and 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 facilities would threaten or destroy the historic significance of the building or facility, as determined by the authority having jurisdiction, the alternative requirements of Sections 1104.1.1 through 1104.1.5 for those elements shall be permitted.

PART II – IBC GENERAL

Revise as follows:

SECTION 3402 (IEBC [B] 202) DEFINITIONS

TECHNICALLY INFEASIBLE. An *alteration* of a ~~building or a facility~~ that has little likelihood of being accomplished because the existing structural conditions require the removal or *alteration* of a load-bearing member that is an essential part of the structural frame, or because other existing physical or site constraints prohibit modification or addition of elements, spaces or features which are in full and strict compliance with the minimum requirements for new construction and which are necessary to provide accessibility.

3411.2 (IEBC [B] 310.2) Maintenance of facilities. A ~~building, facility or element~~ that is constructed or altered to be *accessible* shall be maintained *accessible* during occupancy.

3411.3 (IEBC [B] 310.3) Extent of application. An *alteration* of an existing ~~element, space or area of a building or 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 ~~building, portion of a building, or facility~~ or portion of a facility.

3411.6 (IEBC [B] 310.6) Alterations. A ~~building, facility or element~~ that is altered shall comply with the applicable provisions in Chapter 11 of this code and ICC A117.1, 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 3411.7.
2. *Accessible means of egress* required by Chapter 10 are not required to be provided in existing ~~buildings and facilities~~.
3. The *alteration* to Type A individually owned *dwelling* units within a Group R-2 occupancy shall meet the provision for a Type B *dwelling* unit and shall comply with the applicable provisions in Chapter 11 and ICC A117.1.

3411.7 (IEBC [B] 310.7) 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 or 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 ~~an existing building, a facility or element~~.

3411.8.1 (IEBC [B] 310.8.1) Entrances. *Accessible* entrances shall be provided in accordance with Section 1105.

Exception: Where an *alteration* includes alterations to an entrance, and the ~~building or facility~~ has an *accessible* entrance, the altered entrance is not required to be *accessible*, unless required by Section 3411.7. Signs complying with Section 1110 shall be provided.

3411.8.5 (IEBC [B] 310.8.5) Ramps. Where slopes steeper than allowed by Section 1010.2 are necessitated by space limitations, the slope of ramps in or providing access to existing ~~buildings or facilities~~ shall comply with Table 3411.8.5.

3411.9 (IEBC [B] 310.9) Historic buildings. These provisions shall apply to ~~buildings and 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 facilities would threaten or destroy the historic significance of the ~~building or facility~~, as determined by the applicable governing authority, the alternative requirements of Sections 3411.9.1 through 3411.9.4 for that element shall be permitted.

Reason: "Facility" is defined in Section 1102 broadly to include "all or any portion of buildings, structures, site improvements, elements and pedestrian or vehicular routes located on a site." In the above code provisions, the mention of buildings, elements, spaces and areas have been removed, as there is no need for the redundancy. There are other portions of Chapter 34 (such as 3412.5.1, 3412.5.2 and the definition of "Primary Function") which refer only to the broader term "facility" and this proposal keeps the use of the term consistent throughout the chapter.

Cost Impact: The code change proposal will not increase the cost of construction.

PART I – IEBC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

PART II – IBC GENERAL

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: TRAXLER-G8-3411.DOC

The following code change (EB13) is withdrawn. The Code Correlation Committee has accepted this proposal as editorial.

EB13–09/10

IEBC 605.1.10, 1104.1, 1105.15; 3411.8.11, 3411.9 (IEBC [B] 310.8.11, 310.9)

Proponent: Maureen Traxler, City of Seattle, WA, Seattle Dept of Planning & Development

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IEBC CODE COMMITTEE AS 2 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THE IEBC CODE COMMITTEE.

PART I – IEBC

605.1.10 Toilet rooms. Where it is *technically infeasible* to alter existing toilet and bathing ~~facilities~~ rooms to be accessible, an accessible family or assisted-use toilet or bathing ~~facility~~ room constructed in accordance with Section 1109.2.1 of the *International Building Code* is permitted. The family or assisted-use ~~facility~~ toilet or bathing room shall be located on the same floor and in the same area as the existing ~~facilities~~ toilet or bathing rooms.

1104.1 Accessibility requirements. The provisions of 605 and 706, as applicable, shall apply to buildings and facilities designated as historic structures that undergo alterations, unless *technically infeasible*. Where compliance with the requirements for accessible routes, entrances or toilet ~~facilities~~ rooms would threaten or destroy the historic significance of the building or facility, as determined by the *code official*, the alternative requirements of Sections 1104.1.1 through 1104.1.4 for that element shall be permitted.

1105.15 Accessibility requirements. The provisions of Section 912.8 shall apply to buildings and 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 ~~facilities~~ 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 1104.1.1 through 1104.1.5 for those elements shall be permitted.

PART II – IBC GENERAL

Revise as follows:

3411.8.11 (IEBC [B] 310.8.11) Toilet rooms. Where it is *technically infeasible* to alter existing toilet and bathing ~~facilities~~ rooms to be *accessible*, an *accessible* family or assisted-use toilet or bathing ~~facility~~ room constructed in accordance with Section 1109.2.1 is permitted. The family or assisted-use ~~facility~~ toilet or bathing room shall be located on the same floor and in the same area as the existing ~~facilities~~ toilet or bathing rooms.

3411.9 (IEBC [B] 310.9) Historic buildings. These provisions shall apply to buildings and 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 ~~facilities~~ rooms would threaten or destroy the historic significance of the building or facility, as determined by the applicable governing authority, the alternative requirements of Sections 3411.9.1 through 3411.9.4 for that element shall be permitted.

Reason: The use of the term “facility” or “facilities” as used in this section is ambiguous. “Facility” is defined in Section 1102 broadly to include “all or any portion of buildings, structures, site improvements, elements and pedestrian or vehicular routes located on a site.” Replacing the term “facility” or “facilities” with a more meaningful term, such as “room” or “rooms,” removes the ambiguity and is consistent with the terminology used in Section 1109.

Cost Impact: The code change proposal will not increase the cost of construction.

PART I – IEBC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

PART II – IBC GENERAL

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: TRAXLER-G9-3411.DOC

EB14–09/10

IEBC 605.1, 605.2, 706.1, 806.1, 806.2, 912.8, 912.8.2, 1005.1, 1104.1, 1105.15; IBC 3411.1, 3411.4, 3411.4.2, 3411.6, 3411.7, 3411.8.8, 3411.8.9, 3411.9, 3412.2.5 (IEBC [B] 310.1, 310.4, 310.4.2, 310.6, 310.7, 310.8.8, 310.8.9, 310.9, 1301.2.5)

Proponent: Dominic Marinelli, United Spinal Association

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

PART I – IEBC

Revise as follows:

CHAPTER 6 ALTERATIONS—LEVEL 1

SECTION 605 ACCESSIBILITY

605.1 General. A building, facility or element that is altered shall comply with the applicable provisions in Sections 605.1.1 through 605.1.14, Chapter 11 of the International Building Code and ICC A117.1 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 building, facility or element 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 605.2.
2. Accessible means of egress required by Chapter 10 of the International Building Code are not required to be provided in existing buildings and 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 buildings and facilities undergoing less than a Level III 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 and shall comply with the applicable provisions in Chapter 11 of the International Building Code and ICC A117.1.

605.1.8 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 and Chapter 9 of the International Building Code for visible alarms apply only to the quantity of the spaces being altered.

605.1.9 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.

605.2 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 or 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 an existing building, facility or element.
5. This provision does not apply to altered areas limited to Type B dwelling and sleeping units.

**CHAPTER 7
ALTERATIONS—LEVEL 2**

**SECTION 706
ACCESSIBILITY**

706.1 General. A building, facility, or element that is altered shall comply with this section and Section 605.

706.3 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 and Chapter 9 of the International Building Code for visible alarms apply only to the quantity of spaces being added.

706.4 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.

706.5 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 the spaces being added.

**CHAPTER 8
ALTERATIONS—LEVEL 3**

**SECTION 806
ACCESSIBILITY**

806.1 General. A building, facility or element that is altered shall comply with this section and Sections 605 and 706.

806.2 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 or 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 the spaces being altered or added.

**CHAPTER 9
CHANGE OF OCCUPANCY**

912.8 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 III alteration.

912.8.1 Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification, any alterations shall comply with Sections 605, ~~and~~ 706 and 806, as applicable.

912.8.2 Complete change of occupancy. Where an entire building undergoes a change of occupancy, it shall comply with Section 912.8.1 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 1110 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.

CHAPTER 10 ADDITIONS

SECTION 1005 ACCESSIBILITY

1005.1 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 605, and 706 and 806, as applicable.

CHAPTER 11 HISTORIC BUILDINGS

SECTION 1104 ALTERATIONS

1104.1 Accessibility requirements. The provisions of 605, and 706 and 806, as applicable, shall apply to buildings and facilities designated as historic structures that undergo alterations, unless *technically infeasible*. Where compliance with the requirements for accessible routes, entrances or toilet facilities would threaten or destroy the historic significance of the building or facility, as determined by the *code official*, the alternative requirements of Sections 1104.1.1 through 1104.1.4 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.

SECTION 1105 CHANGE OF OCCUPANCY

1105.15 Accessibility requirements. The provisions of Section 912.8 shall apply to buildings and 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 facilities would threaten or destroy the historic significance of the building or facility, as determined by the authority having jurisdiction, the alternative requirements of Sections 1104.1.1 through 1104.1.5 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.

PART II – IBC GENERAL

Revise as follows:

SECTION 3411 (IEBC [B] 310) ACCESSIBILITY FOR EXISTING BUILDINGS

3411.1 (IEBC [B] 310.1) Scope. The provisions of Sections 3411.1 through 3411.9 apply to maintenance, change of occupancy, additions and alterations to existing buildings, including those identified as *historic buildings*.

~~Exception:~~ Type B dwelling or sleeping units required by Section 1107 of this code are not required to be provided in existing buildings and facilities being altered or undergoing a change of occupancy.

3411.4 (IEBC [B] 310.4) 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 this 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.

3411.4.1 (IEBC [B] 310.4.1) Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification, any alterations shall comply with Sections 3411.6, 3411.7 and 3411.8.

3411.4.2(IEBC [B] 310.4.2) Complete change of occupancy. Where an entire building undergoes a change of occupancy, it shall comply with Section 3411.4.1 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 1110.
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.

3411.5 (IEBC [B] 310.5) 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 3411.7.

3411.6 (IEBC [B] 310.6) Alterations. A building, facility or element that is altered shall comply with the applicable provisions in Chapter 11 of this code and ICC A117.1, 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 3411.7.
2. Accessible means of egress required by Chapter 10 are not required to be provided in existing buildings and facilities.
3. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall meet the provision for a Type B dwelling unit and shall comply with the applicable provisions in Chapter 11 and ICC A117.1.
4. Type B dwelling or sleeping units required by Section 1107 of this 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.

3411.7 (IEBC [B] 310.7) 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 or 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 an existing building, facility or element.
5. This provision does not apply to altered areas limited to Type B dwelling and sleeping units.

3411.8 (IEBC [B] 310.8) Scoping for alterations. The provisions of Sections 3411.8.1 through 3411.8.12 shall apply to alterations to existing buildings and facilities.

3411.8.7 (IEBC [B] 310.8.7) 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 or added, the requirements of Section 1107 for Accessible units apply only to the quantity of spaces being altered or added.

3411.8.8 (IEBC [B] 310.8.8) 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 for Type A units apply only to the quantity of the spaces being altered or added.

3411.8.9 (IEBC [B] 310.8.9) 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 Section 1107 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 Section 1107 for Type B units apply only to the quantity of the spaces being altered.

3411.9 (IEBC [B] 310.9) Historic buildings. These provisions shall apply to buildings and 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 facilities would threaten or destroy the historic significance of the building or facility, as determined by the applicable governing authority, the alternative requirements of Sections 3411.9.1 through 3411.9.4 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.

SECTION 3412 (IEBC [B] CHAPTER 13) COMPLIANCE ALTERNATIVES

3412.2.5 (IEBC [B] 1301.2.5) Accessibility requirements. All portions of the buildings proposed for *change of occupancy* shall conform to the accessibility provisions of Section 3411 (IEBC 308).

Reason: The intent of this proposal is to take a small step towards increasing the availability of housing with minimum accessibility requirements. With the fastest grouping group in the United States being people over 65 years old, there is a definite need. The last U.S. Census information indicated that 41% of people of 65 have some level of disability.

Type of units covered under the Fair Housing Act include apartments, condominiums, dormitories, fraternities, sororities, convents, monasteries, assisted living facilities, nursing homes, group homes, etc. The Fair Housing Act is applicable to building first occupied after March 1991. While the department of Housing and Urban Development has been active in enforcement of these regulations, there are a lot of existing buildings that were constructed since 1991 that did not comply with this federal law. The legacy building codes first started requiring Type B units in apartments and condominiums in 1996/1997. With code changes that added congregate living facilities and Institutional facilities, the IBC requirements for Type B units was declared a 'safe harbor' document by HUD in 2002. Reasonably, buildings in jurisdictions that have adopted 2003 or 2006 IBC meet FHA. United Spinal's concern is the buildings that were built before that.

There are a considerable number of existing buildings that should have complied with FHA and did not. When a major alteration is being performed, there is a prime opportunity to have those buildings move towards compliance. This will not only be a benefit for people that need that housing to live in, but will also help the building owners lessen or avoid complaints filed under FHA. Also, this is the most cost effective opportunity to make these revisions.

What this proposal is asking for, is that when buildings are undergoing a Level 3 alteration, or a change of occupancy that includes a Level 3 alteration, that whatever elements are altered, those elements are brought up to meet Type B requirements. If the element is not part of the alteration, it is not required to be altered. This is consistent with current building code philosophy for alterations. There are still the allowances for technically infeasible. The exceptions for non-elevator buildings, site limitations and flood zones currently indicated in Section 1107.7 are still applicable under *Extent of Application* (IBC 3409.3, IEBC 310.3, 605.1.14). Historical buildings, by their reference back to general provisions could be affected, therefore a general exception for Type B units is proposed for historical buildings.

In addition, when the area being altered is for Type B units, there is an exception for the additional route requirements currently in IBC Sections 3411.4.2 and 3411.7 and IEBC Section 310.4.2, 310.7, 605.2 and 912.8.2. United Spinal hopes that this address the concerns of site impracticality brought up during the last hearings by the Building Owners Managers Association, the National Association of Home Builders and the National Multi-Housing Council. This also reinforces the intent that this provision is not meant to require elevators when alterations are performed on upper floors in non-elevator buildings (see exceptions in Section 1107.7). These areas would have been exempted if built new under FHA and IBC, and should continue to be exempted.

The intent is that the same requirements for housing in existing buildings are included in IBC and IEBC. The wording is slightly different because IBC does not include a definition for Level 3 alterations. The terminology used – "work areas exceeds 50 percent of the aggregate area of the building" - can be found in IEBC 405.1. Some sections included in this proposal are not revised, but are included for context.

Cost Impact: The code change proposal will increase the cost of construction

PART I – IEBC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

PART II – IBC GENERAL

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: MARINELLI-EB1-605.2.DOC

EB15–09/10

606.2.1, 807.4.4 (New)

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

1. Delete without substitution:

~~**606.2.1 Wall anchors for concrete and masonry buildings.** Where a permit is issued for reroofing more than 25 percent of the roof area of a building assigned to Seismic Design Category D, E, or F with a structural system consisting of concrete or reinforced masonry walls with a flexible roof diaphragm or unreinforced masonry walls with any type of roof diaphragms, the work shall include installation of wall anchors at the roof line to resist the reduced *International Building Code* level seismic forces as specified in Section 101.5.4.2 of this code and design procedures of Section 101.5.4, unless an evaluation demonstrates compliance of existing wall anchorage.~~

2. Add new text as follows:

807.4.4 Wall anchors for concrete and masonry buildings. For any building assigned to Seismic Design Category D, E, or F with a structural system consisting of concrete or reinforced masonry walls with a flexible roof diaphragm or unreinforced masonry walls with any type of roof diaphragm, the alteration work shall include installation of wall anchors at the roof line to resist the reduced IBC-level seismic forces, unless an evaluation demonstrates compliance of existing wall anchorage.

Reason: This proposal relocates a triggered structural improvement from Chapter 6 to Chapter 8 where it is more appropriate. In current 606.2.1, reroofing certain buildings triggers the installation of roof-to-wall anchors. While reroofing is Alteration Level 1 work, the installation of anchors is a disproportionate requirement largely unrelated to the re-roofing. Wall-to-roof anchors are most often installed from underneath the framing members, so the re-roofing does not make the anchor installation more convenient or cost-effective. In some cases, the current trigger could result in disproportionate additional costs, discouraging the rather simple but important act of maintaining the roof. This proposal therefore moves the triggered installation of roof-to-wall anchors to Chapter 8 where it makes more sense as a building improvement commensurate with Level 3 Alterations. Because Level 3 Alterations already involve substantial work, the “25% roof area” trigger, which is appropriate to Level 1 Alterations, is removed when the provision is moved to proposed Section 807.4.4.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB25-606.2.1.DOC

EB16–09/10

606.3.2

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

606.3.2 Roof diaphragms resisting wind loads in high-wind regions. Where roofing materials are removed from more than 50 percent of the roof diaphragm or section of a building located where the basic wind speed is greater than 90 mph or in a special wind region, as defined in Section 1609 of the *International Building Code*, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections that are part of the main wind-force resisting system shall be evaluated for the wind loads specified in the *International Building Code*, including wind uplift. If the diaphragms and connections in their current condition do not comply with those wind provisions, they shall be replaced or strengthened in accordance with the loads specified in the *International Building Code*.

Reason: This proposal is an editorial clarification. The current provision, modified for the 2009 code, inadvertently suggests that all connections that might participate in resisting any wind loads would be subject to evaluation and possible upgrade. This proposal clarifies which connections are in the intended scope and reduces confusion further by deleting the ambiguous term “main wind force resisting system”.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB26-606.3.2.DOC

EB17–09/10

606.3.2

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

606.3.2 Roof diaphragms resisting wind loads in high-wind regions. Where roofing materials are removed from more than 50 percent of the roof diaphragm or section of a building located where the basic wind speed is greater than 90 mph or in a special wind region, as defined in Section 1609 of the *International Building Code*, roof diaphragms and connections that are part of the main wind-force resisting system shall be evaluated for the wind loads specified in the *International Building Code*, including wind uplift. If the diaphragms and connections in their current condition ~~do not~~ comply with these wind provisions, are not capable of resisting at least 75% of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in the *International Building Code*.

Reason: This proposal makes a reasonable allowance for “reduced” wind loads for certain triggered upgrades. Justifications and precedents include:

- For the work triggered by Section 606.3.2, the major deficiencies – lack of basic load path elements or load path continuity – will still be caught if reduced wind loads are used.
- Seismic evaluations typically use reduced loads, in part to avoid triggering upgrades to marginally overstressed elements. Wind provisions should reasonably do the same.
- The seismic 75% factor is partly based on a reasonable “grandfathering” approach. Many existing buildings were designed with a (now obsolete) 1/3 overstress allowance for wind loads. Current ASCE 7 load combinations for strength design no longer make the same allowance, so even well-designed existing buildings would unreasonably be caught by a trigger that requires 100% of current loads.
- FEMA (Disaster Assistance Policy 9527.4, available online) has stated a position that lateral force levels for new construction are generally considered unreasonable when applied to triggered repairs.
- New designs are expected to remain elastic under 100% of current wind loads. A structure that can resist at least 75% of these loads can still reasonably be expected to perform acceptably, given the differences between minimum yield and expected ultimate strengths and due to the generally conservative nature of new design.
- ASCE 7 requires a load factor of 1.6 for wind loads. Even at 75%, the effective load factor is still greater than 1.0.

- Though not based on any quantified theory, observed performance, or a “grandfathering” strategy, the proposed 75% value is consistent with the factor used to reduce seismic loads.
- The 75% value does not reach as low as past codes did when identifying dangerous conditions; buildings were deemed dangerous only if they could not resist 50% or 67% of design wind loads.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB27-606.3.2-2.DOC

EB18–09/10 607.1

Proponent: Lorraine Ross, Intech Consulting Inc., representing Polyiso Insulation Manufacturers Association (PIMA)

Revise as follows:

607.1 Minimum requirements. 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.

Exception: Where Level 1 alterations involve addition or replacement of the roof covering, the roof assembly shall meet the energy requirements of the *International Energy Conservation Code, Chapter 5* for new construction.

Reason: A rapidly accelerating awareness of the energy and environmental challenges facing us today has spurred enhanced energy efficiency standards, stricter codes and emerging technologies in new construction. As a result, there is confidence that buildings constructed over the coming years will consume less and less energy. Unfortunately, these activities rarely impact the energy consumption levels of the more than 70 billion square feet of existing commercial building floor space in this country.

This code change proposal addresses the need to upgrade existing roofs to meet the new construction requirements of the International Energy Conservation Code, Chapter 5 for Commercial Buildings. This action is one of the most practical and economically feasible opportunities for improving the energy efficiency in existing buildings: Roof replacement of low-slope roofed buildings, i.e. replacement of waterproofing membrane. It is commonly known that a typical building requires three roof replacements during its lifetime or roughly one replacement every twenty years. Thus, routine roof replacement facilitates implementation of the long-proven energy efficiency measure of added levels of insulation.

Representing eighteen percent of all U.S. annual energy use at 91 kBtu/ft² based on floor area, existing commercial buildings play an important role in the challenge to achieve substantial reductions in consumption of energy and impact on the environment. A key lies in the fact that the vast majority of building stock will require roof replacement over the next fifteen to twenty five years providing a practical opportunity to improve the thermal performance of buildings. From the research conducted and the results presented in this report, the following conclusions have been established:

- One and one half billion square feet of existing floor area is a viable annual potential for installation of low-slope energy efficient roofing systems. Clearer and more stringent energy code language as well as increased enforcement specific to re-roofing projects could enhance this potential.
- After ten years, fifteen billion square feet or greater than 20 percent of today's existing floor area will be saving 6.5 percent of total site energy consumption or 118 billion Btu and 266 billion Btu of source energy annually. It is presumed that during this period, a portion of non-retrofitted buildings will be demolished, further contributing to the relative impact of energy efficient roofing systems in lowering the energy intensity level of buildings. Lastly, from a life cycle perspective, the total embodied energy involved in the insulation is recovered in the first year of its use through the energy saved.
- The economic impact includes a cumulative savings of \$12.2 billion and annual savings of \$2.4 billion which, of course, continues throughout the lifetime of the insulation. The total capital required (installed cost of additional insulation) over this ten year period is approximately \$23 billion. Please note that the economic impact in this study is limited to the site utility costs and the installed costs of the insulation. There are other potential economic benefits associated with reductions in energy generation and use as well as reduction in emissions and other environmental impacts that are beyond the scope of this research.
- Energy savings realized with energy efficient roof systems vary significantly between climate zones and vary dramatically between building types. Of the ten building types studied, seven exhibit substantial savings in all climate zones with schools reaping the greatest benefits.
- With respect to GWP, this practical means of thermal performance improvement prevents nearly 0.2 percent of the total building stock emissions in the first year alone. The compounding impact provides a GWP emissions prevention benefit of greater than 100 million metric tons CO₂-equiv. after ten years. Again, comparing this to the life cycle emissions involved in the additional insulation shows that the net zero emissions period is roughly one year.

Reference:

Phelan, J., Pavlovich, G., Ma E., Energy and Environmental Impact Reduction Opportunities for Existing Buildings with Low-Slope Roofs April 2009

Cost Impact: The code change proposal will increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: ROSS-EB3-607.1.DOC

EB19–09/10

704.2.2

Proponent: Daniel E. Nichols, PE, New York State Dept. of State, Div. of Code Enforcement and Administration

Revise as follows:

704.2.2 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; and
3. ~~The building has sufficient municipal water supply for design of a fire sprinkler system available to the floor without installation of a new fire pump.~~

Exceptions:

1. Work areas in Group R occupancies three stories or less in height.
2. 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: Currently, the IEBC allows buildings in areas that do not have a municipal water system or have a municipal system with low pressure to be exempt from automatic sprinkler requirements. This is a all-in or all-out type of protection, with no mitigating measures taken if the fire sprinkler is exempted.

This code change provides two important features to mitigate, but not replace, the effectiveness of automatic sprinklers based on current tradeoffs in the IEBC. The first mitigation is to provide notification to occupants of a fire event, which would be provided with a sprinkler system (IBC 907.5 #2). The second mitigation would be to contact the fire department with monitoring (Section 907.6.5) and providing automatic notification.

Cost Impact: The code change proposal will increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: NICHOLS-EB1-704.2.2.DOC

EB20–09/10

704.4, 704.4.1, 704.4.1.1 through 704.4.1.7, 704.4.2, 704.4.3

Proponent: Daniel E. Nichols, PE, New York State Dept. of State, Div. of Code Enforcement and Administration

1. Revise as follows:

704.4 Fire alarm and detection. An approved fire alarm system shall be installed in accordance with Sections 704.4.1 through 704.4.3. ~~Where automatic sprinkler protection is provided in accordance with Section 704.2 and is connected to the building fire alarm system, automatic heat detection shall not be required.~~

~~An approved automatic fire detection system shall be installed in accordance with the provisions of this code and NFPA 72. Devices, combinations of devices, appliances, and equipment shall be approved. The automatic fire detectors shall be smoke detectors, except that an approved alternative type of detector shall be installed in spaces such as boiler rooms, where products of combustion are present during normal operation in sufficient quantity to actuate a smoke detector.~~

704.4.1 Occupancy requirements. A fire alarm system shall be installed in work areas in accordance with Sections 704.4.1.1 through 704.4.1.7 907 of the *International Building Code* for new buildings. 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 within the work area shall be provided and automatically activated.

Exceptions:

- 1. Occupancies with an existing, previously approved fire alarm system.
- ~~2. Where selective notification is permitted, alarm notification appliances shall be automatically activated in the areas selected.~~

2. Delete without substitution:

- ~~704.4.1.1 Group E.~~
- ~~704.4.1.2 Group I-1.~~
- ~~704.4.1.3 Group I-2.~~
- ~~704.4.1.4 Group I-3.~~
- ~~704.4.1.5 Group R-1.~~
- ~~704.4.1.6 Group R-2.~~
- ~~704.4.1.7 Group R-4.~~

3. Revise as follows:

704.4.2 Supplemental fire alarm system requirements. Where the work area on any floor exceeds 50 percent of that floor area, Section 704.4.1 shall apply throughout the floor.

Exception: Alarm-initiating and notification appliances shall not be required to be installed in tenant spaces outside of the work area.

704.4.3 Smoke alarms. Individual sleeping units and individual dwelling units in any work area in Group R-1, R-2, R-3, R-4, and I-1 occupancies shall be provided with smoke alarms in accordance with the *International Fire Code*.

~~**Exception:** Interconnection of smoke alarms outside of the rehabilitation work area shall not be required.~~

Reason: This code section fixes a technical flaw between the International Fire Code and the International Existing Building Code. Currently, the International Existing Building Code allows for the retroactive requirements of the International Fire Code to be limited by isolating such requirements to work areas only. The structure of the International Fire Code is that the retroactive requirements applies to all buildings, not those being worked on. However, the IEBC does just that, and actually lowers the level of building fire protection than if the building was just enforced to the level of the IFC.

As an example, IFC Section 4603.6.1 requires a majority of existing Group E occupancies to be provided with a fire alarm system. IEBC Section 704.4.1.1 limits the requirement to just the work area within a Group E even though more construction work is being done in the latter condition.

The code change changes the reference to the new construction requirements for fire alarm requirements. To do so, the occupancy requirements have been directed to the IBC for new construction, a more appropriate requirement for fire alarm coverage. By referencing the new construction requirements, it adds other occupancies to the Alterations-Level 2 section, including Group A occupancies.

The remainder of the code change is mostly editorial. First, most of Section 704.4 is being removed to align with the new layout of Section 907, as approved in the 2007 supplement. Second, exception #2 of Section 704.4.1 was removed since IBC Section 907 already sets requirements for selective notification. Third, the exception of Section 704.4.3 has been removed since the retroactive smoke alarm requirements of the IFC already have requirements dealing with interconnect in existing buildings. Section 704.4.2 is shown for informational purposes only.

Cost Impact: The code change proposal will increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: NICHOLS-EB2-704.4.DOC

EB21-09/10
707.5, 807.4, 807.4.3

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

707.5 Existing structural elements resisting lateral loads. Alterations affecting the demands or capacities of existing elements of the lateral-load-resisting system shall be evaluated using the wind provisions of the *International Building Code* and the reduced *International Building Code* level seismic forces. Any existing lateral load-resisting

structural elements whose demand-capacity ratio with the alteration considered is more than 10 percent greater than its demand-capacity ratio with the alteration ignored shall be brought into compliance with those wind and seismic provisions. ~~comply with structural requirements specified in Section 807.4. For the purposes of calculating demand-capacity ratio, the demand shall consider applicable load combinations with the design lateral loads or forces in accordance with Section 1609 and 1613 of the *International Building Code*. For the purposes of this section, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacity shall account for the cumulative effects of additions and alterations since the original construction.~~

807.4 Existing structural elements resisting lateral loads Structural alterations. All structural existing elements of the lateral-force-resisting system in buildings undergoing Level 3 structural alterations or buildings undergoing Level 2 alterations as triggered by Section 707.5 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 9 do not apply, only the lateral-force-resisting components in and below that story need comply with this section.

807.4.3 Limited structural alteration. ~~Where not more than 30 percent of the total floor and roof areas of the building or structure have been or are proposed to be involved in substantial structural alteration with a 12-month period, the work does not involve a substantial structural alteration, the existing elements of the lateral-load resisting system shall comply with Section 707.5. the evaluation and analysis shall demonstrate that the altered building or structure complies with the loads applicable at the time of the original construction or of the most recent substantial structural alteration as defined in Section 807.4.2. Any existing structural elements whose seismic demand-capacity ratio with the alteration considered is more than 10 percent greater than its demand-capacity ratio with the alteration ignored shall comply with reduced *International Building Code* level seismic forces as specified in Section 101.5.4.2.~~

Reason: This proposal is primarily editorial to clarify the cross-referencing that covers Level 2 and Level 3 alterations. The wind and seismic requirements for Level 2 alterations and Level 3 limited structural alterations are essentially the same: any elements made worse by more than 10% shall be improved, but global seismic upgrades are not triggered.

However, rather than having Level 2 alterations reference the provisions of Level 3 alterations (which are split into two classes, substantial and limited), this proposal moves the relevant wind and seismic requirements into the Level 2 provisions, in Section 707.5.

There is one substantive change to Section 707.5, but it is actually a correction: The current provision refers to IBC Section 1613 for seismic loads. This is inconsistent with IEBC provisions for Level 3 alterations and other circumstances, so the typical "reduced IBC level seismic forces" are proposed instead.

In 807.4.3, the current wind and seismic provisions can now be made by a simple reference to Section 707.5. Also, rather than repeating the criteria for a substantial structural alteration, simplified text is proposed.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB20-707.5.DOC

EB22-09/10

707.5

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

707.5 Existing structural elements resisting lateral loads. Any existing lateral load-resisting structural elements whose demand-capacity ratio with the alteration considered is more than 10 percent greater than its demand-capacity ratio with the alteration ignored shall comply with structural requirements specified in Section 807.4. In addition, the alteration shall not create a structural irregularity prohibited by ASCE 7 unless the entire structure complies with Section 101.5.4.2. For the purposes of calculating demand-capacity ratio, the demand shall consider applicable load

combinations with the design lateral loads or forces in accordance with Section 1609 and 1613 of the *International Building Code*. For the purposes of this section, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacity shall account for the cumulative effects of additions and alterations since the original construction.

Reason: Consistent with the IEBC philosophy to “do no harm,” this proposal adds a provision that prohibits the creation of structural irregularities already prohibited for new buildings per ASCE 7. The creation of a new structural irregularity might not cause element demand-capacity ratios to increase by more than 10 percent, but those irregularities should still be avoided. (Existing irregularities need not be eliminated entirely; it is felt that they would rarely be made worse without pulling the current 10% DCR increase trigger.)

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB21-707.5-2.DOC

EB23–09/10

710.2 (New)

Proponent: Tom Neltner, National Center for Healthy Housing, representing National Center for Healthy Housing and Alliance for Healthy Homes

Add new text as follows:

710.2 Water heating facilities. Water heating facilities shall be properly installed, maintained and capable of providing an adequate amount of water to be drawn at every required sink, lavatory, bathtub, shower and laundry facility at a temperature of not less than 110°F (43°C). A combustion water heater shall not be located in any bathroom, toilet room, bedroom or other occupied room normally kept closed, unless adequate combustion air and exhaust ventilation are provided. An approved combination temperature and pressure-relief valve and relief valve discharge pipe shall be properly installed and maintained on water heaters. In dwelling units, the temperature of the water at the spout in a bathtub or shower shall not exceed 120°F (49°C).

Reason: The current code does not set a maximum water temperature for bathtubs and showers. However, the American Society of Sanitary Engineering recommends a maximum mixed water temperature setting of 120°F (49°C). This code change makes the IEBC consistent with the ASSE recommendations and the requirements of the *International Residential Code* and the *International Plumbing Code*.

According to the Consumer Products Safety Commission, “Each year, approximately 3,800 injuries and 34 deaths occur in the home due to scalding from excessively hot tap water. The majority of these injuries involve the elderly and children under the age of five. The U.S. Consumer Product Safety Commission (CPSC) urges all users to lower their water heaters to 120 degrees Fahrenheit. In addition to preventing injuries, this decrease in temperature will conserve energy and save money.

CPSC goes on to state “Most adults will suffer third-degree burns if exposed to 150 degree water for two seconds. Burns will also occur with a six-second exposure to 140 degree water or with a thirty second exposure to 130 degree water. Even if the temperature is 120 degrees, a five minute exposure could result in third-degree burns.” See www.cpsc.gov/CPSCPUB/PUBS/5098.pdf.

In addition, in December 2007, the National Center for Healthy Housing (NCHH) and the U.S. Centers for Disease Control and Prevention (CDC) convened an Expert Panel consistent with National Institute of Health guidelines to assess the effectiveness of various interventions to make homes healthier and safer. NCHH and CDC published the report of the experts in January 2009. See www.nchh.org/LinkClick.aspx?fileticket=2lvaEDNBldU%3d&tabid=229 for the full report.

The Expert Panel reviewed the peer-reviewed research on the issue of maximum safe water temperature. The experts found two significant studies.

- 80% of children hospitalized for scald burns lived in homes with unsafe bathtub water temperatures of 130°F or higher (Feldman K, Schaller R, Feldman J, McMillon M. 1978. Tap water scald burns in children. *Pediatrics* 62: 1–7.)
 - Five years after a 1983 Washington State law required new water heaters to be pre-set at 120°F at the factory, 77% of homes tested had safe tap water temperatures and there was a reduction in the frequency, morbidity and mortality of tap water burn injuries in children (Erdmann TC, Feldman KW, Rivara FP, Heimbach DM, Wall HA. 1991. Tap Water Burn Prevention—The Effect of Legislation. *Pediatrics* 88(3): 572–577.)
- Setting the water heater at 120°F raises questions about *legionnaires* disease. The ASSE approved water mixers provide the safety without raising the threat of *legionnaires* disease

Cost Impact: The code change proposal will increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: NELTNER-EB1-710.2.DOC

EB24–09/10

807.4.2

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

807.4.2 Substantial structural alteration. Where more than 30 percent of the total floor and roof areas of the building or structure have been or are proposed to be involved in structural alteration within a ~~12-month~~ five-year period, the evaluation and analysis shall demonstrate that the altered building or structure complies with the *International Building Code* for wind loading and with reduced *International Building Code* level seismic forces as specified in Section 101.5.4.2 for seismic loading. For seismic considerations, the analysis shall be based on one of the procedures specified in Section 101.5.4. The areas to be counted toward the 30 percent shall be those areas tributary to the vertical load-carrying components, such as joists, beams, columns, walls and other structural components that have been or will be removed, added or altered, as well as areas such as mezzanines, penthouses, roof structures and in-filled courts and shafts.

Reason: Current Section 807.4.2 requires alterations within a 12-month period to be counted together for purposes of determining whether the project is big enough to trigger a seismic upgrade. This proposal reduces the possibility that the provisions will be gamed to avoid the trigger. Currently, for example, by phasing alteration work over 3 years, it is possible that a cumulative 89 percent of the floor and roof area could be altered in a nonconforming building, skirting the intended upgrade trigger. This proposal changes the time period from 12 months to five years, a period that (in our judgment) is appropriate to the nature of seismic upgrade. It is long enough to discourage the most blatant gaming but not so long that it prevents multiple distinct alterations or becomes an administrative record-keeping burden for building departments.

The proposal continues to allow unlimited nonstructural alteration without triggering upgrades.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB28-807.4.2.DOC

EB25–09/10

807.4.4 (New)

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Add new text as follows:

807.4.4 Bracing for unreinforced masonry parapets. Parapets constructed of unreinforced masonry in buildings assigned to Seismic Design Category D, E, or F shall have bracing installed as needed to resist the reduced *International Building Code* level seismic forces, unless an evaluation demonstrates compliance of such items.

Reason: Level 3 alteration requirements include those of Level 1 and Level 2, but the parapet trigger for Level 1 alteration (in 606.3.1) is based on reroofing. Thus, under the current provision, a substantial Level 3 alteration could go forward, but the simple life-saving measure of parapet bracing would not be triggered unless the project happened to include reroofing.

This proposal corrects this gap between the definitions of Alteration Levels. The proposed new section 807.4.4 (with the essential wording borrowed from 606.3.1) would require parapet bracing for the most hazardous cases regardless of whether the intended work involves reroofing.

Cost Impact: Mild cost increase, but only for Level 3 alterations in buildings with unreinforced masonry parapets assigned to SDC D-F.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB29-807.4.4.DOC

EB26–09/10

808.1

Proponent: Lorraine Ross, Intech Consulting Inc., representing Polyiso Insulation Manufacturers Association (PIMA)

Revise as follows:

808.1 Minimum requirements. 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.

Exception: Where Level 3 alterations involve addition or replacement of the roof covering, the roof assembly shall meet the energy requirements of the *International Energy Conservation Code, Chapter 5* for new construction.

Reason: A rapidly accelerating awareness of the energy and environmental challenges facing us today has spurred enhanced energy efficiency standards, stricter codes and emerging technologies in new construction. As a result, there is confidence that buildings constructed over the coming years will consume less and less energy. Unfortunately, these activities rarely impact the energy consumption levels of the more than 70 billion square feet of existing commercial building floor space in this country.

This code change proposal addresses the need to upgrade existing roofs to meet the new construction requirements of the International Energy Conservation Code, Chapter 5 for Commercial Buildings. This action is one of the most practical and economically feasible opportunities for improving the energy efficiency in existing buildings: Roof replacement of low-slope roofed buildings, i.e. replacement of waterproofing membrane. It is commonly known that a typical building requires three roof replacements during its lifetime or roughly one replacement every twenty years. Thus, routine roof replacement facilitates implementation of the long-proven energy efficiency measure of added levels of insulation.

Representing eighteen percent of all U.S. annual energy use at 91 kBtu/ft² based on floor area, existing commercial buildings play an important role in the challenge to achieve substantial reductions in consumption of energy and impact on the environment. A key lies in the fact that the vast majority of building stock will require roof replacement over the next fifteen to twenty five years providing a practical opportunity to improve the thermal performance of buildings. From the research conducted and the results presented in this report, the following conclusions have been established:

- One and one half billion square feet of existing floor area is a viable annual potential for installation of low-slope energy efficient roofing systems. Clearer and more stringent energy code language as well as increased enforcement specific to re-roofing projects could enhance this potential.
- After ten years, fifteen billion square feet or greater than 20 percent of today's existing floor area will be saving 6.5 percent of total site energy consumption or 118 billion Btu and 266 billion Btu of source energy annually. It is presumed that during this period, a portion of non-retrofitted buildings will be demolished, further contributing to the relative impact of energy efficient roofing systems in lowering the energy intensity level of buildings. Lastly, from a life cycle perspective, the total embodied energy involved in the insulation is recovered in the first year of its use through the energy saved.
- The economic impact includes a cumulative savings of \$12.2 billion and annual savings of \$2.4 billion which, of course, continues throughout the lifetime of the insulation. The total capital required (installed cost of additional insulation) over this ten year period is approximately \$23 billion. Please note that the economic impact in this study is limited to the site utility costs and the installed costs of the insulation. There are other potential economic benefits associated with reductions in energy generation and use as well as reduction in emissions and other environmental impacts that are beyond the scope of this research.
- Energy savings realized with energy efficient roof systems vary significantly between climate zones and vary dramatically between building types. Of the ten building types studied, seven exhibit substantial savings in all climate zones with schools reaping the greatest benefits.
- With respect to GWP, this practical means of thermal performance improvement prevents nearly 0.2 percent of the total building stock emissions in the first year alone. The compounding impact provides a GWP emissions prevention benefit of greater than 100 million metric tons CO₂-equiv. after ten years. Again, comparing this to the life cycle emissions involved in the additional insulation shows that the net zero emissions period is roughly one year.

Reference:

Phelan, J., Pavlovich, G., Ma E., Energy and Environmental Impact Reduction Opportunities for Existing Buildings with Low-Slope Roofs April 2009

Cost Impact: The code change proposal will increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: ROSS-EB2-808.1.DOC

EB27–09/10

902.1

Proponent: Tom Lariviere, Chairman, Joint Fire Service Review Committee

Revise as follows:

902.1 Compliance with the building code. 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 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 health care facilities.

Reason: As a result of Item G23 07/08, which was approved as modified, the IBC now contains specific requirements for Ambulatory health care facilities. In an ambulatory health care facility, patients are incapacitated for various lengths of time. This creates a situation where the patients may, or may not, be able to accomplish self-preservation and self-evacuation. Patients are placed at a higher risk in these facilities.

The proposal provides a method for the code officials to mitigate the increased risk when an ambulatory health care facility is constructed in an existing building.

Cost Impact: The code change proposal will increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: LARIVIERE-EB1-902.1.DOC

EB28–09/10

909.1

Proponent: Jeffrey N. Gentile, PE, Upper Darby Township, representing Pennsylvania Association of Building Code Officials, Inc.

Revise as follows:

909.1 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 intent of the respective *International Mechanical Code* provisions.

Exception: Changes in occupancy between office and retail store as defined in Table 403.3 of the *International Mechanical Code* for spaces under 3000 square feet are not required to increase mechanical ventilation rates.

Reason: Many tenant spaces, especially those in malls and strip centers, alternate between B and M uses. For example, a craft store may become a hair salon then later a florist shop. For small establishments, the additional restroom and ventilation requirements are burdensome – often requiring the replacement of HVAC systems. These requirements are necessary in some spaces, including specialty shops as listed in IMC table 403.3, so the exception does not just list B & M occupancy types.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: GENTILE-EB1-912.4.2.DOC

EB29–09/10

912.2.1

Proponent: Randall R. Dahmen, WI Registered PE, WI Licensed Commercial Building Inspector

Revise as follows:

912.2.1 Fire sprinkler system. Where a change in occupancy classification occurs 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 fire area where the *change of occupancy* occurs.

Reason: The intent of the *International Building Code* requirements addressing the need for automatic sprinkler system installation as based on occupancy is to address each occupancies "fire area". This intent is not conveyed in the current *International Existing Building Code* wording. This proposed change is meant to clarify the intent of the IEBC requirement, as based on the current wording of the IBC.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: DAHMEN-EB1-912.2.1.DOC

EB30–09/10

912.4.2

Proponent: Jeffrey N. Gentile, PE, Upper Darby Township, representing Pennsylvania Association of Building Code Officials, Inc.

Revise as follows:

912.4.2 Means of egress for change of use to equal or lower hazard category. When a change of occupancy classification is made to an equal or lesser hazard category (higher number) as shown in Table 912.4, existing elements of the means of egress shall comply with the requirements of Section 805 for the new occupancy classification. When the occupant load of a building or space exceeds the provided egress capacity, then the occupant load for the building shall be determined by dividing the egress width(s) in the building by the applicable number(s) found in Section 1005.1 of the *International Building Code*. This altered occupant load is required to be clearly posted. Newly constructed or configured means of egress shall comply with the requirements of Chapter 10 of the *International Building Code*.

Exception: Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.

Reason: It does not make sense that the code would allow a building to be non-conformant in one of the most important life safety areas of the building code just because it is existing. The change increases the egress safety by setting a reasonable occupancy load requirement while not requiring any alterations to the building.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: GENTILE-EB1-912.4.2.DOC

EB31-09/10

912.5.1

Proponents: Joseph A. McGrath, PE, RA, representing New York State Dep. of State, Division of Code Enforcement and Administration

Revise as follows:

912.5.1 Height and area change to higher hazard category. When a change of occupancy classification is made to a higher hazard category as shown in Table 912.5, heights and areas of buildings and structures shall comply with the requirements of Chapter 5 of the *International Building Code* for the new occupancy classification.

Exception: In other than Groups H, F-1 and S-1, in lieu of fire walls, use of fire barriers and horizontal assemblies having a fire-resistance rating of not less than that specified in Table 706.4 of the *International Building Code*, constructed in accordance with Sections 707 and 712 of the *International Building Code*, shall be permitted to meet the area limitations required for the new occupancy in buildings protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the *International Fire Code*. The maximum allowable area between fire barriers, horizontal assemblies or any combination thereof shall not exceed the tabular area specified in Table 503 of the *International Building Code* without any area increase allowed for an automatic sprinkler system in accordance with Section 506 of the *International Building Code*. Where horizontal assemblies are used to limit the maximum allowable area, the required fire-resistance rating of the horizontal assemblies shall be permitted to be reduced by 1-hour provided the height and number of stories increases allowed by Section 504.2 for an automatic sprinkler system are not used for the building.

Reason: This proposal is a follow-up to code change EB33-06/07 that was approved as modified by Public Comment #1 submitted by the Alliance for Fire and Smoke Containment and Control (AFSCC) at the ICC Final Action Hearings in Rochester, New York in May, 2007. The reason for the original EB33 proposal is the need to reuse existing mill buildings that are sprinklered and the fact that the original code requirement for fire walls is not financially or physically practicable. This proposal will provide an additional measure of safety to the current requirements of this section.

At the 2007 hearings the AFSCC proposed that if fire barriers were used in lieu of fire walls, a significant reduction in allowable building and fire areas should occur. We agree, so this proposal reduces the allowable building area by allowing fire fighting access (open space) credits but not sprinklering credits. An example, to use the most probable application of this proposal, would be a Type IIIB construction mill building being converted from an F-1 (moderate hazard) occupancy to an R-2 (residential) occupancy. This change in occupancy would be considered a change to a higher hazard.

Under the proposed change, the mill building described above would be allowed to have a floor area of 28,000 square feet and a total maximum floor area for all stories of 84,000 square feet between fire barriers with a maximum 75% increase allowed for open space. Present requirements for a new building would allow 60,000 square feet for a single floor area and 180,000 square feet of total floor area with the additional increase allowed for an automatic sprinkler system.

The logic behind not allowing area increases for sprinklering is because under the circumstances of the substitution of fire barriers for fire walls in these buildings, the required sprinklers should not be given extra credit.

The concept of allowing horizontal assemblies to be used to subdivide the building presumes that the fire would be contained within the six sided box formed by the fire barrier walls and horizontal assemblies and/or exterior walls and roof which is limited to the area prescribed in this proposed code change. Thus, the volume of the building separated from the rest of the building by the required fire-resistance rated construction would be comparable.

The logic behind allowing a 1-hour reduction in the required fire-resistance rating for the horizontal assemblies is based on the fact that the automatic sprinkler system provided would not be used for a height increase both in number of stories and in total feet (1 story and 20 feet), yet the building will still be compartmented with fire-resistive horizontal assemblies having, in most cases, a minimum fire-resistance rating of 2-hours and, in some cases, as low as 1-hour but only 1 hour less than what would otherwise be required by Table 705.4 by this exception for the fire barriers. Thus, the sprinkler credit that would otherwise be given for the increase in height currently allowed by Chapter 5 of the International Building Code would be used for the reduction of 1-hour in the required fire-resistance rating of the horizontal assembly. We believe this provides a reasonable equivalent level of fire and life safety protection for existing buildings being converted under this exception as modified by this code change proposal.

Cost Impact: The code change proposal will result in added costs to construction if the building is over a specific size as to require more fire barriers than the present requirements. However, the cost and practicality of converting existing buildings is still greatly improved from the requirements in the 2003 IEBC.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: MCGRATH-EB1-912.5.1.DOC

EB32-09/10

IEBC 912.8, 912.8.1, 912.8.2; IBC 3411.4, 3411.4.1, 3411.4.2 (IEBC [B] 310.4, 310.4.1, 310.4.2)

Proponent: Maureen Traxler, City of Seattle, WA, Seattle Dept of Planning & Development

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE FIRE CODE COMMITTEE AS 2 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THE FIRE CODE COMMITTEE.

PART I – IEBC

Revise as follows:

~~912.8 Accessibility. Existing buildings that undergo a change of group or occupancy shall comply with this section.~~

~~912.8.1 Partial change in occupancy. Where a all or any portion of the a building is changed to a new occupancy classification, any alterations shall comply with Sections 605 and 706, as applicable.~~

~~912.8.2 Complete change of occupancy. Where an entire building undergoes a change of occupancy, it shall comply with Section 3411.4.1 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 1110.~~
- ~~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.~~

PART II – IBC GENERAL

Revise as follows:

~~3411.4 (IEBC [B] 310.4) Change of occupancy. Existing buildings that undergo a change of group or occupancy shall comply with this section.~~

~~3411.4.1 (IEBC [B] 310.4.1) Partial change in occupancy. Where a all or any portion of the a building is changed to a new occupancy classification, any alterations shall comply with Sections 3411.6, 3411.7 and 3411.8.~~

~~3411.4.2 (IEBC [B] 310.4.2) Complete change of occupancy. Where an entire building undergoes a change of occupancy, it shall comply with Section 3411.4.1 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 1110.~~
- ~~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.~~

Reason: When buildings are altered, required improvements in accessibility are limited to 20% of the cost of the alterations according to exception 1 to IBC Section 3411.7 and exception 1 to IEBC Section 605.2. According to the Access Board website [<http://www.access-board.gov/ada%2Daba/adaag.cfm#a202>], "Department of Justice ADA regulations state, 'Alterations made to provide an accessible path of travel to the altered area will be deemed disproportionate to the overall alteration when the cost exceeds 20% of the cost of the alteration to the primary function area.' (28 CFR 36.403 (f)(1)). See also Department of Transportation ADA regulations, which use similar concepts in the context of public sector transportation facilities (49 CFR 37.43 (e)(1))."

Changes of occupancy shouldn't be required to do more than alterations. Many changes of occupancy are accomplished with little or no construction work—a space may be refurbished and transformed from a Group M retail store to a Group B office. Any construction work that is done would be required to comply with IBC Section 3411.7 (IEBC Section 605.2), and would be subject to the 20% limitation.

The list of priority accessible features has been deleted because it is not necessary for correlation with the ADAAG, and because such a prescriptive requirement does not allow the flexibility to spend money improving the accessible route where it makes the most sense. It is our understanding that while the list was originally proposed for adoption in the new ADAAG, ultimately, it was decided to allow that flexibility, and the list does not appear in the updated ADAAG.

We think the proposal presented above is the most comprehensive and cleanest way to address our issues. However, if the Committee decides that keeping the priority list is a necessity, we would be open to a modification of the proposal that would retain all the existing language that is shown as being struck through in IBC Sections 3411.4, 3411.4.1, and 3411.4.2, but instead, just inserts an exception just after the list in Section 3411.4.2 as follows:

3411.4.2 Complete change of occupancy. Where an entire building undergoes a change of occupancy, it shall comply with Section 3411.4.1 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 1110.
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.

Exception: The costs of providing an *accessible* route or *accessible* features are not required to exceed 20 percent of the costs of the alterations affecting the area of *primary function*.

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.

The corresponding changes would have to be made to IEBC Section 912.8 if this alternative is chosen (i.e., retain struck-through text in 912.8, 912.8.1, and 912.8.2, and add the new exception to 912.8.2). This would still address the issue capping the required costs of accessibility upgrades, without affecting the priority list.

Cost Impact: The code change proposal will not increase the cost of construction.

PART I – IEBC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

PART II – IBC GENERAL

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: TRAXLER-G11-3411.4.2

EB33–09/10

IEBC 912.8.2; IBC 3411.4.2 (IEBC [B] 310.4.2)

Proponent: Norman B. Clark, CBO, City of Caldwell, Department of Building Safety, representing self and the Idaho Association of Building Officials

THIS IS A 2 PART CODE CHANGE. BOTH PARTS WILL BE HEARD BY THE IEBC CODE COMMITTEE AS 2 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THE FIRE CODE COMMITTEE.

PART I – IEBC

Revise as follows:

912.8 Accessibility. Existing buildings that undergo a change of group or occupancy classification shall comply with this section.

912.8.1 Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification, any alterations shall comply with Sections 605 and 706, as applicable.

912.8.2 Complete change of occupancy. Where an entire building undergoes a *change of occupancy*, it shall comply with Section 912.8.1 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 1110 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.
7. At least one accessible toilet room for men and women or an accessible family assisted use toilet room complying with Section 1109.2 of the *International Building Code*.

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.

PART II – IBC GENERAL

Revise as follows:

3411.4 (IEBC [B] 310.4) Change of occupancy. Existing buildings that undergo a change of group or occupancy shall comply with this section.

3411.4.1 (IEBC [B] 310.4.1) Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification, any alterations shall comply with Sections 3411.6, 3411.7 and 3411.8.

3411.4.2 (IEBC [B] 310.4.2) Complete change of occupancy. Where an entire building undergoes a change of occupancy, it shall comply with Section 3411.4.1 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 1110.
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.
7. At least one accessible toilet room for men and women or an accessible family assisted use toilet room complying with Section 1109.2.

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.

Reason: The intent of this proposal is to clarify the requirements for accessible toilet rooms, or a unisex (family assisted use) toilet room in a change of occupancy. For example: converting a single family dwelling to commercial use. Section 3411.4 addresses the six basic requirements for accessibility in a change of occupancy, but does not include toilet rooms. Section 3411.8.11 permits a family assisted use toilet room when it is technically infeasible to alter existing toilet rooms. This is under the scope for 'alterations' according to some ICC staff. Some look at it differently. This is the problem, wide open interpretation. There are ways to interpret the requirement through Section 3411.1, though many, including some ICC technical support staff, and architects interpret 'alterations' to be separate, as between Section 3411.1 and 3411.8. This is an example of interpretation from extreme opposite ends. This new wording under Section 3411.4 will clarify and eliminate, or extremely minimize the opportunity for misinterpretation. It has been argued that if you are not altering any part of a toilet room in a change of occupancy, then there wouldn't be any requirements to bring the toilet room(s) up to current accessibility standards, nor would there be the requirements for one family assisted use toilet room. This is simply not true, and this needs to be simplified. This proposal will not change the code requirements, only simplify the interpretation.

Cost Impact: The code change proposal will not increase the cost of construction.

PART I – IEBC

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

PART II – IBC GENERAL

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

EB34–09/10

912.8.2

Proponent: Lawrence Brown, CBO, National Association of Home Builders (NAHB)

Revise as follows:

912.8.2 Complete change of occupancy. Where an entire building undergoes a *change of occupancy*, it shall comply with Section 912.8.1 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 1110 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: 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.

Reason: The purpose of this Proposal is to reinstate this Exception that was deleted during the 2007-08 Code Development Cycle. The deletion of the Exception is contrary to the U.S. Federal Law Fair Housing Act accessibility requirements. The Federal Fair Housing Act does not require existing buildings that are converted to residential use to comply with the Fair Housing Act accessibility requirements. The IBC does not require existing buildings with a change of occupancy to residential use to contain Type B units. In fact, with the deletion of this Exception caused an inconsistency between the IBC and the IEBC. Section 3411.1 of the IBC states:

3409.1 Scope. The provisions of Sections 3411.1 through 3411.9 apply to maintenance, change of occupancy, additions and alterations to existing buildings, including those identified as historic buildings.

Exception: Type B dwelling or sleeping units required by Section 1107 are not required to be provided in existing buildings and facilities.

Federal Law for the implementing the accessibility requirements of the Fair Housing Act only apply to new buildings as described in the HUD Fair Housing Act Design Manual as follows: *“The Fair Housing Act does not require any renovations to existing buildings. Its design requirements apply to new construction only – to covered multifamily dwellings that are built for first occupancy after March 13, 1991. First occupancy is defined as “a building that has never before been used for any purpose.””*

As the Federal law states, any existing building that is converted to residential use, no matter when it was constructed, is NOT required to comply with the Fair Housing Act. It also needs to be understood that the I-Codes contain provisions. The I-Codes should not contain requirements that are contrary to Federal public law.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BROWN-EB1-912.8.2.DOC

EB35–09/10

1006 (New)

Proponent: Lorraine Ross, Intech Consulting Inc., representing Polyiso Insulation Manufacturers Association (PIMA)

Add new section as follows:

SECTION 1006 **ENERGY CONSERVATION**

1006.1 Minimum requirements. 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.

(Renumber subsequent sections)

Reason: Although Section 1001.1 Scope states, "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. Where an *addition* impacts the *existing building* or structure, that portion shall comply with this code," there is no clear direction on Energy Conservation.

This code change proposal inserts a new section entitled, Energy Conservation, which clarifies that additions must meet the *International Energy Conservation Code* for new construction.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: ROSS-EB1-1006.DOC

EB36–09/10

1101.2

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

1101.2 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, 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 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 ~~a complete load path and other earthquake-resistant features~~ 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.

Reason: This is an editorial proposal. The current provision requires the engineer to describe a complete load path whether one is present or not. Further, the term "earthquake resistant features" is vague. This proposal clarifies that the provision's intent is to require some description of the designed or *de facto* lateral system and to identify its salient features. The proposed language should be clearer, more enforceable, and more effective at producing a useful report.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB22-1101.2.DOC

EB37–09/10

1102.2, 1106.2

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Delete and substitute as follows:

~~**1102.2 Dangerous buildings.** When an historic building is determined to be dangerous, no work shall be required except as necessary to correct identified unsafe conditions.~~

1102.2 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.

~~**1106.2 Unsafe structural elements.** Where the code official determines that a component or a portion of a building or structure is dangerous as defined in this code and is in need of repair, strengthening, or replacement by provisions of this code, only that specific component or portion shall be required to be repaired, strengthened, or replaced.~~

1106.2 Dangerous conditions. Conditions determined by the code official to be dangerous shall be remedied. No work shall be required beyond what is required to remedy the dangerous condition.

Reason: This proposal is editorial. It makes the use of defined terms more consistent, while preserving the intent of the Chapter. Sections 1102.2 and 1106.2 currently use the terms “dangerous” and “unsafe” interchangeably, but the definitions in Chapter 2 are not the same.

In Section 1102.2, the proposal understands that the intent of the current provision is to address unsafe conditions (as defined in Chapter 2) without triggering additional work. The proposed language is clearer and uses “unsafe” in place of “dangerous.”

In Section 1106.2, which is in the Structural portion of the Chapter, the proposal deletes unnecessary language and uses the structural term “dangerous” in place of “unsafe.”

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB23-1102.2.DOC

EB38–09/10

1202.3, 1202.4

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

1202.3 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 ~~5~~ 10 percent.

1202.4 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 ~~5~~ 10 percent.

Reason: This proposal makes the wind and seismic upgrade triggers in Chapter 12 consistent with those already in Sections 302.4, 303.4, 707.5, 807.4.3, and 1003.3. Over the last several code cycles, all the lateral triggers have been increased from 5% to 10%, and Chapter 12 should be consistent.

The proposal also corrects the misspelling of the word “structural” in the exception to Section 1202.4.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB18-1202.3.DOC

EB39–09/10

1202.8 (New)

Proponent: Randall R. Dahmen, WI Registered PE, WI Licensed Commercial Building Inspector

Add new text as follows:

1202.8 Building envelope. A relocated or moved building shall comply with the *International Energy Conservation Code* for building envelope requirements when the building is relocated or moved to a different climate zone.

Reason: In order to create efficient building energy performance, this code change requires those buildings that change regions of climate where there are more restrictive building envelope requirements, to meet the more restrictive performance criteria of the IECC for the new location. Buildings are many times relocated or moved from regions of the country which are typically warm, and which require minimal insulation at the time of original construction, to regions that are extremely cold, whose minimum requirements for building insulation are significantly greater. Similarly, buildings that are relocated or moved from a cold climate to a warm climate may find that they may need to make changes to the existing glazing in order to comply with the Solar Heat Gain Coefficient (SHGC) requirements.

At present, there are no rules requiring that the relocated building install additional insulation to the building envelope assemblies. This seems inappropriate, since the original design was intended for the original building location, not the proposed relocation. It is the opinion of this author that this proposal is an extension of the snow load requirements already addressed under IEBC 1202.5. Clearly it has been established that when a building changes locations, it needs to be modified so as to appropriately accommodate the climatic conditions of the new site. This is a continuation of that thought process.

Cost Impact: Minimal. Exact costs would be dependent on the significance in the change in climate for the moved or relocated building.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: DAHMEN-EB2-1202.8.DOC

EB40–09/10

A102.2

Proponent: Peter Somers, Magnusson Klemencic Associates, National Council of Structural Engineers Associations/Code Advisory Committee/Existing Buildings Subcommittee

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

A102.2 Essential and hazardous facilities. ~~The provisions of this chapter shall not apply to the strengthening of buildings or structures in Occupancy Category Categories III when assigned to Seismic Design Category C, D, or E or buildings or structures in Occupancy Category IV. Such buildings or structures shall be strengthened to meet the requirements of the *International Building Code* for new buildings of the same occupancy category or other such criteria approved by the code official. that have been established by the jurisdiction.~~

Reason: It does not make any sense to allow the seismic risk reduction procedures of Appendix Chapter A1 to be used for Occupancy III buildings assigned to Seismic Design Category B, but not Seismic Design Categories C-E. The enhanced seismic performance objectives for Occupancy Category III buildings apply relatively uniformly across all seismic design categories in the IBC and ASCE 7-05. In particular, Occupancy Category III buildings in all seismic design categories are designed using a seismic Importance Factor equal to 1.25, making them stronger than Occupancy Category II buildings. The provisions of A1 do not have any reference to an importance factor (which is equal to 1.0 for Occupancy Category II buildings), and so they really should not assumed to be applicable to Occupancy Category III buildings, regardless of seismic design category.

Furthermore, the scoping of Chapter A1 in IEBC Section 101.5.4.2 excludes Occupancy Category III (and IV), so this proposal makes the appendix chapter consistent with its use as permitted in Section 101.5.4.2.

The change at the end of Section A102.2 is editorial for consistency with code terminology.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: SOMERS-EB2-A102.2.DOC

EB41–09/10

A103

Proponent: Peter Somers, Magnusson Klemencic Associates, National Council of Structural Engineers Associations/Code Advisory Committee/Existing Buildings Subcommittee

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

1. Delete definitions without substitution:

SECTION A103 DEFINITIONS

~~**BUILDING CODE.** The code current adopted by the jurisdiction~~

~~**INTERNATIONAL BUILDING CODE.** The 2009 *International Building Code* (IBC)~~

2. Add new definition as follows:

FLEXIBLE DIAPHRAGM. A diaphragm of wood or untopped metal deck construction.

3. Revise definition as follows:

RIGID DIAPHRAGM. A diaphragm of reinforced concrete construction supported by concrete beams and columns or by structural steel beams and columns.

Reason: The definitions for Building Code and International Building Code are unnecessary and are not included in the other appendix chapters.

The definition for flexible diaphragm is added since it is required for Section A111.1, which determines where the Special Procedure can be used.

The proposed revision to the definition rigid diaphragm is essentially editorial since a diaphragm's rigidity has no relationship to the type of framing system that supports the floors and roof, and older concrete diaphragms might not be "reinforced" based on current code definitions, yet would still be considered rigid based on stiffness.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: SOMERS-EB3-A103.DOC

EB42–09/10

A110.2

Proponent: Peter Somers, Magnusson Klemencic Associates, National Council of Structural Engineers Associations/Code Advisory Committee/Existing Buildings Subcommittee

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

A110.2 Lateral forces on elements of structures. Parts and portions of a structure not covered in Sections A110.3 shall be analyzed and designed per the current building code, using force levels defined in Section A110.1.

Exceptions:

1. Unreinforced masonry walls for which height-to-thickness ratios do not exceed ratios set forth in Table A1-B need not be analyzed for out-of-plane loading. Unreinforced masonry walls that exceed the allowable h/t ratios of Table A1-B shall be braced according to Section A113.5.
2. Parapets complying with Section A113.6 need not be analyzed for out-of-plane loading.
3. Walls in buildings with flexible diaphragms shall be anchored to floor and roof diaphragms in accordance with Section A113.1.

Reason: The proposed change provides appropriate wall anchorage forces for buildings with rigid diaphragms. The wall anchorage force currently specified in Section A113.1.3 (0.9S_{DS}) is similar to the IBC wall anchorage force for new masonry construction with flexible diaphragms (0.8S_{DS} per ASCE 7-05 section 12.11.2.1), but is more than twice the IBC wall anchorage force for new construction with rigid diaphragms (0.4S_{DS} per ASCE 7-05 section 12.11.2).

Therefore, this proposal maintains the current Chapter A1 provisions for wall anchorage with flexible diaphragms and points the use back to the IBC for wall anchorage with rigid diaphragms (by making the exception only apply to flexible diaphragms). The wall anchorage requirements for flexible diaphragms were based on the ABK research in the 1980s, but that program did not cover buildings with rigid diaphragms, so it is appropriate to refer to the building code for wall anchorage forces consistent with other parts of this section.

Cost Impact: The code change proposal could lead to a significant reduction in cost to masonry wall anchorage in buildings with rigid diaphragm.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: SOMERS-EB1-A110.2.DOC

EB43–09/10

A301.2

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

A301.2 Scope. The provisions of this chapter apply to residential buildings of light-frame wood construction assigned to Seismic Design Category C, D or E of the *International Building Code* containing one or more of the structural weaknesses specified in Section A303.

Exception: The provisions of this chapter do not apply to the buildings, or elements thereof, listed below. These buildings or elements require analysis by an engineer or architect in accordance with Section A301.3 to determine appropriate strengthening:

1. Group R-1, R-2 or R-4 occupancies with more than four dwelling units.
2. Buildings with a lateral-force-resisting system using poles or columns embedded in the ground.
3. Cripple walls that exceed 4 feet (1219 mm) in height.
4. Buildings exceeding three stories in height and any three-story building with cripple wall studs exceeding 14 inches (356 mm) in height.
5. Buildings where the building official determines that conditions exist that are beyond the scope of the prescriptive requirements of this chapter.
6. Buildings or portions thereof constructed on concrete slabs on grade.

The details and prescriptive provisions herein are not intended to be the only acceptable strengthening methods permitted. Alternative details and methods may be used when approved by the building official. Approval of alternatives shall be based on test data showing that the method or material used is at least equivalent in terms of strength, deflection and capacity to that provided by the prescriptive methods and materials.

The provisions of this chapter may be used to strengthen historic structures, provided they are not in conflict with other related provisions and requirements that may apply.

Reason: This proposal clarifies the intent of the first paragraph of this section. The balance of the section, not shown, remains unchanged by this proposal.

Appendix Chapter A3 originated as stand-alone provisions in various jurisdictions in California. In those conditions, it was appropriate to include scoping provisions to indicate that retrofit was only required or advised in areas of higher seismic risk. However, with their use in the IEBC, the provisions are either used to satisfy triggered upgrades via IEBC Section 101.5.4.2 or used for a voluntary seismic upgrade (allowed under IEBC Section 707.6). For both reasons, the scoping of the appendix chapter should not restrict their use to certain seismic design categories. The sections of the IEBC where seismic upgrade triggers occur (see Sections 502.2.2, 707.5, or 807.4) do not distinguish between seismic design categories, so neither should the appendix chapter. The intent of this proposal is to permit this chapter's use at the option of the registered design professional regardless of seismic design category.

With the proposed modification, Appendix Chapter A3 could be used in all seismic design categories, although the following should be noted:

- Structures assigned to SDC A are exempt from most seismic provisions per ASCE 7-05 Section 11.7,
- Dwellings in low seismic design categories are exempt from all seismic provisions per IBC Section 1613.1, and
- Residential buildings would not be assigned to Seismic Design Category F.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB6- A301.2.-3.DOC

EB44-09/10

A301.2

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

A301.2 Scope. The provisions of this chapter apply to residential buildings of light-frame wood construction assigned to Seismic Design Category C, D or E of the *International Building Code* containing one or more of the structural weaknesses specified in Section A303.

Exception: The provisions of this chapter do not apply to the buildings, or elements thereof, listed below. These buildings or elements require analysis by an engineer or architect in accordance with Section A301.3 to determine appropriate strengthening:

1. Group R-1, R-2 or R-4 occupancies with more than four dwelling units.
2. Buildings with a lateral-force-resisting system using poles or columns embedded in the ground.
3. Cripple walls that exceed 4 feet (1219 mm) in height.
4. Buildings exceeding three stories in height and any three-story building with cripple wall studs exceeding 14 inches (356 mm) in height.
5. Buildings where the building official determines that conditions exist that are beyond the scope of the prescriptive requirements of this chapter.
6. Buildings or portions thereof constructed on concrete slabs on grade.

The details and prescriptive provisions herein are not intended to be the only acceptable strengthening methods permitted. Alternative details and methods may be used when approved by the building official. Approval of alternatives shall be based on test data showing that the method or material used is at least equivalent in terms of strength, deflection and capacity to that provided by the prescriptive methods and materials.

~~The provisions of this chapter may be used to strengthen historic structures, provided they are not in conflict with other related provisions and requirements that may apply.~~

Reason: This sentence is unnecessary and confusing. First, it might conflict with more general provisions for historic buildings in IEBC chapter 11. Also, it seems to suggest that all the other scope limitations of A301.2 – post supports, brick footings, etc., as well as archaic existing materials or details – may be waived for any historic building. That was not the intent of the sentence. Rather, the intent was to allow the use of this chapter unless historic codes restrict certain work, but such a statement is not needed. Further, as noted in the Chapter A3 commentary, historic houses sometimes have post supports or other conditions that would make this chapter difficult to apply, and those conditions call for consultation with the building department, which is at odds with this single sentence in A301.2.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB5- A301.2-2.DOC

EB45–09/10

A301.2, A301.3, A304.1.1

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

A301.2 Scope. The provisions of this chapter apply to residential buildings of light-frame wood construction assigned to Seismic Design Category C, D or E of the *International Building Code* containing one or more of the structural weaknesses specified in Section A303.

Exception: The provisions of this chapter do not apply to the buildings, or elements thereof, listed below. These buildings or elements require analysis by an engineer or architect in accordance with Section A301.3 to determine appropriate strengthening:

1. Group R-1, R-2 or R-4 occupancies with more than four dwelling units.
2. Buildings with a lateral-force-resisting system using poles or columns embedded in the ground.
3. Cripple walls that exceed 4 feet (1219 mm) in height.
4. Buildings exceeding three stories in height and any three-story building with cripple wall studs exceeding 14 inches (356 mm) in height.
5. Buildings where the building official determines that conditions exist that are beyond the scope of the prescriptive requirements of this chapter.
6. Buildings or portions thereof constructed on concrete slabs on grade.

~~The details and prescriptive provisions herein are not intended to be the only acceptable strengthening methods permitted. Alternative details and methods may be used when approved by the building official. Approval of alternatives shall be based on test data showing that the method or material used is at least equivalent in terms of strength, deflection and capacity to that provided by the prescriptive methods and materials.~~

The provisions of this chapter may be used to strengthen historic structures, provided they are not in conflict with other related provisions and requirements that may apply.

A301.3 Alternative design procedures. The details and prescriptive provisions herein are not intended to be the only acceptable strengthening methods permitted. Alternative details and methods may be used where designed by a registered design professional and approved by the code official. Approval of alternatives shall be based on a demonstration that the method or material used is at least equivalent in terms of strength, deflection and capacity to that provided by the prescriptive methods and materials.

~~Where~~ When analysis by a registered design professional an engineer or architect is required in accordance with Section A301.2, such analysis shall be in accordance with all requirements of the building code, except that the seismic forces base shear may be taken as 75 percent of those the horizontal forces specified in the building code.

A304.1.1 Scope. The structural weaknesses noted in Section A303 shall be strengthened in accordance with the requirements of this section. Strengthening work may include both new construction and alteration of existing construction. Except as provided herein, all strengthening work and materials shall comply with the applicable provisions of the building code. ~~Alternative methods of strengthening may be used provided such systems are designed by an engineer or architect and are approved by the building official.~~

Reason: This proposal is mostly editorial. It relocates three sentences from current section A301.2 to section A301.3 and makes coordinating revisions. These three sentences are clearly about alternative methods. They belong in A301.3, so this proposal moves them there, and edits them slightly for consistent terminology. The portion of current A301.2 not shown is to remain unchanged by this proposal.

Once these sentences are relocated to A301.3, the current reference to A301.2 (in A301.3) is no longer needed. The other changes shown in A301.3 are editorial, for consistent terminology. In A304.1.1, the final sentence duplicates the relocated provision above and is proposed for deletion.

There is one substantive change: In the last of the three relocated sentences, the current call for "test data" is proposed for revision. The I-codes typically allow alternatives, and test data are not always required. Reasonable alternatives can also be justified on the basis of engineering analysis, proprietary data, conventional methods, or other consensus documents derived from test data but not necessarily based on that data directly. Approval of the code official is still required, and the key issues are identified in the rest of the sentence, which remains unchanged.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

ICCFILENAME: BONOWITZ-EB4-A301.2.DOC

EB46-09/10 A303

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

SECTION A303 STRUCTURAL WEAKNESSES

For the purpose of this chapter, structural weaknesses shall be as specified below.

1. Sill plates or floor framing that are supported directly on the ground without a foundation system that conforms to the building code ~~an approved foundation system~~.
2. A perimeter foundation system that is constructed only of wood posts supported on isolated pad footings.
3. Perimeter foundation systems that are not continuous.

Exceptions:

1. Existing single-story exterior walls not exceeding 10 feet (3048 mm) in length, forming an extension of floor area beyond the line of an existing continuous perimeter foundation.
2. Porches, storage rooms and similar spaces not containing fuel-burning appliances.
4. A perimeter foundation system that is constructed of unreinforced masonry or stone.
5. Sill plates that are not connected to the foundation or that are connected with less than what is required by the building code.

Exception: When approved by the building official, connections of a sill plate to the foundation made with other than sill bolts may be accepted if the capacity of the connection is equivalent to that required by the building code.

6. Cripple walls that are not braced in accordance with the requirements of Section A304.4 and Table A3-A, or cripple walls not braced with diagonal sheathing or wood structural panels in accordance with the building code.

Reason: This proposal makes the provision more consistent and enforceable. The intent of this section is to identify non-conforming conditions expected to lead to deficient performance. The conditions should be objectively defined, as they are for all but item 1. This proposal therefore modifies item 1 to make it consistent with the rest of the section.

Approval of alternate conditions remains a possibility under section A301.3 but "approval" is not the subject of section A303.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

ICCFILENAME: BONOWITZ-EB3-A303.DOC

EB47–09/10

A304.1.3, A304.1.4, Figure A3-8, Figure A3-8A(New), Figure A3-8B(New), Figure A3-8C(New), Figure A3-9,

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

1. Revise as follows:

A304.1.3 Floor joists not parallel to foundations. Floor joists framed perpendicular or at an angle to perimeter foundations shall be restrained either by an existing nominal 2-inch-wide (51 mm) continuous rim joist or by a nominal 2-inch-wide (51 mm) full-depth blocking between alternate joists in one- and two-story buildings, and between each joist in three-story buildings. Existing blocking for multistory buildings must occur at each joist space above a braced cripple wall panel.

Existing connections at the top and bottom edges of an existing rim joist or blocking need not be verified in one-story buildings. In multistory buildings, the existing top edge connection need not be verified; however, the bottom edge connection to either the foundation sill plate or the top plate of a cripple wall shall be verified. The minimum existing bottom edge connection shall consist of 8d toenails spaced 6 inches (152mm) apart for a continuous rim joist, or three 8d toenails per block. When this minimum bottom edge-connection is not present or cannot be verified, a supplemental connection installed as shown in ~~Figure A3-8~~ Figure A3-8A or A3-8C shall be provided.

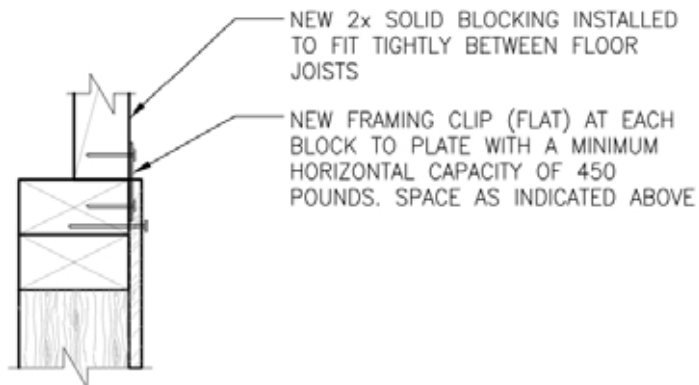
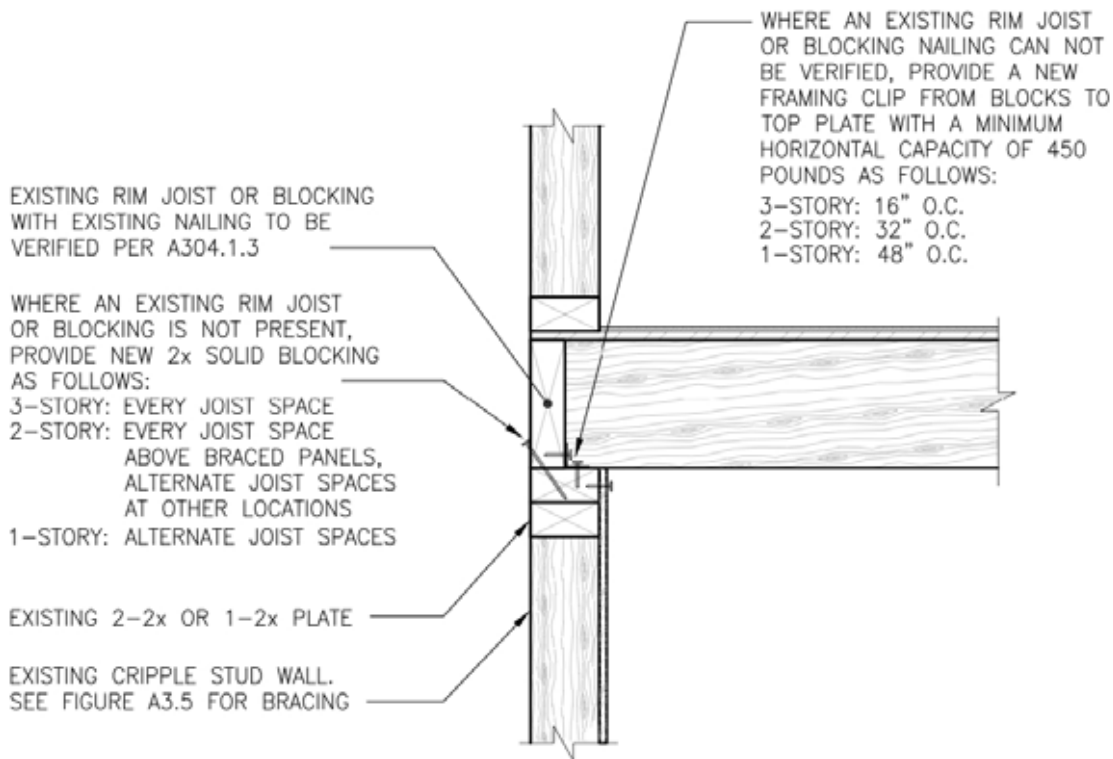
Where an existing continuous rim joist or the minimum existing blocking does not occur, new $\frac{3}{4}$ -inch or $\frac{23}{32}$ " (19 mm) wood structural panel blocking installed tightly between floor joists and nailed as shown in ~~Figure A3-8~~ A3-9 shall be provided at the inside face of the cripple wall. In lieu of ~~$\frac{3}{4}$ -inch (19 mm)~~ wood structural panel blocking, tight fitting, full-depth 2-inch (51 mm) blocking may be used. New blocking may be omitted where it will interfere with vents or plumbing that penetrates the wall.

A304.1.4 Floor joists parallel to foundations. Where existing floor joists are parallel to the perimeter foundations, the end joist shall be located over the foundation and, except for required ventilation openings, shall be continuous and in continuous contact with the foundation sill plate or the top plate of the cripple wall. Existing connections at the top and bottom edges of the end joist need not be verified in one-story buildings. In multistory buildings, the existing top edge connection of the end joist need not be verified; however, the bottom edge connection to either the foundation sill plate or the top plate of a cripple wall shall be verified. The minimum bottom edge connection shall be 8d toenails spaced 6 inches (152 mm) apart. If this minimum bottom edge connection is not present or cannot be verified, a supplemental connection installed as shown in ~~Figure A3-9~~ A3-8B, A3-8C, or A3-9 shall be provided.

2. Delete current figures and substitute as follows:

~~FIGURE A3-8—ALTERNATE BLOCKING WHERE RIM JOIST OR BLOCKING HAS BEEN OMITTED~~

~~FIGURE A3-9—CONNECTION OF CRIPPLE WALL TO FLOOR SHEATHING
WHEN FLOOR FRAMING IS PARALLEL TO WALL~~



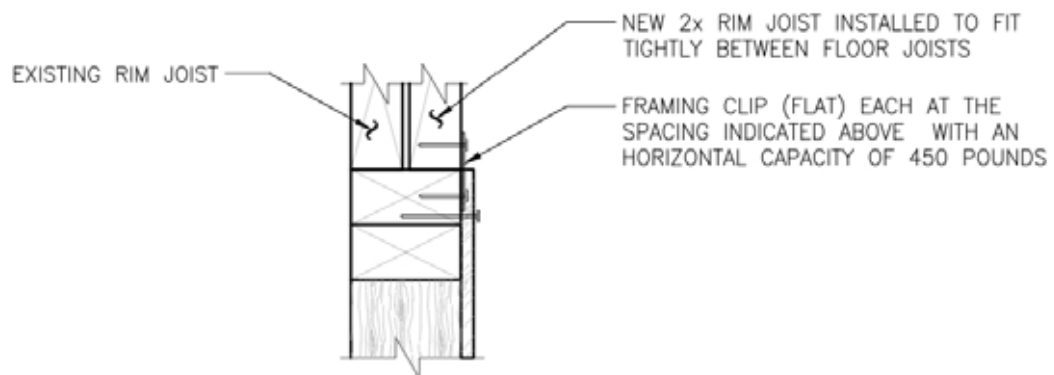
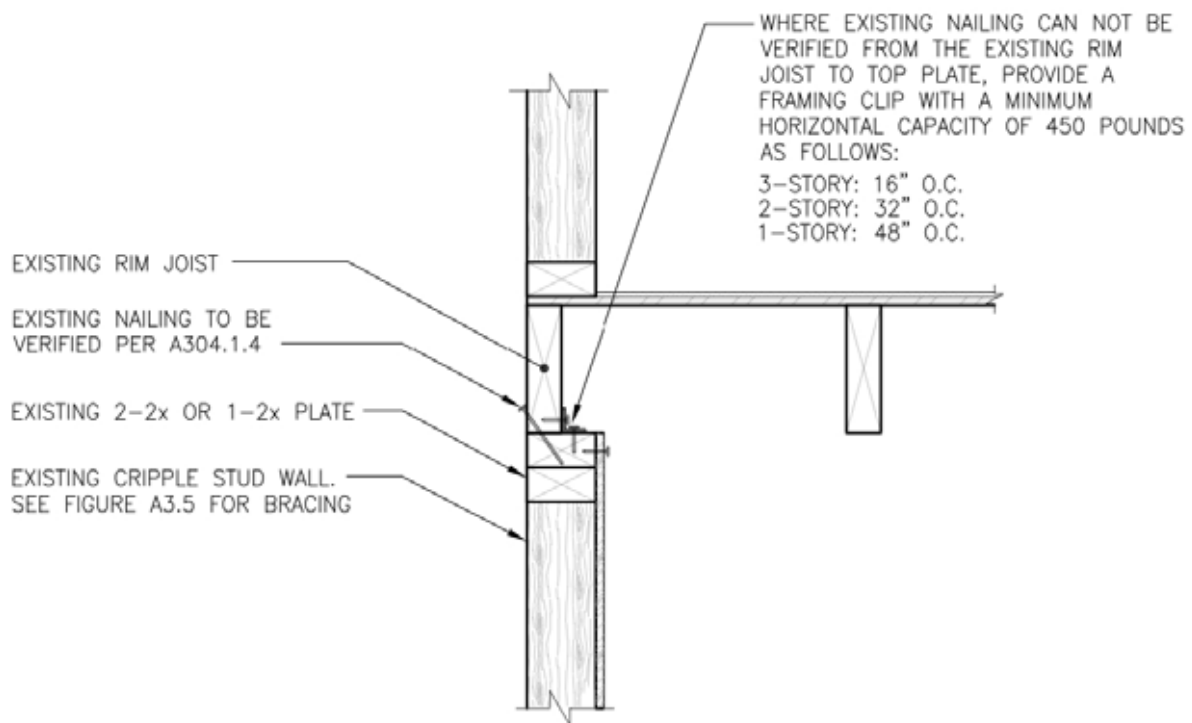
ALTERNATE DETAIL FOR FLUSH CONDITION

FOR SI: 1 INCH = 25.4mm, 1 POUND = 4.4N.

NOTES:

1. SEE MANUFACTURING INSTRUCTIONS FOR NAIL SIZES ASSOCIATED WITH METAL FRAMING CLIPS.

FIGURE A3-8A - TYPICAL FLOOR TO CRIPPLE WALL CONNECTION (FLOOR JOISTS NOT PARALLEL TO FOUNDATIONS)



ALTERNATE CONNECTION
FOR FLUSH CONNECTION

FOR SI: 1 INCH = 25.4mm, 1 POUND = 4.4N.

NOTES:

1. SEE MANUFACTURING INSTRUCTIONS FOR NAIL SIZES ASSOCIATED WITH METAL FRAMING CLIPS.

**FIGURE A3-8B - TYPICAL FLOOR TO CRIPPLE WALL CONNECTION
(FLOOR JOISTS PARALLEL TO FOUNDATIONS)**

WHERE AN EXISTING RIM JOIST OR BLOCKING IS NOT PRESENT, PROVIDE NEW 2x SOLID BLOCKING AS FOLLOWS:

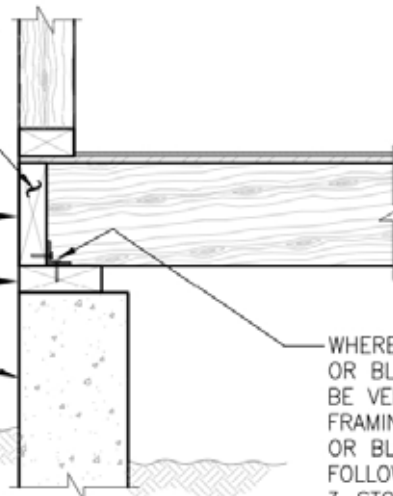
- 3-STORY: EVERY JOIST SPACE
- 2-STORY: EVERY JOIST SPACE ABOVE BRACED PANELS, ALTERNATE JOIST SPACES AT OTHER LOCATIONS
- 1-STORY: ALTERNATE JOIST SPACES

EXISTING END FLOOR JOIST OR BLOCKING WITH EXISTING TOENAILS TO BE VERIFIED PER A304.1.3

EXISTING 2x MUDSILL

EXISTING FOUNDATION WALL

EXISTING GROUND LEVEL



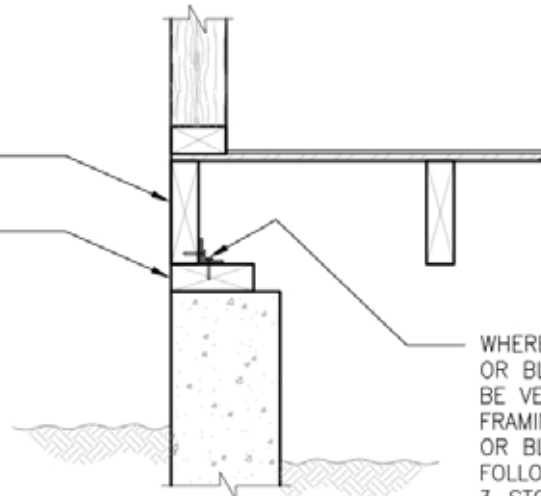
FLOOR JOISTS NOT PARALLEL TO FOUNDATIONS

WHERE AN EXISTING END JOIST OR BLOCK TOE NAILING CAN NOT BE VERIFIED, PROVIDE A NEW FRAMING CLIP FROM END JOIST OR BLOCK TO MUDSILL AS FOLLOWS:

- 3-STORY: 16" O.C.
 - 2-STORY: 32" O.C.
 - 1-STORY: 48" O.C.
- NEW FRAMING CLIP MINIMUM ALLOWABLE CAPACITY IS 450 POUNDS

EXISTING END JOIST WITH EXISTING TOENAILS TO BE VERIFIED PER A304.1.4

EXISTING 2x MUDSILL



FLOOR JOISTS PARALLEL TO FOUNDATIONS

WHERE AN EXISTING END JOIST OR BLOCK TOE NAILING CAN NOT BE VERIFIED, PROVIDE A NEW FRAMING CLIP FROM END JOIST OR BLOCK TO MUDSILL AS FOLLOWS:

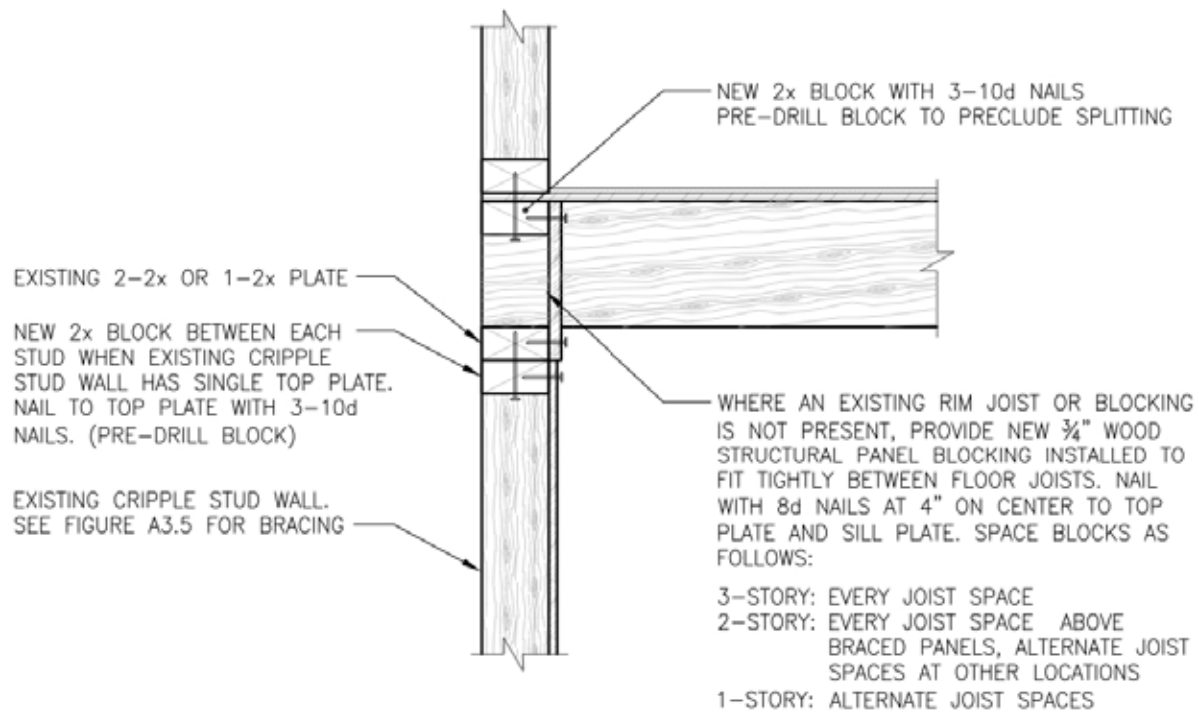
- 3-STORY: 16" O.C.
 - 2-STORY: 32" O.C.
 - 1-STORY: 48" O.C.
- NEW FRAMING CLIP MINIMUM ALLOWABLE CAPACITY IS 450 POUNDS

FOR SI: 1 INCH = 25.4mm

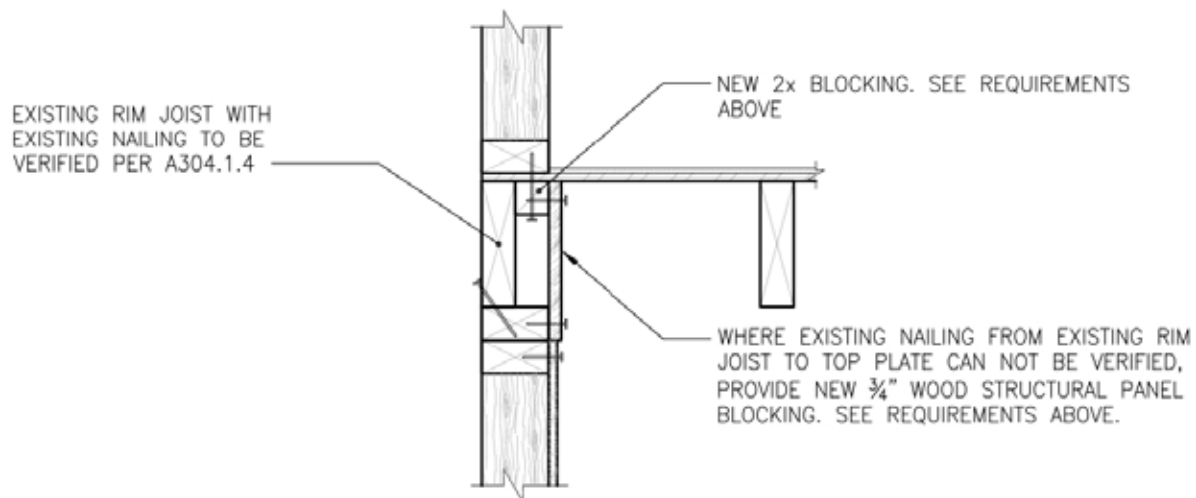
NOTES:

1. SEE SECTION A304.3 FOR SILL PLATE ANCHORAGE.
2. SEE MANUFACTURING INSTRUCTIONS FOR NAIL SIZES ASSOCIATED WITH METAL FRAMING CLIPS.

FIGURE A3-8C - TYPICAL FLOOR TO MUDSILL CONNECTIONS



FLOOR JOISTS NOT PARALLEL TO FOUNDATION



FLOOR JOISTS PARALLEL TO FOUNDATION

FOR SI: 1 INCH = 25.4mm, 1 POUND = 4.4N.

NOTES: SEE SECTION A304.4 FOR CRIPPLE WALL BRACING.

FIGURE A3-9 - ALTERNATE FLOOR FRAMING TO CRIPPLE WALL CONNECTION

Reason: This proposal updates and replaces Figures A3-8 and A3-9, and makes corresponding revisions to the text. In the last paragraph of A304.1.3, 3/4" plywood is also referenced as 23/32" as this is more common at lumber yards.

The 2009 figures proposed for replacement or modification are rarely used, as they have been found to be impractical or of limited capacity. 2009 Figures A3-8 and A3-9 attempted to address the floor-to-cripple wall attachment with a plywood gusset concept for both parallel and non-parallel floor framing conditions. However, the approach was both uneconomical and of limited capacity due to a poor connection between the top of the gusset and the floor diaphragm. In 2009 figure A3-8 there is no attachment between the top of the plywood gusset and the floor diaphragm. The detail thus relies for shear transfer on compression of a plywood gusset with an unsupported top. 2009 Figure A3-9 indicates an attachment to the floor diaphragm, but this attachment would be made with shot nails or wood screws into the existing flooring, which is not recommended.

The proposed figures illustrate preferred approaches for creating a load path between the existing floor structure and either the top of the cripple wall (Figures A3-8A and A3-8B) or the sill plate (Figure A3-8C). These new Figures systematically address the four most common conditions found in houses eligible for Chapter A3 with reliable and cost effective details. Similar to portions of 2009 Figure A3-8, these new details utilize readily available and well-documented metal fasteners.

Proposed Figure A3-9 is a modification of 2009 Figure A3-8 with the upper portion of 2009 Figure A3-9 retained as an alternative for cases where the plywood gusset approach might be suitable. The 2009 details have been modified to provide a simpler and more reliable attachment to the floor diaphragm that does not risk damage to the interior flooring.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB14-A304.1.3.DOC

EB48-09/10

A304.2.2

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

A304.2.2 Evaluation of existing foundations ~~Foundation evaluation by an engineer or architect.~~ Partial perimeter foundations or unreinforced masonry foundations shall be evaluated by a registered design professional ~~an engineer or architect~~ for the force levels specified ~~noted~~ in Section A301.3. Test reports or other substantiating data to determine existing foundation material strengths shall be submitted to the code official ~~for review~~. Where ~~When~~ approved by the code building official, these existing foundation systems may be strengthened in accordance with the recommendations included with the evaluation in lieu of being replaced.

Exception: In lieu of testing existing foundations to determine material strengths, and where ~~when~~ approved by the code building official, a new nonperimeter foundation system designed for the forces specified ~~noted~~ in Section A301.3 may be used to resist ~~all exterior~~ lateral forces from perimeter walls. A registered design professional shall confirm the ability of the existing diaphragm to transfer seismic forces to the new nonperimeter foundations.

Reason: This proposal is primarily editorial, for clarity and consistency of terminology. The exception allows interior foundation walls to resist lateral forces coming from the perimeter of the building. The design professional responsible for the new non-perimeter foundation should also check the diaphragm as part of this offset load path.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB9- A304.2.2.DOC

EB49–09/10

A304.2.3 through A304.2.6, A304.2.6 (New), Appendix A

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

1. Revise as follows:

A304.2.3 Details for new perimeter foundations. All new perimeter foundations shall be continuous and constructed according to ~~one of the details shown in either Figure A3-1 or A3-2.~~ All new construction materials shall comply with the requirements of building code. Where approved by the code official, the existing clearance between existing floor joists or girders and existing grade below the floor need not comply with the building code.

Exceptions:

- ~~1. When approved by the building official, the existing clearance between existing floor joists or girders and existing grade below the floor need not comply with the building code.~~
- ~~2. Where designed by a registered design professional and~~ When approved by the code building official, and ~~when designed by an engineer or architect,~~ partial perimeter foundations may be used in lieu of a continuous perimeter foundation.

A304.2.4 New concrete foundations ~~Required compressive strength.~~ New concrete foundations shall have a minimum compressive strength of 2,500 pounds per square inch (17.24 MPa) at 28 days.

A304.2.5 New hollow-unit masonry foundations. New hollow-unit masonry foundations shall be solidly grouted. The grout shall have minimum compressive strength of 2,000 pounds per square inch (13.79 MPa). Mortar shall be Type M or S, ~~and grout and masonry units shall comply with the building code.~~

A304.2.6 Reinforcing steel. Reinforcing steel shall comply with the requirements of the building code.

A304.2.6 New sill plates. Where new sill plates are used in conjunction with new foundations, they shall be minimum 2x nominal thickness and shall be preservative-treated wood or foundation grade redwood marked or branded by an approved agency. Nails in contact with preservative-treated wood shall be hot-dip galvanized. Metal framing anchors in contact with preservative-treated wood shall be galvanized in accordance with ASTM A153 with a G185 coating.

2. Add standard to Appendix A referenced standards:

ASTM

A153/A153M-05

Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

Reason: This proposal addresses a series of provisions all related to new foundation elements. It proposes a number of editorial revisions for clarity and consistency of terminology, as well as a few substantive improvements, as follows:

In A304.2.3, a general reference to the building code is proposed so that subsequent sections (A304.2.5 and A304.2.6) don't each need to refer to the building code. The final sentence of the section is merely relocated from Exception 1. Since the referenced details have no provisions for minimum under-floor clearances, this allowance for code official discretion is not actually an Exception. This is an editorial change. Exception 2 is edited for consistent terminology.

A304.2.4 is merely re-titled for consistency.

A304.2.5 is clarified by the addition of a minimum grout strength consistent with the code for new construction, a reflection of standard practice that improves these prescriptive provisions.

Current A304.2.6 is proposed for deletion. References here to the building code are unnecessary if a general requirement is added per A304.2.3.

A new section (proposed A304.2.6) addresses sill plates on new foundations. The construction of new footings will likely require a new sill plate. The proposal makes requirements for this new member and connectors.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: ASTM A153/A153M-05 is currently referenced in the IBC.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB10- A304.2.3.DOC

EB50-09/10

A304.3.1, A304.3.2, A304.3.3, A304.5, A302

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

A304.3.1 Existing perimeter foundations. ~~Where~~ ~~When~~ the building has an existing continuous perimeter foundation, all perimeter wall sill plates shall be anchored ~~bolted~~ to the foundation with adhesive ~~chemical~~ anchors or expansion anchors ~~bolts~~ in accordance with Table A3-A.

Anchors ~~or bolts~~ shall be installed in accordance with Figure A3-3, with the plate washer installed between the nut and the sill plate. The nut shall be tightened to a snug-tight condition after curing is complete for adhesive ~~chemical~~ anchors and after expansion wedge engagement for expansion ~~bolts~~ anchors. All anchors shall be installed in accordance with manufacturer's recommendations. ~~The installation of nuts on all bolts shall be subject to verification by the building official.~~ Where existing conditions prevent anchor ~~or bolt~~ installations through the sill plate, this connection may be made in accordance with Figure A3-4A, A3-4B, or A3-4C. The spacing of these alternate connections shall comply with the maximum spacing requirements of Table A3-A. Expansion anchors ~~bolts~~ shall not be used where ~~when~~ the installation causes surface cracking of the foundation wall at the locations of the bolt.

A304.3.2 Placement of ~~chemical anchors and expansion bolts~~. ~~Chemical anchors or expansion bolts~~ Anchors shall be placed within 12 inches (305 mm), but not less than 9 inches (229mm), from the ends of sill plates and shall be placed in the center of the stud space closest to the required spacing. New sill plates may be installed in pieces ~~when~~ where necessary because of existing conditions. For lengths of sill plate greater than 12 feet (3658mm), anchors or bolts shall be spaced along the sill plate as specified ~~noted~~ in Table A3-A. For other lengths of sill plate, see anchor placement shall be in accordance with Table A3-B. ~~For lengths of sill plate less than 30 inches (762mm), a minimum of one anchor or bolt shall be installed.~~

Exception: Where physical obstructions such as fireplaces, plumbing or heating ducts interfere with the placement of an anchor ~~or bolt~~, the anchor ~~or bolt~~ shall be placed as close to the obstruction as possible, but not less than 9 inches (229 mm) from the end of the plate. Center-to-center spacing of the anchors ~~or bolts~~ shall be reduced as necessary to provide the minimum total number of anchors required based on the full length of the wall. Center-to-center spacing shall not be less than 12 inches (305mm).

A304.3.3 New perimeter foundations. Sill plates for new perimeter foundations shall be ~~bolted as required by~~ anchored in accordance with Table A3-A and as shown in Figure A3-1 or A3-2.

A304.5 Quality control. All work shall be subject to inspection by the building code official including, but not limited to:

1. Placement and installation of new ~~chemical anchors or expansion bolts~~ adhesive or expansion anchors installed in existing foundations. Special inspection is not required for ~~chemical~~ adhesive anchors installed in existing foundations regulated by the prescriptive provisions of this chapter.
2. Installation and nailing of new cripple wall bracing.
3. Any work may be subject to special inspection when required by the building code official in accordance with the building code.

ADHESIVE CHEMICAL ANCHOR. An assembly consisting of a threaded rod, washer, nut, and chemical adhesive approved by the code building official for installation in existing concrete or masonry.

EXPANSION BOLT ANCHOR. ~~A single assembly approved by the building official for installation in existing concrete or masonry. For the purpose of this chapter, expansion bolts shall contain a base designed to expand when properly set, wedging the bolt in the pre-drilled hole. Assembly shall also include appropriate washer and nut. An approved post-installed anchor, inserted into a pre-drilled hole in existing concrete or masonry, that transfers loads to or from the concrete or masonry by direct bearing or friction or both.~~

Reason: This proposal is primarily editorial. It renames and revises the definitions of the two anchor types for consistency with definitions now used in ACI 318 Appendix D and other ICC-ES resources. It also makes editorial revisions as needed to reflect the revised terminology.

In A304.3.1, the proposal adds a reference to manufacturer's recommendations, which is standard practice, especially for expansion anchors, which are typically proprietary. Verification by the code official is adequately covered in A304.5, so that sentence is proposed for deletion to avoid duplication.

In A304.3.2, the sentence about "lengths of sill plate less than 30 inches" duplicates a requirement already in Table A3-B, referenced in the previous sentence. It is proposed for deletion to avoid duplication.

Other minor revisions are editorial, for the sake of consistent terminology.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB2-A302.DOC

EB51-09/10

A304.4.1, A304.4.1.1

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

A304.4.1 General. Exterior cripple walls not exceeding 4 feet (1219 mm) in height shall ~~use~~ be permitted to be specified by the prescriptive bracing method in Section A304.4 below. Cripple walls over 4 feet (1219mm) in height require analysis by a registered design professional ~~an engineer or architect~~ in accordance with Section A301.3.

A304.4.1.1 Sheathing installation requirements. Wood structural panel sheathing shall not be less than 15/32-inch (12 mm) thick and shall be installed in accordance with Figure A3-5 or A3-6. All individual pieces of wood structural panels shall be nailed with 8d common nails spaced 4 inches (102 mm) on center at all edges and 12 inches (305 mm) on center at each intermediate support with not less than two nails for each stud. Nails shall be driven so that their heads are flush with the surface of the sheathing and shall penetrate the supporting member a minimum of 1 1/2 inches (38 mm). When a nail fractures the surface, it shall be left in place and not counted as part of the required nailing. A new 8d nail shall be located within 2 inches (51 mm) of the discounted nail and be hand-driven flush with the sheathing surface. ~~All horizontal~~ Where the installation involves horizontal joints, those joints must shall occur over nominal 2-inch by 4-inch (51 mm by 102 mm) blocking installed with the nominal 4-inch (102 mm) dimension against the face of the plywood.

Vertical joints at adjoining pieces of wood structural panels shall be centered on ~~existing~~ studs such that there is a minimum 1/8 inch (3.2 mm) between the panels, and such that the nails are placed a minimum of 1/2 inch (12.7 mm) from the edges of the existing stud. Where such edge distances cannot be maintained because of the width of the existing stud, a new stud shall be added adjacent to the existing studs and connected in accordance with Figure A3-7.

Reason: This proposal is editorial, for improved clarity and consistent code language.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB7- A304.4.1.DOC

EB52-09/10

A304.5.1 (New)

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Add new text as follows:

A304.5.1 Nails. All nails specified in this chapter shall be common wire nails of the following diameters and lengths: 8d nails shall be 0.131" x 2 1/2". 10d nails shall be 0.148" x 3". 12d nails shall be 0.148" x 3 1/4". 16d nails shall be 0.162" x 3 1/2". Nails used to attach metal framing connectors directly to wood members need only be 1 1/2" long.

Reason: This proposal adds needed specificity. The chapter makes many references to nails but does not always indicate "Common Wire Nails". Many different types of nails are also sold at lumber supply yards and hardware stores, so choosing the appropriate type of nail may be confusing. Furthermore, the substitution of inadequate nails is commonplace where gage and length are not specified. This proposal clarifies what is required.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB11- A304.5.1.DOC

EB53-09/10

A304.6

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Delete without substitution:

~~A304.6 Phasing of the strengthening work.~~ ~~When approved by the building official, the strengthening work contained in this chapter may be completed in phases. The strengthening work in any phase shall be performed on two parallel sides of the structure at the same time.~~

Reason: The proposal removes an unnecessary and possibly costly provision. First, work may always be phased or sequenced at the discretion of the code official. The current provision is intended to assure that the greatest seismic risks are reduced before other work is performed. But the probability that a significant earthquake occurs during the project is extremely low, even if the work is phased. Since this chapter is triggered by other provisions in the body of the IBC, the seismic improvements it requires will already be part of the project scope and would not inadvertently be delayed or left incomplete. By requiring a specific sequence of work, the provision could unnecessarily restrict an owner from completing work in the least disruptive or expensive way. Finally, single-family residences do not always have parallel sides, making it difficult to implement the original requirement.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB8- A304.6.DOC

EB54–09/10

Figures A31- through A3-7

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Delete figures and substitute as follows:

~~FIGURE A3-1—NEW REINFORCED CONCRETE FOUNDATION SYSTEM~~

~~FIGURE A3-2—NEW HOLLOW-MASONRY UNIT FOUNDATION WALL~~

~~FIGURE A3-3—SILL PLATE BOLTING TO EXISTING FOUNDATION~~

~~FIGURE A3-4A—SILL PLATE BOLTING IN EXISTING FOUNDATION—ALTERNATE~~

~~FIGURE A3-4B—SILL PLATE BOLTING TO EXISTING FOUNDATION WITHOUT CRIPPLE WALL AND FRAMING PARALLEL TO THE FOUNDATION WALL~~

~~FIGURE A3-4C—SILL PLATE BOLTING IN EXISTING FOUNDATION—ALTERNATE~~

~~FIGURE A3-5—CRIPPLE WALL BRACING WITH WOOD STRUCTURAL PANEL ON EXTERIOR FACE OF CRIPPLE STUDS~~

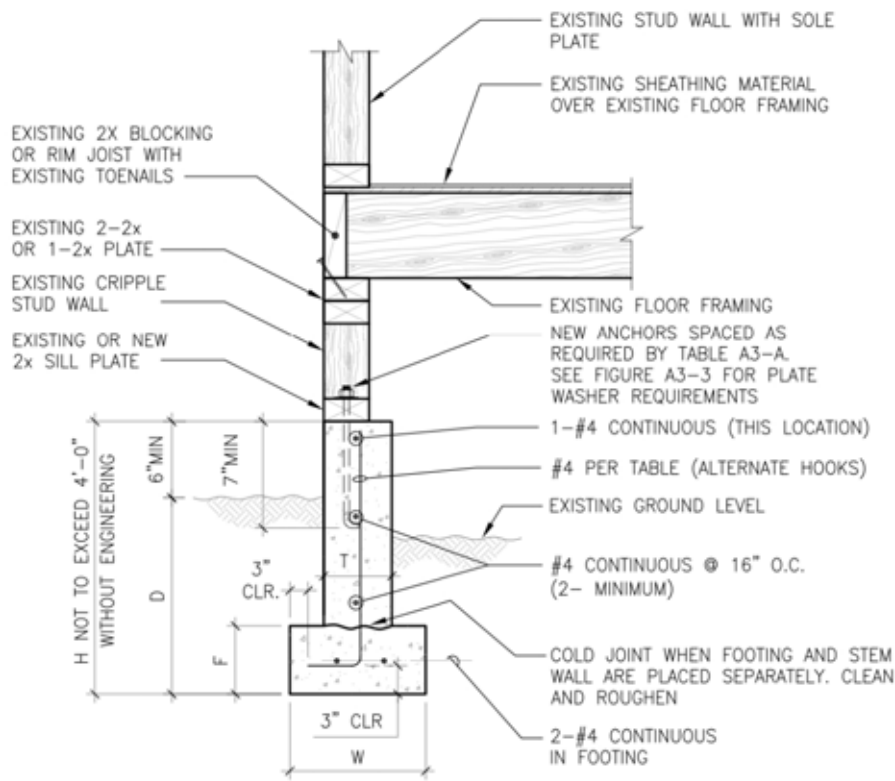
~~FIGURE A3-6—CRIPPLE WALL BRACING WITH WOOD STRUCTURAL PANEL ON INTERIOR FACE OF CRIPPLE STUDS~~

~~FIGURE A3-7—PARTIAL CRIPPLE STUD WALL ELEVATION~~

For 2009 Figure A3-1, substitute proposed Figure A3-1

NUMBER OF STORIES	MINIMUM FOUNDATION DIMENSIONS					MINIMUM FOUNDATION REINFORCING	
	W	F	D ^{a, b, c}	T	H	VERTICAL REINFORCING	
						SINGLE-POUR WALL AND FOOTING	FOOTING PLACED SEPARATE FROM WALL
1	12 INCHES (305mm)	6 INCHES (152mm)	12 INCHES (305mm)	6 INCHES (152mm)	≤24 INCHES (610mm)	#4 @ 48" (1219mm) ON CENTER	#4 @ 32" (813mm) ON CENTER
2	15 INCHES (381mm)	7 INCHES (178mm)	18 INCHES (457mm)	8 INCHES (203mm)	≥36 INCHES (914mm)	#4 @ 48" (1219mm) ON CENTER	#4 @ 32" (813mm) ON CENTER
3	18 INCHES (457mm)	8 INCHES (203mm)	24 INCHES (610mm)	10 INCHES (254mm)	≥36 INCHES (914mm)	#4 @ 48" (1219mm) ON CENTER	#4 @ 18" (457mm) ON CENTER

- A. WHERE FROST CONDITIONS OCCUR, THE MINIMUM DEPTH SHALL EXTEND BELOW THE FROST LINE.
- B. THE GROUND SURFACE ALONG THE INTERIOR SIDE OF THE FOUNDATION MAY BE EXCAVATED TO THE ELEVATION OF THE TOP OF THE FOOTING.
- C. WHEN EXPANSIVE SOIL IS ENCOUNTERED, THE FOUNDATION DEPTH AND REINFORCEMENT SHALL BE AS DIRECTED BY THE BUILDING OFFICIAL.



FOR SI: 1 INCH = 25.4mm, 1 FOOT = 304.8mm

FIGURE A3-1 - NEW REINFORCED CONCRETE FOUNDATION SYSTEM

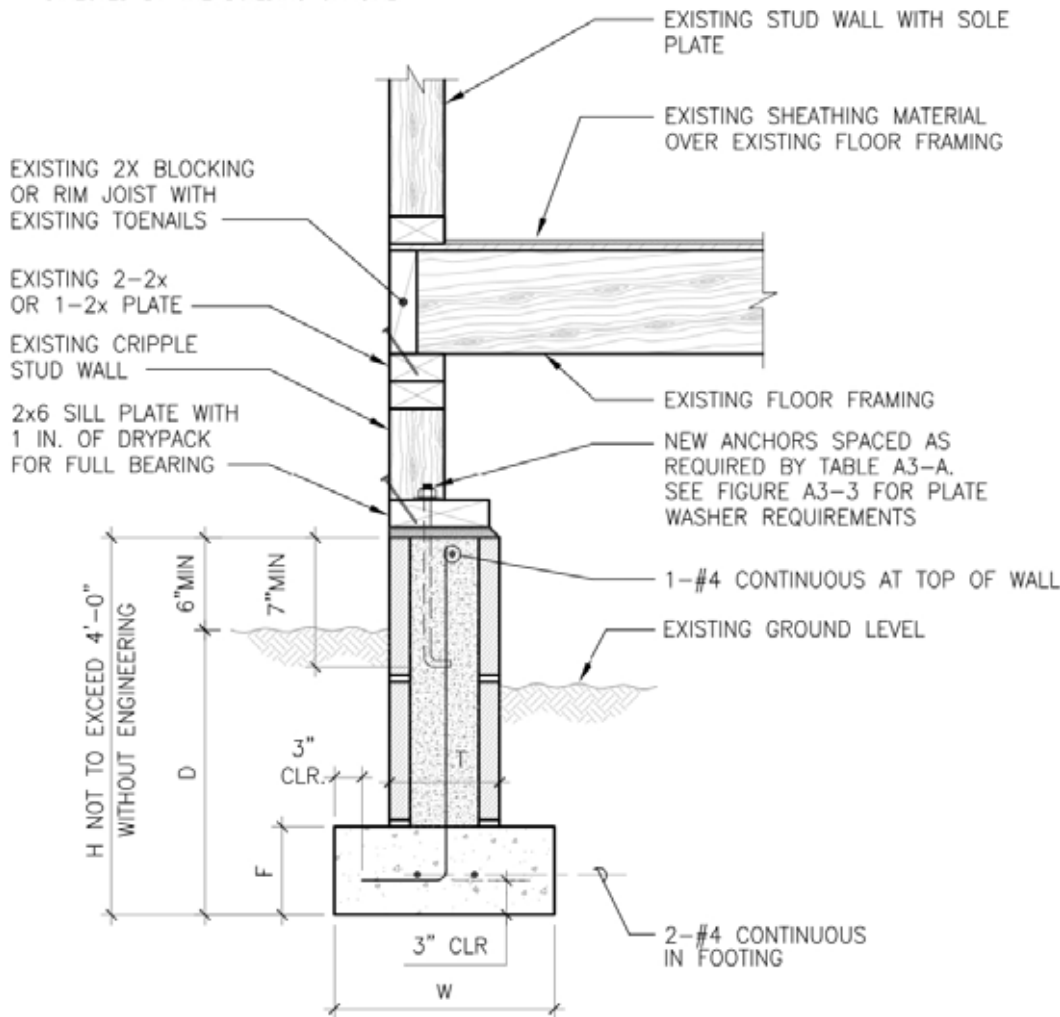
For 2009 Figure A3-2, substitute proposed Figure A3-2

MINIMUM FOUNDATION DIMENSIONS

MINIMUM FOUNDATION REINFORCING

NUMBER OF STORIES	W	F	D ^{A, B, C}	T	H	VERTICAL REINFORCING	HORIZONTAL REINFORCING
1	12 INCHES (305mm)	6 INCHES (152mm)	12 INCHES (305mm)	6 INCHES (152mm)	≤24 INCHES (610mm)	#4 @ 24" (610mm) ON CENTER	#4 CONTINUOUS AT TOP OF STEM WALL
2	15 INCHES (381mm)	7 INCHES (178mm)	18 INCHES (457mm)	8 INCHES (203mm)	≥24 INCHES (610mm)	#4 @ 24" (610mm) ON CENTER	#4 @ 16" (406mm) ON CENTER
3	18 INCHES (457mm)	8 INCHES (203mm)	24 INCHES (610mm)	10 INCHES (254mm)	≥36 INCHES (914mm)	#4 @ 24" (610mm) ON CENTER	#4 @ 16" (406mm) ON CENTER

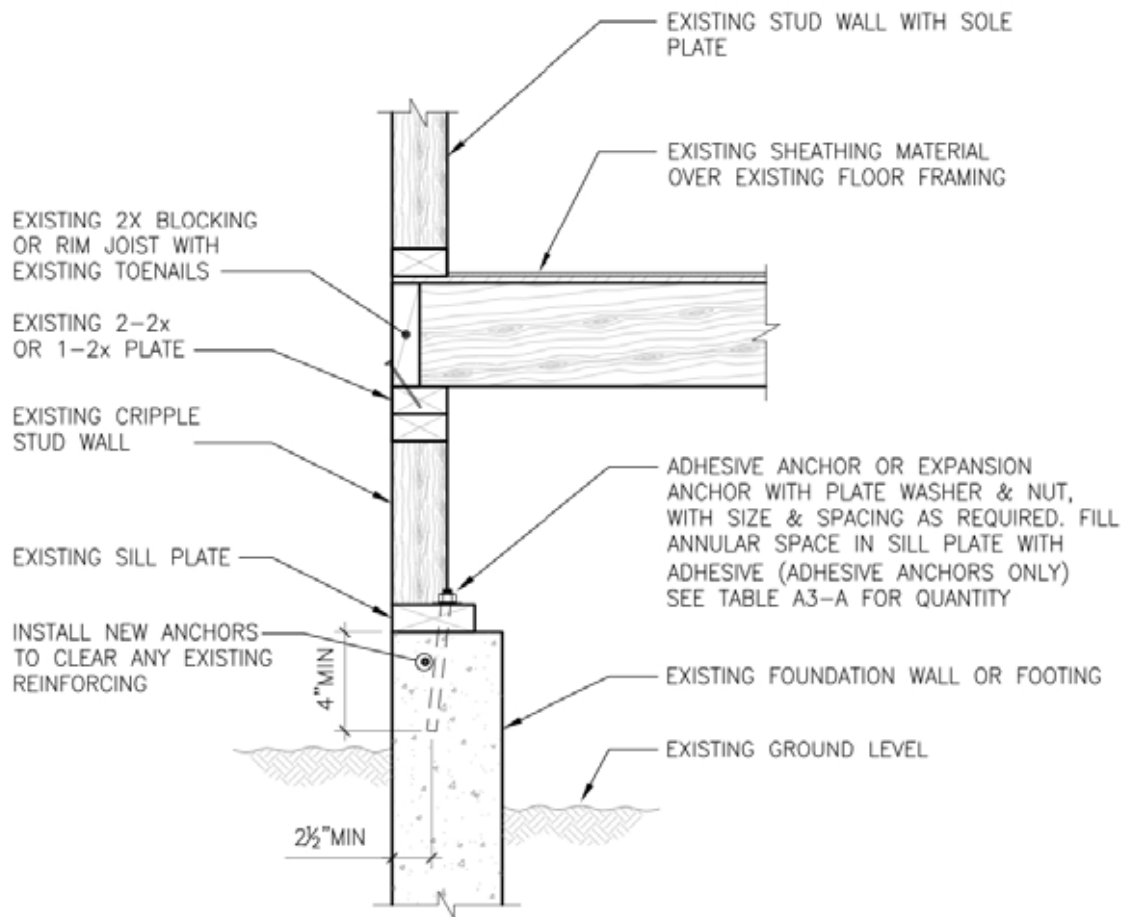
- A. WHERE FROST CONDITIONS OCCUR, THE MINIMUM DEPTH SHALL EXTEND BELOW THE FROST LINE.
- B. THE GROUND SURFACE ALONG THE INTERIOR SIDE OF THE FOUNDATION MAY BE EXCAVATED TO THE ELEVATION OF THE TOP OF THE FOOTING.
- C. WHEN EXPANSIVE SOIL IS ENCOUNTERED, THE FOUNDATION DEPTH AND REINFORCEMENT SHALL BE AS DIRECTED BY THE BUILDING OFFICIAL.



FOR SI: 1 INCH = 25.4mm, 1 FOOT = 304.8mm

FIGURE A3-2 – NEW CONCRETE MASONRY FOUNDATION

For 2009 Figure A3-3, substitute proposed Figure A3-3



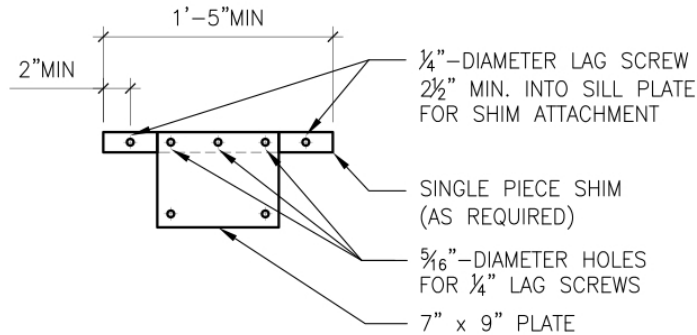
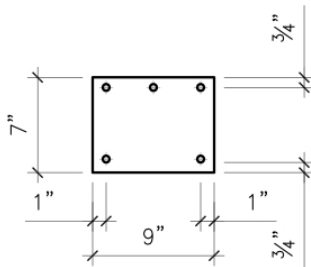
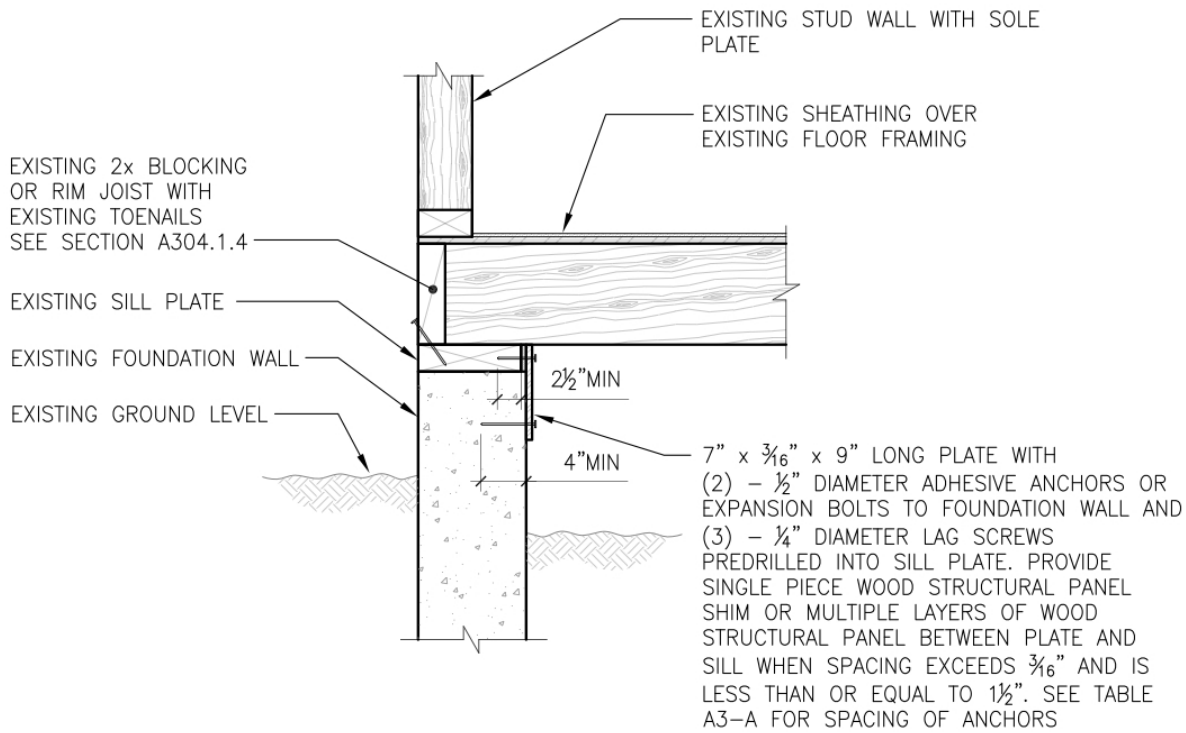
FOR SI: 1 INCH = 25.4mm

NOTES:

1. PLATE WASHERS SHALL COMPLY WITH THE FOLLOWING:
 $\frac{1}{2}$ IN. ANCHOR OR BOLT - 3" x 3" x $\frac{1}{4}$ "
 $\frac{5}{8}$ IN. ANCHOR OR BOLT - 3" x 3" x $\frac{1}{4}$ "
2. SEE FIGURE A3-5 OR A3-6 FOR CRIPPLE WALL BRACING

FIGURE A3-3 - SILL PLATE BOLTING TO EXISTING FOUNDATION

For 2009 Figure A3-34 substitute proposed Figure A3-4A



HOLE DIAMETER SHALL NOT EXCEED CONNECTOR DIAMETER BY MORE THAN 1/16"

CONNECTION WHEN SHIM SPACE EXCEEDS 3/4" IN WIDTH UP TO 1 1/2"

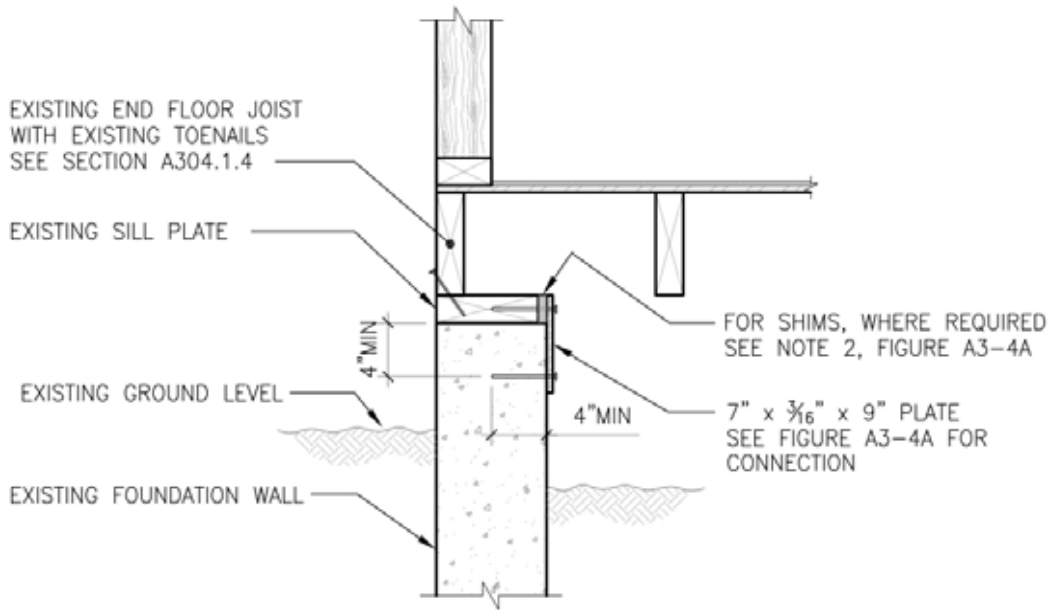
FOR SI: 1 INCH = 25.4mm, 1 FOOT = 304.8

NOTES:

1. IF SHIM SPACE EXCEEDS 1 1/2", ALTERNATE DETAILS WILL BE REQUIRED.
2. WHERE REQUIRED, SINGLE PIECE SHIM SHALL BE FOUNDATION GRADE REDWOOD OR PRESERVATIVE - TREATED WOOD. IF PRESERVATIVE TREATED WOOD IS USED, IT SHALL BE ISOLATED FROM THE FOUNDATION SYSTEM WITH A MOISTURE BARRIER.

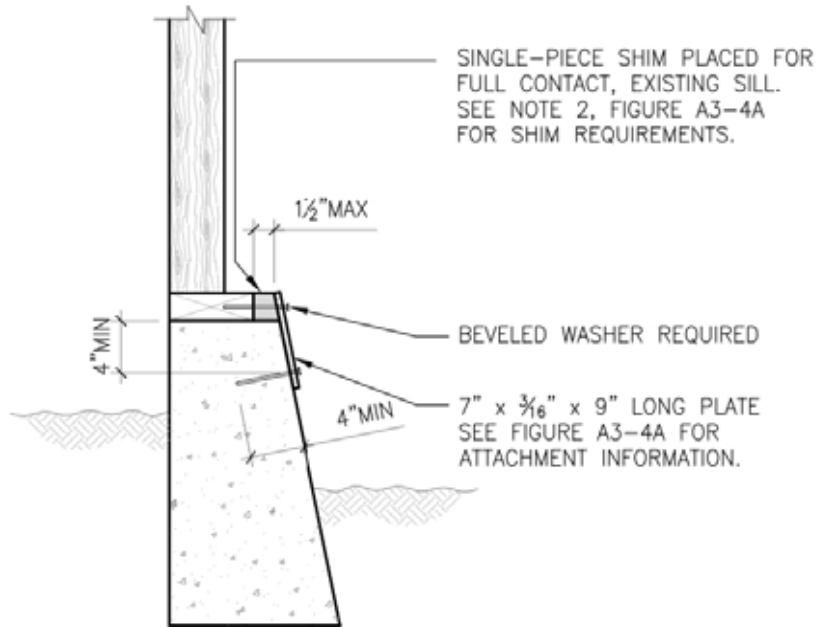
FIGURE A3-4A - ALTERNATE SILL PLATE BOLTING IN EXISTING FOUNDATION WITHOUT CRIPPLE WALLS AND FLOOR FRAMING NOT PARALLEL TO FOUNDATIONS

For 2009 Figure A3-4B & 4C, substitute proposed Figure A3-4B & 4C



FOR SI: 1 INCH = 25.4mm

FIGURE A3-4B - ALTERNATE SILL PLATE ANCHOR TO EXISTING FOUNDATION WITHOUT CRIPPLE WALL AND FLOOR FRAMING PARALLEL TO FOUNDATIONS

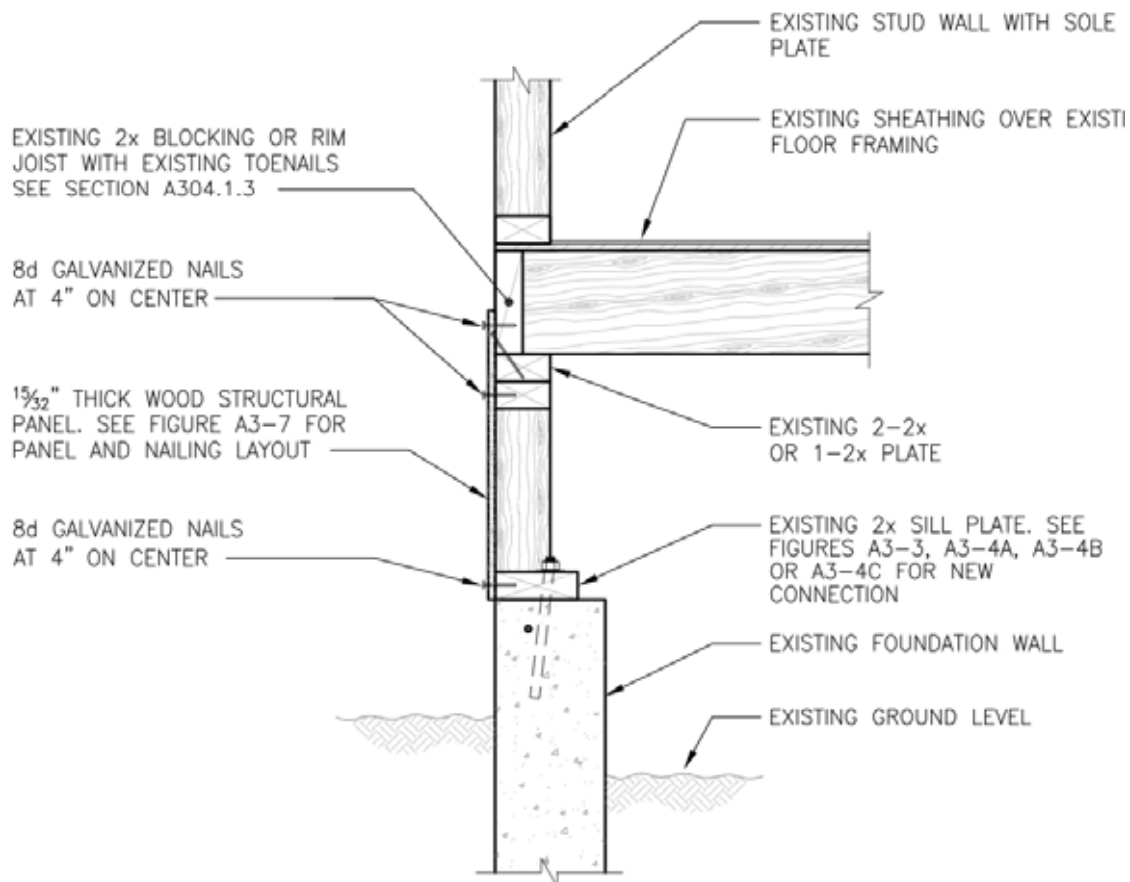


ALTERNATE CONNECTION FOR BATTERED FOOTING

FOR SI: 1 INCH = 25.4mm

FIGURE A3-4C - SILL PLATE ANCHORING TO EXISTING FOUNDATION ALTERNATE

For 2009 Figure A3-5, substitute proposed Figure A3-5

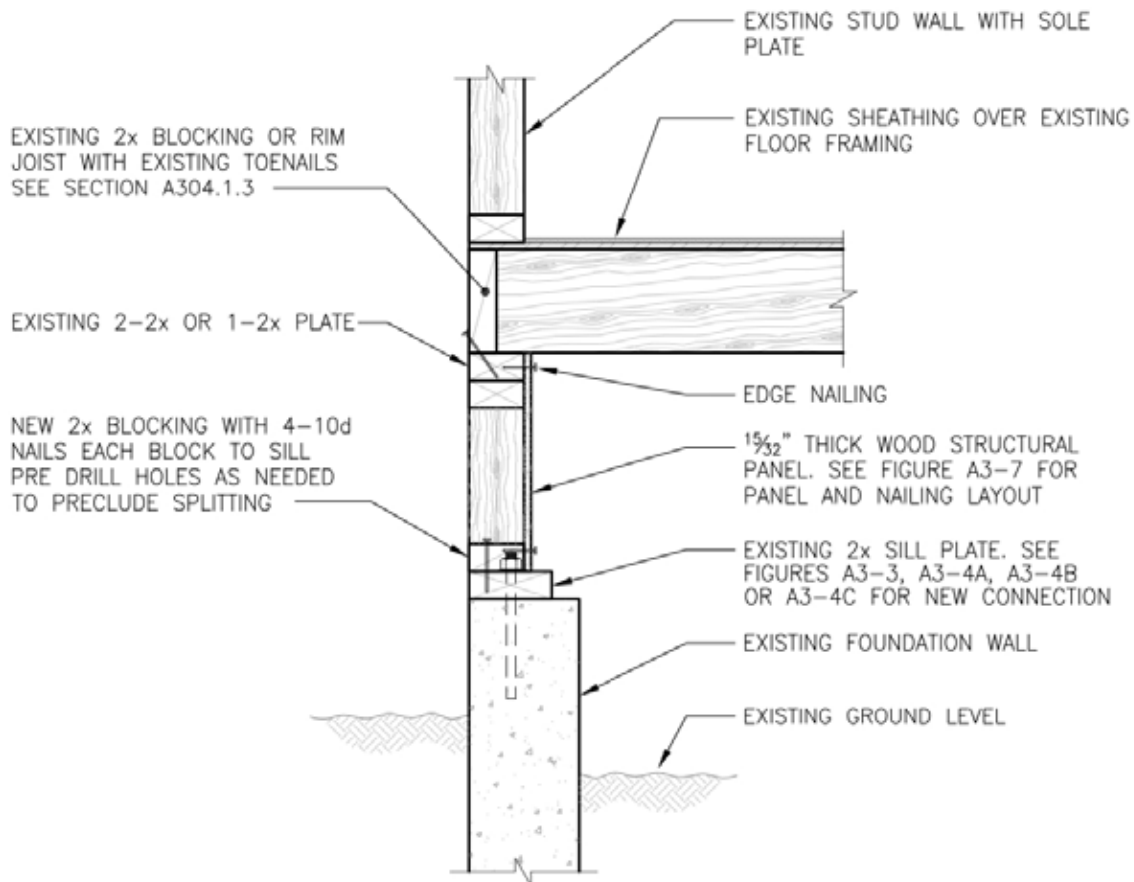


FOR SI: 1 INCH = 25.4mm

NOTES: SEE FIGURE A3-3 FOR SILL PLATE ANCHORING

FIGURE A3-5 - CRIPPLE WALL BRACING WITH NEW WOOD STRUC PANEL ON EXTERIOR FACE OF CRIPPLE STUDS

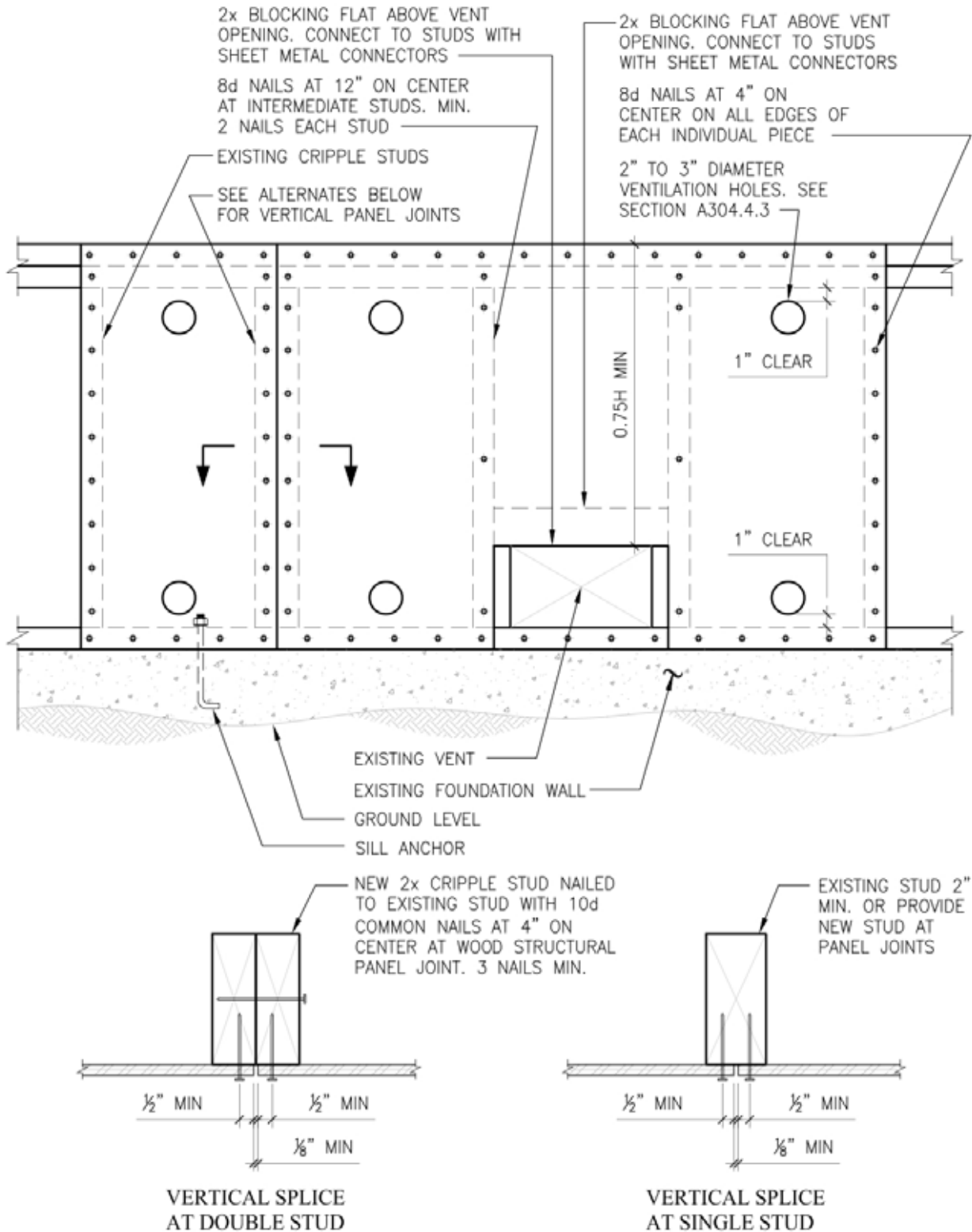
For 2009 Figure A3-6, substitute proposed Figure A3-6



FOR SI: 1 INCH = 25.4mm

FIGURE A3-6 - CRIPPLE WALL BRACING WITH WOOD STRUCTURAL PANEL ON INTERIOR FACE OF CRIPPLE STUDS

For 2009 Figure A3-7, substitute proposed Figure A3-7



FOR SI: 1 INCH = 25.4mm

FIGURE A3-7 - PARTIAL CRIPPLE STUD WALL ELEVATION

Reason: This proposal updates Figures A3-1 through A3-7 to improve their clarity, consistency, usability, and enforceability, and to better coordinate them with the text. The major edits to each Figure, along with explanations of the few minor substantive proposals are as follows:

Proposed revision to Figure A3-1 does the following:

- Deletes nails shown at floor sill plate, as they are not required and do not apply to any work required by the sections that reference this Figure, A304.2.3 and A304.3.3.
- Corrects table to add vertical reinforcing requirements for foundations supporting one story. The 2009 table has column heading text in the wrong row and mistakenly omits data for 1-story houses.
- Requires 2 #4 continuous bars for the lower footing section in lieu of 1-#4 continuous, as well as horizontal reinforcing at 16 inches on center. This is standard practice and is more appropriate for a prescriptive detail, especially when the footing is 18" wide, to help account for expansive or otherwise marginal soil not explicitly addressed by the prescriptive retrofit design.
- Requires 3" clear dimension to the edge of the footing to ensure code compliance for footings cast against the earth.
- Adds a note clarifying sill plate may be new or existing when foundation is replaced.
- Adds a note to "clean and roughen" the footing, standard practice for foundations made with two pours.
- Corrects leader for reference to "H"
- Calls out #4 vertical bars to clarify the intent of the table. Calls for alternating hooks which is a good standard practice.
- Other editorial clarifications, including consistent terminology for "floor framing," "sill plate," "sole plate" (the horizontal plate above the floor line), and "anchors".

Proposed revision to Figure A3-2 does the following:

- Deletes nails shown at floor sill plate, as they are not required and do not apply to any work required by the sections that reference this Figure, A304.2.3 and A304.3.3.
- Corrects typo. Sill plate call-out should read "2x6".
- Corrects graphical inconsistency for depth of embedment and height above grade.
- Requires 2 #4 continuous bar for the lower footing section in lieu of 1-#4 continuous. This is standard practice and is more appropriate especially when footing is 18" wide.
- Other editorial clarifications, including consistent terminology for "code official," "floor framing," "sill plate," "sole plate" (the horizontal plate above the floor line), and "anchors".

Proposed revision to Figure A3-3 does the following:

- Deletes nails shown at floor sill plate, as they are not required and do not apply to any work required by the section that references this Figure, A304.3.1.
- Clarifies that filling oversized holes with adhesive is required only for adhesive anchors, not expansion anchors.
- Changes washer requirement and size to match current code requirements.
- Requires that new anchors be installed clear of existing reinforcing.
- Other editorial clarifications, including consistent terminology for "floor framing," "sill plate," "sole plate" (the horizontal plate above the floor line), and "anchors".

Proposed revision to Figure A3-4A does the following:

- Deletes nails shown at floor sill plate, as they are not required and do not apply to any work required by the section that references this Figure, A304.3.1.
- Adds notes regarding shims. Typical hardware (Simpson, for example) limits shim thickness to 1-1/2".
- Revises plate detail to indicate that 1/4" screws are used from the shim to the sill. Extends the leader from the 5/16" diameter holes to the center-top hole in the metal plate. Changes reference to "lag screws" in the 5/16" call out to "lag holes" since the upper in the metal plate must be 5/16" to accept a 1/4" lag screw
- Adds note to isolate wood shim from the foundation with moisture barrier.
- Revises title.
- Other editorial clarifications, including consistent terminology for "floor framing," "sill plate," "sole plate" (the horizontal plate above the floor line), and "anchors".

Proposed revision to Figure A3-4B does the following:

- Deletes nails shown at floor sill plate, as they are not required and do not apply to any work required by the section that references this Figure.
- References shim requirements on Figure A3-4A.
- Revises title.

Proposed revision to Figure A3-4C does the following:

- Indicates 1 1/2" maximum dimension for shim.
- Adds note that shim should be pressure treated or redwood as it is in contact with the ground.
- Adds note for shim to be foundation grade redwood or to be isolated from the foundation with a moisture barrier.

Proposed revision to Figure A3-5 does the following:

- Deletes nails shown at floor sill plate, as they are not required and do not apply to any work required by the section that references this Figure.
- Adds references to other Figures.
- Other editorial clarifications, including consistent terminology for "floor framing," "sill plate," "sole plate" (the horizontal plate above the floor line), and "anchors".

Proposed revision to Figure A3-6 does the following:

- Deletes nails shown at floor sill plate, as they are not required and do not apply to any work required by the section that references this Figure.
- Adds note to caution against splitting the block and to recommend pre-drilling.
- Other editorial clarifications, including consistent terminology for "floor framing," "sill plate," "sole plate" (the horizontal plate above the floor line), and "anchors".

Proposed revision to Figure A3-7 does the following:

- "Vertical splice at double stud": Changes face nail of studs to 10d @ 4" on center. 16d nails are 3 1/2" thus potentially penetrating 1/2" past double 2x4's. 10d nails at reduced spacing will lead to less chance of splitting but give even greater capacity.
- "Vertical splice at single stud": Deletes 1/2" requirement for nail to edge of stud, as this is not required for new construction.
- Clarifies the requirement for stud thickness at vertical panel joints.
- Other editorial revisions, including corrections to leader lines and more accurately displayed field nail spacing.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB15-FIG A31-A37.DOC

EB55-09/10

A401.2

Proponent: Gary R. Searer, Wiss, Janney, Elstner Associates, Inc., representing National Council of Structural Engineers Association (NCSEA) Existing Buildings Subcommittee

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

A401.2 Scope. The provisions of this chapter shall apply to all existing Occupancy Group R-1 and R-2 buildings of wood construction or portions thereof where the structure has a soft, weak, or open-front wall line, and there exists one or more stories above. :

- ~~1. The ground floor portion of the wood frame structure contains parking or other similar open floor space, which causes soft, weak or open-front wall lines as defined in this chapter, and there exists one or more stories above, or~~
- ~~2. The walls of any story or basement of wood construction are laterally braced with nonconforming structural materials as defined in this chapter, a soft or weak wall line exists as defined in this chapter and there exist two or more stories above.~~
- ~~3. The structure is assigned to Seismic Design Category C, D or E.~~

Reason: This proposal clarifies the scope by removing inapplicable and unnecessary language. Of the three conditions in the current provision, only Condition 1 is appropriate for a clear and limited scope. The proposed wording of Condition 1 removes the reference to parking and open floor space, as well as the requirement that the open floor space be on the ground floor. While these are common conditions, they are not the only ones to which this chapter is meant to apply. The descriptors proposed for removal are better suited for commentary.

Current Condition 2 recognizes the possibility of a weak or soft story condition without an open front wall line, but with the revision to Condition 1, it is no longer necessary, as soft and weak conditions are already covered.

Current Condition 3 indicates the original intent of this chapter to apply to voluntary retrofits in areas of relatively high seismicity. While the provisions were not written originally for SWOF buildings in areas of lower seismicity, they may be used for those buildings. Further, the limitation to SDC C-E no longer applies now that this chapter is referenced from the body of the IEBC as an option for buildings in any seismic design category.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: SEARER-EB8-A401.2.DOC

EB56-09/10

A402

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise definition as follows:

A402 DEFINITIONS

EXPANSION ANCHOR. ~~An approved mechanical fastener placed in hardened concrete that is designed to expand in a self-drilled or pre-drilled hole of a specified size and engage the sides of the hole in one or more locations to develop shear and/or tension resistance to applied loads without grout, adhesive, or drypack.~~ An approved post-installed anchor, inserted into a pre-drilled hole in existing concrete or masonry, that transfers loads to or from the concrete or masonry by direct bearing or friction or both.

Reason: This proposal is editorial. The proposed definition is consistent with that now used in ACI 318 Appendix D and other ICC-ES resources.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: BONOWITZ-EB12- A402-EXPANSION ANCHOR.DOC

EB57-09/10

A403.1

Proponent: Gary R. Searer, Wiss, Janney, Elstner Associates, Inc., representing National Council of Structural Engineers Association (NCSEA) Existing Buildings Subcommittee

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

A403.1 General. ~~Buildings within the scope of this chapter shall be analyzed, designed, and constructed in conformance with the building code, except as modified in this chapter. All modifications required by the provisions in this chapter shall be designed in accordance with the International Building Code provisions for new construction, except as modified by this chapter.~~

Exception: Buildings for which the prescriptive measures provided in Section A405 apply and are used.

No alteration of the existing lateral-force-resisting system or vertical-load-carrying system shall reduce the strength or stiffness of the existing structure, unless the altered structure would remain in conformance with the building code and this chapter. ~~When~~ Where any portion of a building within the scope of this chapter is constructed on or into a slope steeper than one unit vertical in three units horizontal, the lateral-force-resisting system at and below the base level diaphragm shall be analyzed for the effects of concentrated lateral forces at the base caused by this hillside condition.

Reason: This proposal clarifies the intent of the section. The current wording of the first paragraph suggests improperly that whole buildings must be brought to conformance with the code for new construction, when the actual intent, as clearly stated within the chapter, is to address only the critical parts of an eligible building.

Only the modifications required by this chapter, principally the added structural elements, must be designed in accordance with IBC. (It's important to say "IBC provisions for new construction" so as not to require IBC Chapter 34, to which this IEBC Appendix Chapter is an alternate.) Existing elements are addressed in the second paragraph, which the proposal would modify to conform with the general philosophy of the IEBC regarding alterations.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: SEARER-EB9-A403.1.DOC

EB58–09/10

A403.2

Proponent: Gary R. Searer, Wiss, Janney, Elstner Associates, Inc., representing National Council of Structural Engineers Association (NCSEA) Existing Buildings Subcommittee

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

A403.2 Scope of analysis. This chapter requires the alteration, repair, replacement or addition of structural elements and their connections to meet the strength and stiffness requirements herein. The lateral-load-path analysis shall include the resisting elements and connections from the wood diaphragm immediately above any soft, weak or open-front wall lines to the foundation soil interface or to the uppermost story of a podium structure comprised of steel, masonry, or concrete structural systems that supports the upper, wood-framed structure. floor or roof of a Type I structure below. Stories above the uppermost story with a soft, weak, or open-front wall line shall be considered in the analysis but need not be modified. The lateral-load-path analysis for added structural elements shall also include evaluation of the allowable soil-bearing and lateral pressures in accordance with the building code.

Exception: When an open-front, weak or soft wall line exists because of parking at the ground floor of a two-story building and the parking area is less than 20 percent of the ground floor area, then only the wall lines in the open, weak or soft directions of the enclosed parking area need comply with the provisions of this chapter.

Reason: This proposal is editorial. The current reference to "Type 1" is unclear and somewhat illogical, since it uses a fire rating to define a type of structural system. To avoid potential confusion, the proposal replaces "Type I" with a slightly longer but clearer description using structural terms to indicate the intent of the provision (as explained in the ICC commentary). The proposed addition to the next to last sentence is a similar clarification with no substantive effect.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: SEARER-EB10-A403.2.DOC

EB59–09/10

A403.1, A403.2

Proponent: David Bonowitz, SE, National Council of Structural Engineers Associations, Code Advisory Committee, Existing Buildings Subcommittee (NCSEA EBS)

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

A403.1 General. Buildings within the scope of this chapter shall be analyzed, designed and constructed in conformance with the building code, except as modified in this chapter.

Exception: Buildings for which the prescriptive measures provided in Section A405 apply and are used.

No alteration of the existing lateral-force-resisting system or vertical-load-carrying system shall reduce the strength or stiffness of the existing structure. ~~When any portion of a building within the scope of this chapter is constructed on or into a slope steeper than one unit vertical in three units horizontal, the lateral force resisting system at and below the base level diaphragm shall be analyzed for the effects of concentrated lateral forces at the base caused by this hillside condition.~~

A403.2 Scope of analysis. This chapter requires the alteration, repair, replacement or addition of structural elements and their connections to meet the strength and stiffness requirements herein. The lateral-load-path analysis shall include the resisting elements and connections from the wood diaphragm immediately above any soft, weak or open-front wall lines to the foundation soil interface or to the uppermost floor or roof of a Type I structure below. Stories

above the uppermost story with a soft, weak, or open-front wall line need not be modified. The lateral-load-path analysis for added structural elements shall also include evaluation of the allowable soil-bearing and lateral pressures in accordance with the building code. Where any portion of a building within the scope of this chapter is constructed on or into a slope steeper than one unit vertical in three units horizontal, the lateral-force-resisting system at and below the base level diaphragm shall be analyzed for the effects of concentrated lateral forces at the base caused by this hillside condition.

Reason: This proposal is editorial. It simply moves the last sentence of current A403.1, which is about scope of analysis, to the end of A403.2, where it more properly belongs.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

ICCFILENAME: BONOWITZ-EB13-A403.1.DOC

EB60–09/10

A403.3, A403.4, A403.5

Proponent: Gary R. Searer, Wiss, Janney, Elstner Associates, Inc., representing National Council of Structural Engineers Association (NCSEA) Existing Buildings Subcommittee

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

1. Revise as follows:

A403.3 Design base shear and design parameters. The design base shear in a given direction shall be permitted to be 75 percent of the value required for similar new construction in accordance with the building code. The value of R used in the design of the strengthening of any story shall not exceed the lowest value of R used in the same direction at any story above. The system overstrength factor, Ω_0 , and the deflection amplification factor, C_d , shall not be less than the largest respective value corresponding to the R factor being used in the direction under consideration.

Exceptions:

1. For structures assigned to Seismic Design Category A or B, values of R, Ω_0 , and C_d shall be permitted to be based on the seismic force-resisting system being used to achieve the required strengthening.
2. For structures assigned to Seismic Design Category C or D, values of R, Ω_0 , and C_d shall be permitted to be based on the seismic force-resisting system being used to achieve the required strengthening, provided that when the strengthening is complete, the strengthened structure will not have an extreme weak story irregularity defined as Type 5b in ASCE 7 Table 12.3-2.
3. For structures assigned to Seismic Design Category E, values of R, Ω_0 , and C_d shall be permitted to be based on the seismic force-resisting system being used to achieve the required strengthening, provided that when the strengthening is complete, the strengthened structure will not have an extreme soft story, a weak story, or an extreme weak story irregularity defined, respectively, as Types 1b, 5a, and 5b in ASCE 7 Table 12.3-2.

2. Delete without substitution:

A403.4 Vertical distribution of forces. ~~The total seismic force shall be distributed over the height of the structure as for new construction in accordance with the building code. Distribution of force by story weight shall be permitted for two-story buildings. The value of R used in the design of any story shall be less than or equal to the value of R used in the given direction for the story above.~~

A403.5 Weak story limitation. ~~Every weak story shall be strengthened to the lesser of:~~

- ~~1. Ω_0 times the story shear prescribed by Sections A403.3 and A403.4.~~
- ~~2. In two-story buildings up to 30 feet (9144 mm) in height, 65 percent of the strength of the story above. In all other buildings, 80 percent of the strength of the story above.~~

(Renumber subsequent sections)

Reason: This proposal makes editorial clarifications and allows alternative design requirements that respond to implementation problems experienced by practitioners.

The principal editorial revision is that the limits on R values are moved from A403.4, where they are currently out of place, to A403.3.

The substantive changes address the following problem: The limits on R values (in current A403.4 and proposed A403.3), while based on rational limits for combined systems used in new construction, have had the effect of forcing an R value of 2.0 on the design of systems added for strengthening (due to the fact that the nonconforming gypsum and stucco materials on the upper floors would in effect mandate the use of an R of 2 for the lowest floor), thus requiring larger new members and longer new walls than is often necessary to achieve the risk reduction objective of this chapter. The larger and longer elements are likely also to bring additional expense, discouraging retrofit, and leading to constructability problems fitting the new elements into the existing building without affecting parking, exits, utility connections, etc.

Thus, the question is how to allow a more practical design (and R value) suited to the risk reduction retrofit of existing buildings, where new systems are typically used to supplement old ones, as opposed to new construction, where all new systems must and should comply completely with the building code. The right solution should acknowledge that no single R value can be stipulated for the design of strengthening elements, that Chapter A4 is intended as a prescriptive and somewhat simplified alternative to ASCE 41, and that the principal goal of retrofitting SWOF buildings is to eliminate their SWOF deficiency.

This proposal attempts to satisfy these constraints by allowing two options for the engineer:

- Use the low R value as a default. This maintains the requirement of the 2009 edition.
- Use a higher R value appropriate to the retrofit system as long as the designer demonstrates that critical irregularities will in fact be removed. The critical irregularities differ by Seismic Design Category as they do for new buildings. (One difference: In this proposal, SDC C is grouped with SDC D, as opposed to SDC A and B, in recognition that Chapter A4 was originally developed for voluntary work in SDC C through E, that SDC C requires some minimum story strength as contemplated by current section A403.5, and that some irregularities allowed in new SDC C buildings are inappropriate in existing buildings where other protective provisions for new construction might not be met.)

In addition, current section A403.5 is deleted because the options in proposed A403.3 will now result in adequate minimum story strengths in SDC C through E.

Finally, the last sentence of current section A403.4 is deleted because its scope is replaced by A403.3. The first part of current A403.4 is not needed because Section 12.14 of ASCE 7 already permits distribution of force by story weight. Furthermore, in any structure where the first story is the weak story, any requirement regarding vertical distribution of force is essentially superfluous, since the design force for the weak story is the same no matter what the vertical distribution is assumed to be.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: SEARER-EB11-A403.3.DOC

EB61–09/10

A403.6, A403.6.1

Proponent: Gary R. Searer, Wiss, Janney, Elstner Associates, Inc., representing National Council of Structural Engineers Association (NCSEA) Existing Buildings Subcommittee

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

A403.6 Story drift limitations. The calculated story drift for each retrofitted story shall not exceed the allowable deformation compatible with all vertical-load-resisting elements and 0.025 times the story height. The calculated story drift shall not be reduced by the effects of horizontal diaphragm stiffness but shall be increased when these effects produce rotation. Drift calculations shall be in accordance with the building code.

A403.6.1 Pole structures. The effects of rotation and soil stiffness shall be included in the calculated story drift ~~when~~ where lateral loads are resisted by vertical elements whose required depth of embedment is determined by pole formulas. The coefficient of subgrade reaction used in deflection calculations shall be based on a geotechnical investigation conducted in accordance with the building code provided from an approved geotechnical report or based on other methods approved by the code official methods.

Reason: Editorial proposal to separate current A403.6 into two parts for clarity. The first part, regarding interstory drift in the structure overall, remains unchanged. The second part, regarding deflection criteria for pole structures, is separated into a subsection for clarity. The proposal also clarifies text related to the geotechnical report requirements.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: SEARER-EB12-A403.6.DOC

EB62-09/10

A403.8.1, A402

Proponent: Gary R. Searer, Wiss, Janney, Elstner Associates, Inc., representing National Council of Structural Engineers Association (NCSEA) Existing Buildings Subcommittee

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Delete without substitution:

~~**A403.8.1 Cripple walls.** Cripple walls braced with nonconforming structural materials shall be braced in accordance with this chapter. When a single top plate exists in the cripple wall, all end joints in the top plate shall be tied. Ties shall be connected to each end of the discontinuous top plate and shall be equal to one of the following:~~

- ~~1. Three inch by 6 inch (76 mm by 152 mm), 18-gage galvanized steel, nailed with six 8d common nails at each end.~~
- ~~2. One and one fourth inch by 12 inch (32 mm by 305 mm), 18-gage galvanized steel, nailed with six 16d common nails at each end.~~
- ~~3. Two inch by 4 inch by 12 inch (51 mm by 102 mm by 305 mm) wood blocking, nailed with six 16d common nails at each end.~~

~~**CRIPPLE WALL.** A wood-frame stud wall extending from the top of the foundation wall to the underside of the lowest floor framing.~~

~~**Reason:** This provision does not belong in this chapter. Section A403.11.1 already precludes the use of gypsum or cement plaster to provide resistance in a soft or weak story or in a story with an open front wall line. Requiring that cripple walls be braced as required by this chapter doesn't make sense, because this chapter does not cover bracing of walls (Bracing of walls is covered in the conventional framing provisions of the IBC).~~

~~If an engineer decides to discount or ignore a cripple wall with non-conforming materials, he or she should not have to worry about addressing a discontinuous top plate in the wall, since the wall is nonstructural in terms of the design. If an engineer decides to add structural wood sheathing to the wall, then this chapter already requires that the wall be designed in accordance with the IBC (subject to reduced forces); the new wood structural panel design would be governed by Section 403.11.2; and the discontinuous top plate would be addressed by the engineer as necessary from an engineering perspective.~~

~~**Cost Impact:** The code change proposal will not increase the cost of construction.~~

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: SEARER-EB14-A402 CRIPPLE WALLS.DOC

EB63-09/10

A403.11.2.1

Proponent: Gary R. Searer, Wiss, Janney, Elstner Associates, Inc., representing National Council of Structural Engineers Association (NCSEA) Existing Buildings Subcommittee

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

A403.11.2.1 Drift limit. Wood structural panel shear walls shall meet the story drift limitation of Section A403.6. Conformance to the story drift limitation shall be determined by approved testing or calculation, ~~not by the use of an aspect ratio. Calculated deflection shall be determined according to *International Building Code* Equation 23-1 and shall be increased by 25 percent. Contribution to the shear wall deflection from the anchor or tie-down slippage shall also be included. The slippage contribution shall include the vertical elongation of the connector metal components, the vertical slippage of the connectors to framing members, localized crushing of wood due to bearing loads and shrinkage of the wood elements because of changes in moisture content as a result of aging. The total vertical slippage shall be multiplied by the shear panel aspect ratio and added to the total horizontal deflection. Individual shear panels shall be permitted to exceed the maximum aspect ratio, provided the allowable story drift and allowable shear capacities are not exceeded.~~

Reason: The deletion in the first sentence regarding “aspect ratio” is proposed because this section already requires story drift calculation; thus a specific prohibition against the use of aspect ratio is unnecessary. The balance of the deletion is proposed because the requirements for calculating story drift should be no more stringent for existing wood-framed buildings than they are for new buildings. The requirements being deleted were part of the original Los Angeles soft/weak story strengthening ordinance and were developed in the mid-1990s when the building code didn’t require much in the way of deflection calculation for wood-frame construction. Now that the IBC has requirements for calculating deflection, these requirements are superfluous, in some cases conflict with IBC requirements, and are no longer required.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: SEARER-EB16-A403.11.2.1.DOC

EB64–09/10

A403.11.2.3, A403.11.3

Proponent: Gary R. Searer, Wiss, Janney, Elstner Associates, Inc., representing National Council of Structural Engineers Association (NCSEA) Existing Buildings Subcommittee

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Delete without substitution:

~~**A403.11.2.3 Wood species of framing members.** Allowable shear values for wood structural panels shall consider the species of the framing members. When the allowable shear values are based on Douglas fir-larch framing members, and framing members are constructed of other species of lumber, the allowable shear values shall be multiplied by the following factors: 0.82 for species with specific gravities greater than or equal to 0.42 but less than 0.49, and 0.65 for species with specific gravities less than 0.42. Redwood shall use 0.65 and hem fir shall use 0.82, unless otherwise approved.~~

~~**A403.11.3 Substitution for 3-inch (76mm) nominal width framing members.** Two 2-inch (51mm) nominal width framing members shall be permitted in lieu of any required 3-inch (76mm) nominal width framing member when the existing and new framing members are of equal dimensions, when they are connected as required to transfer the in-plane shear between them, and when the sheathing fasteners are equally divided between them.~~

(Renumber subsequent sections)

Reason: With respect to Section A403.11.2.3, this section is unnecessary as it is contained in footnote a of IBC Table 2306.4.1. Since the user has to go to that section to find shear wall design values, there is no need to repeat the modifications for framing species here.

With respect to Section A403.11.3, this section is also unnecessary as it is contained in footnote i of IBC Table 2306.4.1 which references IBC Section 2306.1. Since the user has to go to that section to find shear wall design values, there is no need to repeat the allowable substitution here.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: SEARER-EB17-A403.11.2.3.DOC

EB65–09/10

A403.11.4.1, A402

Proponent: Gary R. Searer, Wiss, Janney, Elstner Associates, Inc., representing National Council of Structural Engineers Association (NCSEA) Existing Buildings Subcommittee

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

1. Revise as follows:

A403.11.4.1 Expansion anchors in tension. Expansion anchors that provide tension strength by friction resistance shall not be used to connect hold-down devices to existing concrete or masonry elements. ~~Expansion anchors that provide tension strength by bearing (commonly referenced as “undercut” anchors) shall be permitted.~~

2. Delete definition without substitution:

~~**EXPANSION ANCHOR.** An approved mechanical fastener placed in hardened concrete that is designed to expand in a self-drilled or pre-drilled hole of a specified size and engage the sides of the hole in one or more locations to develop shear and/or tension resistance to applied loads without grout, adhesive, or drypack.~~

Reason: This proposal eliminates redundancy and potential confusion. Expansion anchors and undercut anchors are now defined separately in ACI Appendix Chapter D, which governs the design of these anchors. In addition, the second sentence of the current provision is essentially commentary to the first sentence. By focusing on a single type of non-friction anchor, the second sentence also introduces confusion by suggesting (improperly) that other anchor types would not be allowed.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

ICCFILENAME: SEARER-EB18-A403.11.4.1.DOC

EB66-09/10

Chapter A4, A403.11.4.2, A405.1.1, A405.2.1, A406.1, A406.3.3, A406.3.4, A406.3.5, A406.3.6

Proponent: Gary R. Searer, Wiss, Janney, Elstner Associates, Inc., representing National Council of Structural Engineers Association (NCSEA) Existing Buildings Subcommittee

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

CHAPTER A4 EARTHQUAKE HAZARD RISK REDUCTION IN EXISTING WOOD-FRAME RESIDENTIAL BUILDINGS WITH SOFT, WEAK OR OPEN FRONT WALLS

A403.11.4.2 Required depth of embedment. The required depth of embedment or edge distance for the anchor used in the hold-down connector shall be provided in the concrete or masonry below any plain concrete slab unless satisfactory evidence is submitted to the building code official that shows that the concrete slab and footings are of monolithic construction.

A405.1.1 Additional conditions. To qualify for these prescriptive measures, the following additional conditions need to be satisfied by the retrofitted structure:

1. Diaphragm aspect ratio L/W is less than 0.67, where W is the diaphragm dimension parallel to the soft, weak or open-front wall line and L is the distance in the ~~orthogonal~~ orthogonal direction between that wall line and the rear wall of the ground floor open area.
2. Minimum length of side shear walls = 20 feet (6096 mm).
3. Minimum length of rear shear wall = ~~three-fourth of rear wall~~ three-fourths of the total rear wall length.
4. No plan or vertical irregularities other than a soft, weak or open-front wall line.
5. Roofing weight less than or equal to 5 pounds per square foot (240 N/m^2).
6. Aspect ratio of the full second floor diaphragm meets the requirements of the building code for new construction.

A405.2.1 Anchor ~~bolt~~ size and spacing. The anchor ~~bolt~~ size and spacing shall be a minimum of $\frac{3}{4}$ inch (19 mm) in diameter at 32 inches (813 mm) on center. Where existing ~~bolts~~ anchors are inadequate, supplemental or alternative approved connectors, such as new steel plates bolted to the side of the foundation and nailed to the sill, shall be used. ~~may be used, such as an approved connector.~~

A406.1 New materials. New materials shall meet the requirements of the *International Building Code*, except where allowed by this chapter. ~~All materials approved by the building code, including their appropriate allowable stresses and limiting aspect ratios, shall be permitted to meet the requirements of this chapter.~~

A406.3.3 Existing wood framing. Wood framing is permitted to use the design stresses specified in the building code under which the building was constructed or other stress criteria approved by the building code official.

A406.3.4 Existing structural steel. All existing structural steel shall be permitted to be assumed to comply with ASTM use the allowable stresses for Grade A36. Existing pipe or tube columns shall be assumed to be of minimum wall thickness unless verified by testing or exposure.

A406.3.5 Strength of Existing concrete. All existing concrete footings shall be permitted to be assumed to be plain concrete with a compressive strength of 2,000 pounds per square inch (13.8 MPa). Existing concrete compressive strength taken greater than 2,000 pounds per square inch (13.8 MPa) shall be verified by testing, record drawings or department records.

A406.3.6 Existing sill plate anchorage. The analysis of existing cast-in-place anchor bolts anchors shall be permitted to assume proper anchor embedment for purposes of evaluating use the allowable service loads for bolts with proper embedment when used for shear resistance to lateral loads.

Reason: These are all editorial clarifications or edits for consistency and clarity.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: SEARER-EB5-A403.11.4.3.DOC

EB67-09/10

A403.11.4.3

Proponent: Gary R. Searer, Wiss, Janney, Elstner Associates, Inc., representing National Council of Structural Engineers Association (NCSEA) Existing Buildings Subcommittee

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Delete without substitution:

~~**A403.11.4.3 Required preload of bolted hold-down connectors.** Bolted hold-down connectors shall be preloaded to reduce slippage of the connector. Preloading shall consist of tightening the nut on the tension anchor after the placement but before the tightening of the shear bolts in the panel boundary flange member. The tension anchor shall be tightened until the shear bolts are in firm contact with the edge of the hole nearest the direction of the tension anchor. Hold-down connectors with self-jigging bolt standoffs shall be installed in a manner to permit preloading.~~

Reason: This section of Appendix A4 is not standard practice in wood construction, and is not explicitly required in new construction. It is also potentially at odds with installation instructions for proprietary hold-down hardware. As a matter of construction quality assurance, it is better suited to commentary.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: SEARER-EB4-A403.11.4.3.DOC

EB68-09/10

A402

Proponent: Gary R. Searer, Wiss, Janney, Elstner Associates, Inc., representing National Council of Structural Engineers Association (NCSEA) Existing Buildings Subcommittee

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Delete without substitution:

SECTION A404

PHASED CONSTRUCTION

~~The work specified in this chapter shall be permitted to be done in the following phases. Work shall start with Phase 1 unless otherwise approved by the building official. When the building does not contain the conditions associated with the given phase, the work shall proceed to the next phase.~~

~~**Phase 1 Work.** The first phase shall include all work in the lowest story with a soft, weak or open-front wall line and all foundation work.~~

~~**Phase 2 Work.** The second phase shall include wood-framed walls in any story with two or more stories above that are laterally braced with nonconforming structural materials.~~

~~**Phase 3 Work.** The third and final phase shall include all required work not performed in Phase 1 or Phase 2.~~

(Renumber subsequent sections)

Reason: The proposal removes an unnecessary and possibly costly provision. First, work may always be phased or sequenced at the discretion of the code official. The current provision is intended to assure that the greatest seismic risks are reduced before other work is performed. But the probability that a significant earthquake occurs during the project is extremely low, even if the work is phased. Since this chapter is triggered by other provisions in the body of the IBC, the seismic improvements it requires will already be part of the project scope and would not inadvertently be delayed or left incomplete. Finally, by requiring a specific sequence of work, the provision could unnecessarily restrict an owner from completing work in the least disruptive or expensive way.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: SEARER-EB7-A404.DOC

EB69–09/10

A406.3, A406.3.1, Table A4-A

Proponent: Gary R. Searer, Wiss, Janney, Elstner Associates, Inc., representing National Council of Structural Engineers Association (NCSEA) Existing Buildings Subcommittee

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

1. Revise as follows:

~~**A406.3 Existing materials.** All existing materials shall be in sound condition and constructed in general conformance to the building code before they are permitted to be used to resist the lateral loads prescribed in this chapter. The physical condition, strengths, and stiffnesses of existing building materials shall be taken into account in any analysis required by this chapter. The verification of existing materials conditions and their conformance to these requirements shall be made by physical observation reports, material testing or record drawings as determined by the design professional structural designer and as approved by subject to the approval of the code building official.~~

2. Delete without substitution:

~~**A406.3.1 Horizontal wood diaphragms.** Allowable shear values for existing horizontal wood diaphragms that require analysis under Section A403.10 are permitted to be taken from Table A4-A. The values in Table A4-A shall be used for allowable stress design. Design forces based on strength design shall be reduced to allowable stress levels before comparison with the limiting values in the table.~~

(Renumber subsequent sections)

**TABLE A4-A
ALLOWABLE VALUES FOR EXISTING MATERIALS**

Existing Materials or Configurations of Materials ^a	Allowable Values x 14,594 for N/m
1. Horizontal diaphragms ^b	
1.1. Roofs with straight sheathing and roofing applied directly to the sheathing	100 lbs. per ft. for seismic shear
1.2. Roofs with diagonal sheathing and roofing applied directly to the sheathing	250 lbs. per ft. for seismic shear
1.3. Floors with straight tongue and groove sheathing	100 lbs. per ft. for seismic shear
1.4. Floors with straight sheathing and finished wood flooring with board edges offset or perpendicular	500 lbs. per ft. for seismic shear
1.5. Floors with diagonal sheathing and finished wood flooring	600 lbs. per ft. for seismic shear
2. Crosswalls ^{b,c}	Per side:
2.1. Plaster on wood or metal lath	200 lbs. per ft. for seismic shear
2.2. Plaster on gypsum lath	175 lbs. per ft. for seismic shear
2.3. Gypsum wallboard unblocked edges	75 lbs. per ft. for seismic shear
2.4. Gypsum wallboard, blocked edges	125 lbs. per ft. for seismic shear
3. Existing footings, wood framing, structural steel and reinforced steel	
3.1. Plain concrete footings	f'c = 1,500 psi (10.3 MPa) unless otherwise shown by tests ^d
3.2. Douglas fir wood	Allowable stress same as D.F. No. 1 ^d
3.3. Reinforcing steel	fs = 18,000 psi (124 MPa) maximum ^d
3.4. Structural steel	fs = 20,000 (138 MPa) maximum ^d

For SI: 1 foot = 304.8 mm

- a. Material must be sound and in good condition.
- b. A one-third increase in allowable stress is not allowed.
- c. Shear values of these materials may be combined, except the total combined value shall not exceed 300 pounds per foot.
- d. Stresses given may be increased for combinations of loads as specified in the building code.

Reason: This proposal clarifies the intent of the provision, removes unenforceable language, and removes obsolete material values from Table A4-A.

The current first sentence in A406.3 lends itself to an improper interpretation that would impose an unreasonable mandate on a project. The proposal replaces it with a reasonable requirement for engineering judgment and accountability by the design professional.

The proposal also deletes subsection A403.6.1, which is obsolete and incomplete at best, misleading at worst. Table A4-A, derived from Chapter A1 (by dividing by a factor to obtain allowable values), continues to use terms ("crosswall") and concepts appropriate to the unreinforced masonry structures covered in Chapter A1 but not appropriate to the wood-frame structures addressed by Chapter A4. Table A4-A lacks stiffnesses for each material, thus limiting its value in the context of Chapter A4. And since the table is referenced only in A406.3.1, which deals only with horizontal wood diaphragms, most of the values in the table are not linked to the chapter's provisions for sheathed walls, footings, etc.

Table A4-A is also in conflict with other portions of Chapter A4 and with current design practices. For example, Table A4-A states that the maximum structural steel allowable stress is only 20,000 psi; however, Section A406.3.4 allows the significantly higher allowable stresses of Grade A36 steel. Similarly, Table A4-A states that existing concrete must be assumed to have an f'c of 1,500 psi, yet Section A406.3.5 states that an f'c of 2,000 psi may be used. Finally, Table A4-A states that reinforcing steel shall be assumed to have an allowable stress of 18,000 psi; however, allowable stress design of concrete has not been in common use for decades.

When Chapter A4 was first developed, strengths and stiffnesses for nonconforming materials were not widely published. Now, relevant values are provided in a number of national standards and guidance documents, including ANSI/AF&PA SDPWS-2005 (Special Design Provisions for Wind and Seismic), ASCE-31, and ASCE-41. Thus, deletion of Table A4-A does not leave the practicing engineer without guidance.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
 Assembly: ASF AMF DF

ICCFILENAME: SEARER-EB13-A406.3.DOC

EB70-09/10 A406.3.2.1, A406.3.2.2

Proponent: Gary R. Searer, Wiss, Janney, Elstner Associates, Inc., representing self

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Revise as follows:

A406.3.2.1 Existing nails Allowable nail slip values. ~~The use of box nails and unseasoned lumber are permitted to be assumed. When the required drift calculations of Section A403.11.2.4 rely on the slip design values for common nails or surfaced dry lumber, their use in construction shall be verified by exposure. The design value of the box nails shall be assumed to be similar to that of common nails having the same diameter. Verification of surfaced dry lumber shall be by identification conforming to the building code.~~

A406.3.2.2 Existing plywood panel construction. When verification of the existing plywood materials is by use of record drawings alone, ~~the panel construction for plywood shall be assumed to be of three plies. The plywood modulus "G" shall be assumed equal to 50,000 pounds per square inch (345 MPa).~~

Reason: These are all clarifications intended to streamline these two sections of code and to preclude conflicts between other sections of code. The presence of box nails and unseasoned lumber are always permitted to be assumed since this is a conservative assumption; there's no reason to state this.

A406.3.2.1 currently only deals with drift calculations, but the presence of box or common nails affects the strength as well; therefore any reference to drift and slip values is stricken, and the term "design values" is used.

The sentence stating that design value of box nails shall be assumed similar to that of common nails of the same diameter is not in complete agreement with AF&PA (since head size and length also play a role) and is unnecessary.

The first three changes to A406.3.2.2 are editorial. The fourth change (deletion of the last sentence) is to address the fact that shear modulus depends on the thickness of the plywood and is in conflict with AF&PA values. In addition, AF&PA now provides apparent shear stiffness, G_a , values, which are more helpful and easy to use than straight modulus, G , values; requiring "G" be used is potentially confusing to the engineer and the building official.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

ICCFILENAME: SEARER-EB3-A406.3.2.1.DOC

EB71-09/10

Appendix C (New)

Proponent: T. Eric Stafford, PE, Institute for Business and Home Safety

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Add a new appendix as follows:

APPENDIX C: GUIDELINES FOR WIND RETROFIT OF EXISTING BUILDINGS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

CHAPTER C1 **ROOF DECK FASTENING FOR HIGH WIND AREAS**

SECTION C101 **GENERAL**

C101.1 Intent and purpose. The provisions of this chapter provide prescriptive methods for selected structural retrofitting of existing buildings. Compliance with these provisions will not always meet the requirements for new construction in the *International Building Code* or the *International Residential Code*. The provisions of this chapter are intended to provide methods for strengthening existing buildings to increase resistance to wind loads.

C101.2 Scope. The provisions of this chapter are a prescriptive alternative for one- and two-family dwellings to achieve compliance with Section 606.3 of the *International Existing Building Code*.

SECTION C102 **ROOF DECK ATTACHMENT FOR WOOD ROOFS**

C102.1 Roof decking attachment for one- and two-family dwellings. For one- and two-family dwellings, fastening shall be in accordance with section C102.1.1 or C102.1.2 as appropriate for the existing construction. The diameter of 8d nails shall be a minimum of 0.131 inches and the length shall be a minimum of 2-1/4 inches to qualify for the provisions of this section for existing nails regardless of head shape or head diameter.

C102.1.1 Sawn lumber or wood plank roofs. Roof decking consisting of sawn lumber or wood planks up to 12" wide and secured with at least two nails (minimum size 8d) to each roof framing member it crosses shall be deemed to be sufficiently connected. Sawn lumber or wood plank decking secured with smaller fasteners than 8d nails or with fewer than two nails (minimum size 8d) to each framing member it crosses shall be deemed sufficiently connected if fasteners are added such that two clipped head, round head, or ring shank nails (minimum size 8d) are in place on each framing member the nail crosses.

C102.1.2 Wood structural panel roofs. For roof decking consisting of wood structural panels, fasteners and spacings required in Table C102.1.2 are deemed to comply with the requirements of Section 606.3 of the *International Existing Building Code*.

Supplemental fasteners as required by Table C102.1.2 shall be 8d ring shank nails with round heads and the following minimum dimensions:

1. 0.113-inch nominal shank diameter
2. Ring diameter a minimum of 0.012-inch-greater than shank diameter
3. 16 to 20 rings per inch
4. A minimum 0.280-inch full round head diameter
5. Ring shank to extend a minimum of 1 ½" from the tip of the nail.
6. Minimum 2-1/4 inch nail length

**TABLE C102.1.2
SUPPLEMENT FASTENERS AT PANEL EDGES AND INTERMEDIATE FRAMING**

<u>Existing fasteners</u>	<u>Existing fastener spacing (edge or intermediate supports)</u>	<u>Wind speed 110 mph or less supplemental fastening shall be no greater than</u>	<u>Wind speed greater than 110 mph supplemental fastening for interior zone^c locations and edge zones not covered by column to right shall be no greater than</u>	<u>Edge zone^d for wind speed greater than 120 mph and Exposure C, or Wind speed greater than 140 mph and Exposure B</u>
<u>Staples or 6d</u>	<u>Any</u>	<u>6" o.c.^b</u>	<u>6" o.c.^b</u>	<u>4" o.c.^b at panel edges and 4" o.c.^b at intermediate supports.</u>
<u>8d clipped head or round head smooth shank</u>	<u>6" o.c. or less</u>	<u>None necessary</u>	<u>None necessary along edges of panels but 6" o.c.^b at intermediate supports of panel</u>	<u>4" o.c.^a at panel edges and 4" o.c.^a at intermediate supports.</u>
<u>8d clipped head or round head ring shank</u>	<u>6" o.c. or less</u>	<u>None necessary</u>	<u>None necessary</u>	<u>4" o.c.^a at panel edges and 4" o.c.^a at intermediate supports.</u>
<u>8d clipped head or round head smooth shank</u>	<u>Greater than 6" o.c.</u>	<u>6" o.c.^a</u>	<u>6" o.c.^a along panel edges and 6" o.c.^b at intermediate supports of panel</u>	<u>4" o.c.^a at panel edges and 4" o.c.^a at intermediate supports.</u>
<u>8d clipped head or round head ring shank</u>	<u>Greater than 6" o.c.</u>	<u>6" o.c.^a</u>	<u>6" o.c.^a</u>	<u>4" o.c.^a at panel edges and 4" o.c.^a at intermediate supports.</u>

- a. Maximum spacing determined based on existing fasteners and supplemental fasteners.
- b. Maximum spacing determined based on supplemental fasteners only.
- c. Interior zone = sheathing that is not located within 4 feet of the perimeter edge of the roof or within 4 feet of each side of a ridge
- d. Edge zone = sheathing that is located within 4 feet of the perimeter edge of the roof and within 4 feet of each side of a ridge

Reason: The intent of this proposal is to provide a prescriptive solution for compliance with Section 606.3. This proposal, along with a similar proposal, is requesting the creation of a new set of Appendix chapters that are intended to provide guidance for retrofitting existing structures to strengthen their resistance to wind forces. These new proposed chapters are similar in scope to Appendix A which addresses seismic retrofits for existing buildings. We anticipate that, over time, additional retrofit methods will be provided in this Appendix chapter. These retrofits are voluntary, and as such may or may not meet the requirements of new construction. However, these voluntary measures will serve to better protect the public and reduce damage from high wind events.

Section 606.3 requires the roof deck to be evaluated and remedial action when insufficient or deteriorated connections are found. However, it gives little guidance on making the required determination or providing the required corrections. Ordinarily one would turn to the requirements for new construction. However, blindly applying the same fastening requirements where fasteners already exist could potentially compromise performance because of damage to roof panels or framing members. The assumption is that there is an optimum spacing of existing and new fasteners that is a function of the number and type of existing connectors.

Adding fasteners where fasteners already exist is different than installing fasteners in new construction because of the greater potential for damaging sheathing or framing members. To date the code only addresses nailing schedules for new installations without providing any guidance for retrofit nailing. The goal is that by the addition of additional fastener strengths will at least approach current fastening requirements in order to approach the same performance level. This code modification provides the guidance that is needed when adding fasteners where fasteners already exist.

The nail spacings shown in Table C102.1.2 are derived from research conducted in the 1990's at Clemson University tempered by the requirements for roof sheathing attachment for high winds in the Wood Frame Construction Manual and SSTD 10-99. Smaller diameter fasteners such as staples damage framing members less than larger diameter fasteners and they provide significantly lower uplift resistance. Consequently, in these situations supplemental fasteners can be installed at typical new construction spacing without concern for splitting the structural members.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

ICCFILENAME: STAFFORD-EB1-APP C.DOC

EB72-09/10

Appendix C (New)

Proponent: T. Eric Stafford, PE, Institute for Business and Home Safety

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

Add a new appendix as follows:

APPENDIX C **GUIDELINES FOR WIND RETROFIT OF EXISTING BUILDINGS**

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

CHAPTER C1 **GABLE END RETROFIT FOR HIGH WIND AREAS**

SECTION C101 **GENERAL**

C101.1 Intent and purpose. The provisions of this chapter provide prescriptive methods for selected structural retrofitting of existing buildings. Compliance with these provisions will not always meet the requirements for new construction in the *International Building Code* or the *International Residential Code*. The provisions of this chapter are intended to provide methods for strengthening existing buildings to increase the building's resistance to wind loads.

C101.2 Scope. The following prescriptive methods are intended for applications where the gable end wall framing is provided by a wood gable end wall truss or a conventionally framed rafter system. The retrofits are appropriate for wall studs oriented with the wide face parallel to or perpendicular to the gable end surface. Gable ends to be strengthened shall be permitted to be retrofitted using methods prescribed by this chapter.

SECTION C102 **DEFINITIONS**

ANCHOR BLOCK. A piece of lumber secured to horizontal braces and filling the gap between existing framing members for the purpose of restraining horizontal braces from movement perpendicular to the framing members.

COMPRESSION BLOCK. A piece of lumber used to restrain in the compression mode (force directed towards the interior of the attic) an existing or retrofit stud. It is attached to a horizontal brace and bears directly against the existing or retrofit stud.

CONVENTIONALLY FRAMED GABLE END. A gable end framed with studs whose faces are perpendicular to the gable end wall.

HORIZONTAL BRACE. A piece of lumber used to restrain both compression and tension loads applied by a retrofit stud. It is typically installed horizontally on the top of attic floor framing members (truss bottom chords or ceiling joists) or on the bottom of pitched roof framing members (truss top chord or rafters).

HURRICANE TIES. Manufactured metal connectors designed to provide uplift and lateral restraint for roof framing members.

NAIL PLATE. A manufactured metal plate made of galvanized steel with factory punched holes for fasteners. A nail plate may have the geometry of a strap.

RETROFIT. The voluntary process of strengthening or improving buildings or structures, or individual components of buildings or structures for the purpose of making existing conditions better serve the purpose for which they were originally intended or the purpose that current building codes intend.

RETROFIT STUD. A lumber member used to structurally supplement an existing gable end wall stud.

RIGHT ANGLE BRACKET. A galvanized metal right angle bracket listed by the manufacturer for the material into which they will be attached, masonry (concrete or CMU) or wood.

STUD-TO-PLATE CONNECTOR. A manufactured metal connector designed to connect studs to plates.

TRUSS GABLE END. An engineered factory made truss or site built truss that incorporates factory installed or field installed vertical studs with their faces parallel to the plane of the truss

SECTION C103 **MATERIALS OF CONSTRUCTION**

C103.1 Existing materials. All existing wood materials that will be part of the retrofit work (trusses, rafters, ceiling joists, top plates, wall studs, etc.) shall be in sound condition and free from defects or damage that substantially reduces the load-carrying capacity of the member. Any wood materials found to be damaged or deteriorated shall be strengthened or replaced with new materials to provide a net dimension of sound wood equivalent to its undamaged original dimensions.

C103.2 New materials. All new materials shall comply with the requirements of the *International Building Code* or the *International Residential Code* as applicable.

C103.3. Material specifications for retrofits. Materials for retrofitting gable end walls shall comply with Sections C103.3.1 through C103.6

C103.3.1 Anchor blocks, compression blocks, and horizontal braces. Anchor blocks, compression blocks, and horizontal braces shall be lumber nominally 2 inch by at least 4 inch wide.

C103.3.2 Nail plate. Nail plates shall be of minimum 20 gauge thickness.

C103.3.3 Retrofit stud. Retrofit studs shall be made of nominal 2-inch lumber.

C103.3.4 Right angle bracket. Right angle brackets shall have a minimum capacity of 350 for uplift and lateral load conditions.

C103.3.5 Stud-to-plate connector. Stud-to-plate connectors shall have a minimum capacity of 500 pounds for uplift.

C103.3.6 Truss gable end. Gable end trusses shall be spaced no greater than 24-iches on center.

C103.4 Metal plate connectors, straps and anchors. Metal plate connectors, plates, straps and anchors shall be a product approved for connecting wood-to-wood or wood-to-concrete as appropriate. Straps and nail plates shall be manufactured from galvanized steel with a minimum thickness of 20 gauge. Nail plates shall have holes sized for a minimum of 8d nails.

C103.5 Twists in straps. Straps shall be permitted to be twisted or bent where they transition between framing members or connection points. Straps shall be bent only once at a given location though it is permissible that they be bent or twisted at multiple locations along their length.

C103.6 Fasteners. Fasteners shall meet the requirements of Sections C103.6.1 and Section C103.6.2, and shall be permitted to be screws or nails meeting the minimum length requirement shown in figures and specified in tables. Fastener spacing shall meet the requirements of Section C103.6.3.

C103.6.1 Screws. Screws shall be a minimum #8 size with head diameters no less than 0.28 inches. Screw lengths shall be no less than indicated in the Figures and in Tables. Permissible screws include deck screws and wood screws. Screws shall have at least 1 inch of thread. Fine threaded screws or drywall screws shall not be permitted. Screws shall be chosen with the appropriate diameter such that the shank adjacent to the head fits through the hole in the strap.

C103.6.2 Nails. Unless otherwise indicated in the provisions or drawings, where fastener lengths are indicated in Figures and Tables. as 1-¼ inches, 8d common nails with shank diameter 0.131 inches and head diameters no less than 0.28 inches shall be permitted. Unless otherwise indicated in the provisions or drawings, where fasteners lengths are indicated in Figures and Tables. as 3 inches, 10d common nails with shank diameter of 0.148 inches and head diameters no less than 0.28 inches shall be permitted.

C103.6.3 General fastener spacing. Fastener spacing for shear connections of lumber-to-lumber shall meet the requirements shown in Figure C103.6.3 and the following conditions.

C103.6.3.1 General fastener spacing. Fastener spacing shall meet the following conditions except as provided for in Section C103.6.3.3

The distance between fasteners and the edge of lumber that is less than 3-1/2 inches deep in the direction of the fastener length shall be a minimum of 3/4 inches.

1. The distance between fasteners and the edge of lumber that is more than 2 inches thick in the direction of the fastener length shall be a minimum of ½ inches.
2. The distance between a fastener and the end of lumber shall be a minimum of 2-½ inches.
3. The distance between fasteners parallel to the grain (center-to-center) shall be a minimum of 2-1/2 inches.
4. The distance between fasteners perpendicular to the grain (center-to-center) in lumber that is less than 3-1/2 inches deep in the direction of the fastener length shall be 1 inch.
5. The distance between fasteners perpendicular to the grain (center-to-center) in lumber that is more than 2 inches thick in the direction of the fastener length shall be ½ inch.

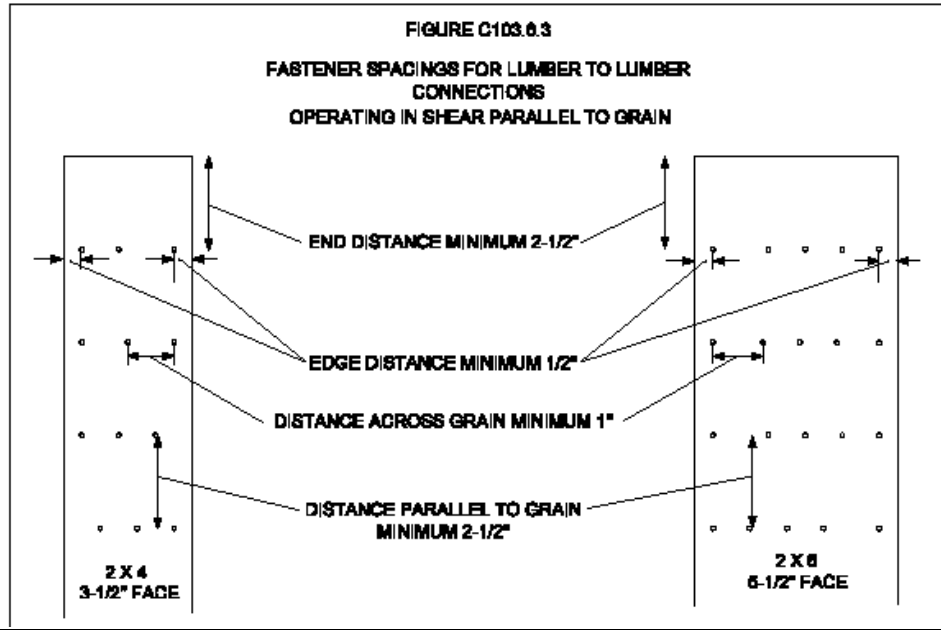
C103.6.3.2 Wood-to-wood connections of two members each 2 inch or less thick. Wood-to-wood connections fastener spacing shall meet the following conditions.

1. The distance between fasteners parallel to grain (center-to-center) shall be a minimum of 2-1/2 inches.
2. The distance between fasteners across grain (center-to-center) shall be a minimum of 1 inch.
3. For wood-to-wood connections of lumber at right angles, fasteners shall be spaced a minimum of 2-1/2 inches parallel to the grain and 1 inch perpendicular to the grain in any direction.

C103.6.3.3 Metal connectors to wood connections. Metal connectors to wood connections shall meet the following conditions.

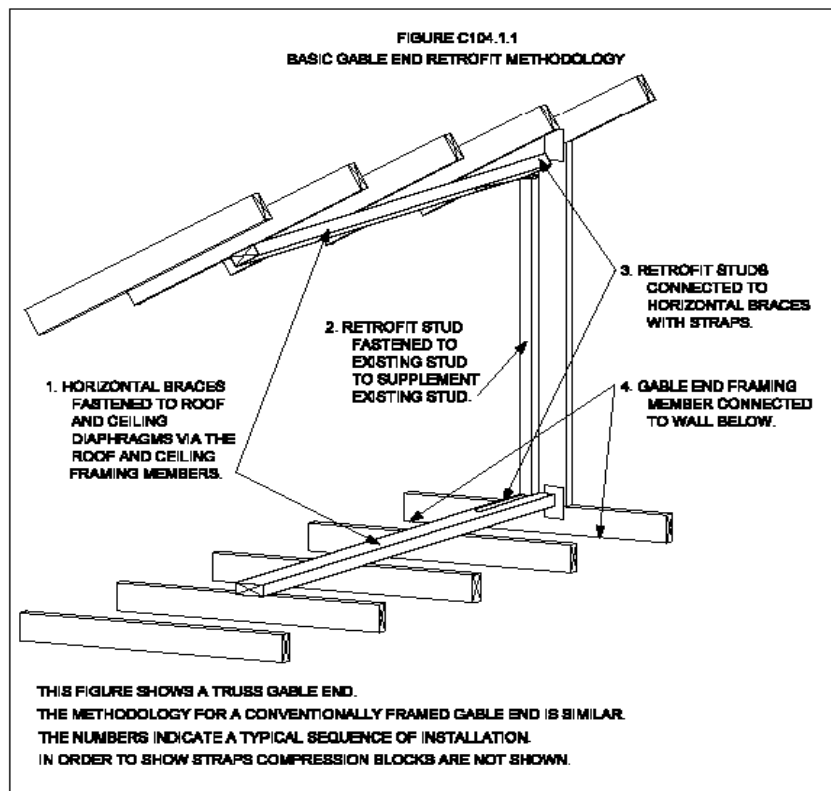
1. Fastener spacing to edge or ends of lumber shall be as dictated by the prefabricated holes in the connectors and the connectors shall be installed in accordance with the manufacturer.
2. Fasteners in 1-1/4 inch wide metal straps that are installed on the 1-1/2 inch broad face of lumber shall be a minimum 1/4 inches from either edge of the lumber. Consistent with Section C103.6.3.1 fasteners shall be allowed to be spaced according to the fastener holes fabricated into the strap.
3. Fasteners in metal nail plates shall be spaced a minimum of ½ inches across wood grain and a minimum of 1-1/2 inches parallel to wood grain.

SECTION C104
RETROFITTING GABLE END WALLS TO ENHANCE WIND RESISTANCE



SECTION C104
RETROFITTING GABLE END WALLS TO ENHANCE WIND RESISTANCE

C104.1 General. These prescriptive methods of retrofitting are intended to increase the resistance of existing gable end construction for out-of-plane wind loads resulting from high wind events. The ceiling diaphragm shall be comprised of minimum 1/2 inch thick drywall, minimum nominal 3/8 inch thick wood structural panels, or plaster. An overview isometric drawing of one kind of gable end retrofit to improve wind resistance is shown in Figure C104.1.1.



C104.2 Horizontal braces. Horizontal braces shall be installed approximately perpendicular to the roof and ceiling framing members at the location of each existing gable end stud greater than 3 feet in length. Unless it is adjacent to an omitted horizontal brace location, horizontal braces shall be minimum 2x4 dimensional lumber as defined in Section C103.3. A single horizontal brace is required at the top and bottom of each gable end stud for Retrofit Configuration A, B, or C and two horizontal braces are required for Retrofit Configuration D. Maximum heights of gable end wall studs and associated retrofit studs for each Retrofit Configuration shall not exceed the values listed in Table C104.2. Horizontal braces shall be oriented with their broad faces across the roof or ceiling framing members, be fastened to a minimum of three framing members, and extend at least 6 feet measured perpendicularly from the gable end plus 2-1/2 inches beyond the last top chord or bottom chord member (rafter or ceiling joist) from the gable end as shown in Figure C104.2(1), Figure C104.2(2), Figure C104.2(3), and Figure C104.2(4).

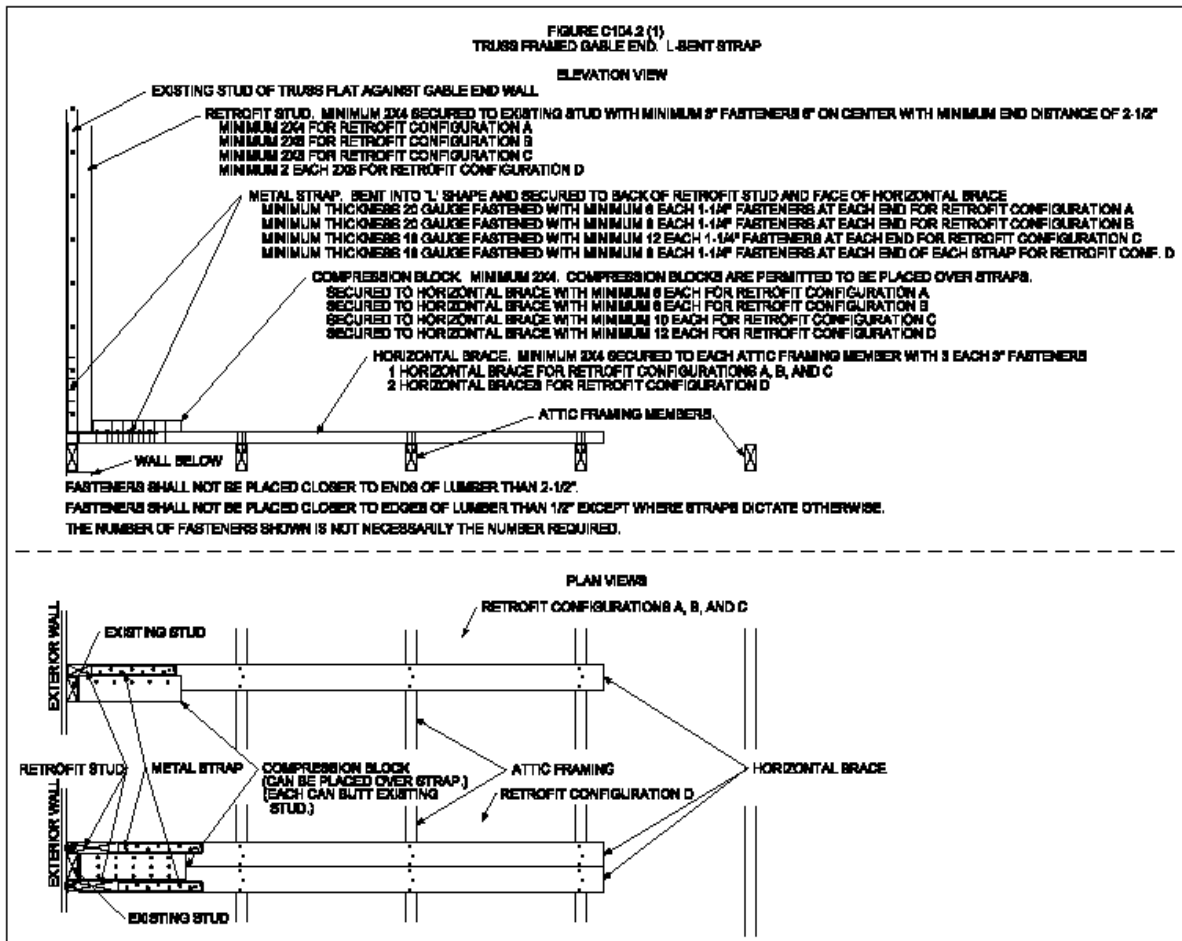
**TABLE C104.2
STUD LENGTH LIMITATIONS BASED ON EXPOSURE AND DESIGN WIND SPEED**

Exposure Category	Maximum 3-Sec Gust Basic Wind Speed ^a	Maximum Height of Gable End Retrofit Stud ^b			
C	110	8'-0"	11'-3"	14'-9"	16'-0"
C	120	7'-6"	10'-6"	13'-6"	16'-0"
C	130	7'-0"	10'-0"	12'-3"	16'-0"
C	140	7'-0"	10'-0"	12'-3"	16'-0"
C	150	6'-6"	8'-9"	11'-0"	16'-0"
B	110	8'-0"	12'-3"	16'-0"	N/R ^c
B	120	8'-0"	11'-3"	14'-9"	16'-0"
B	130	8'-0"	11'-3"	14'-9"	16'-0"
B	140	7'-6"	10'-6"	13'-6"	16'-0"
B	150	7'-0"	10'-0"	12'-3"	16'-0"
	Retrofit Configuration -->	A	B	C	D

For SI: 1 Inch = 25.4mm, 1 Foot = 304.8mm

- a. Interpolation between given wind speeds not permitted.
- b. Existing gable end studs less than or equal to 3'-0" in height shall not require retrofitting.
- c. N/R = Not Required. Configuration C is acceptable to 16'-0" maximum height.

FIGURE C104.2 (1)
TRUSS FRAMED GABLE END, L-BENT STRAP



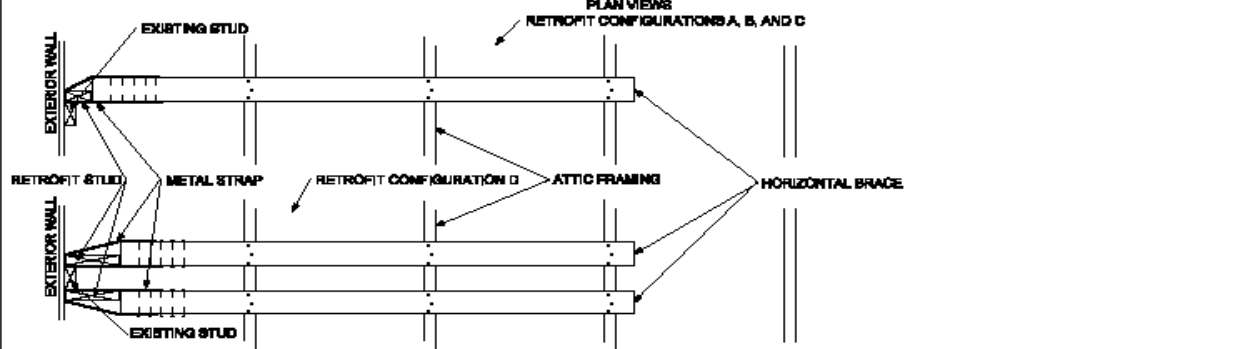
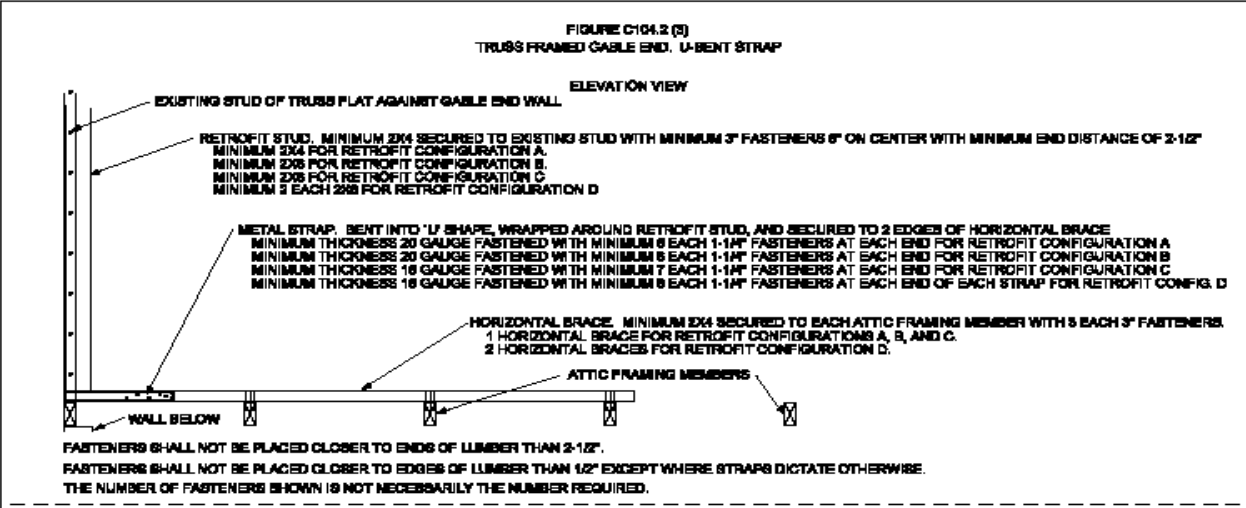
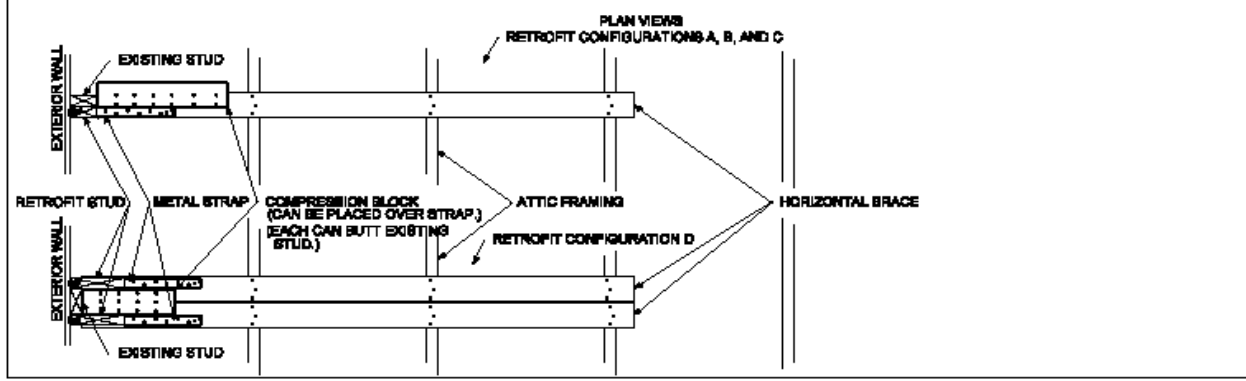
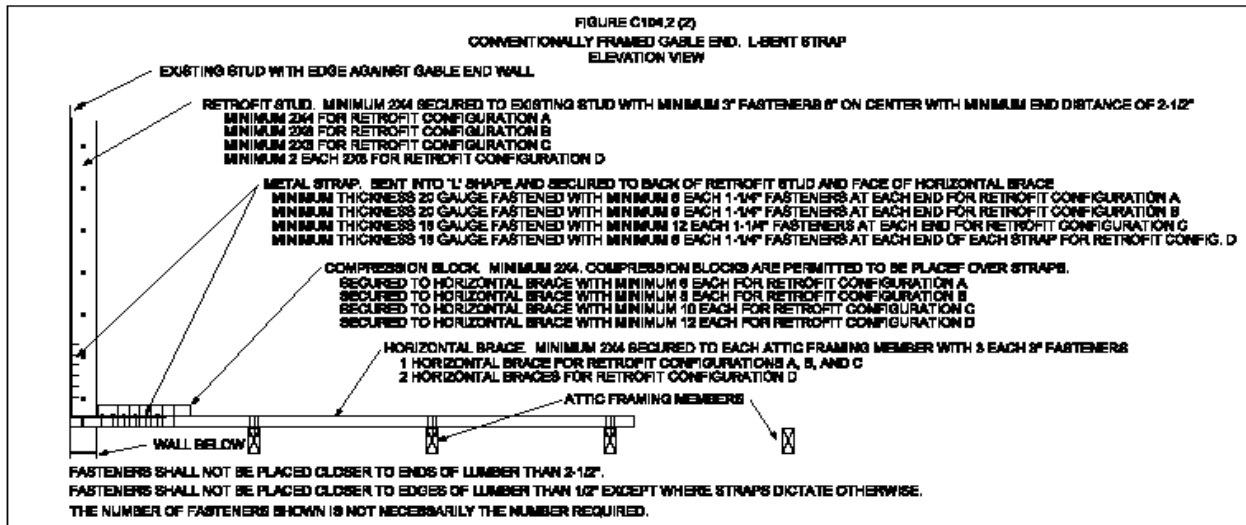
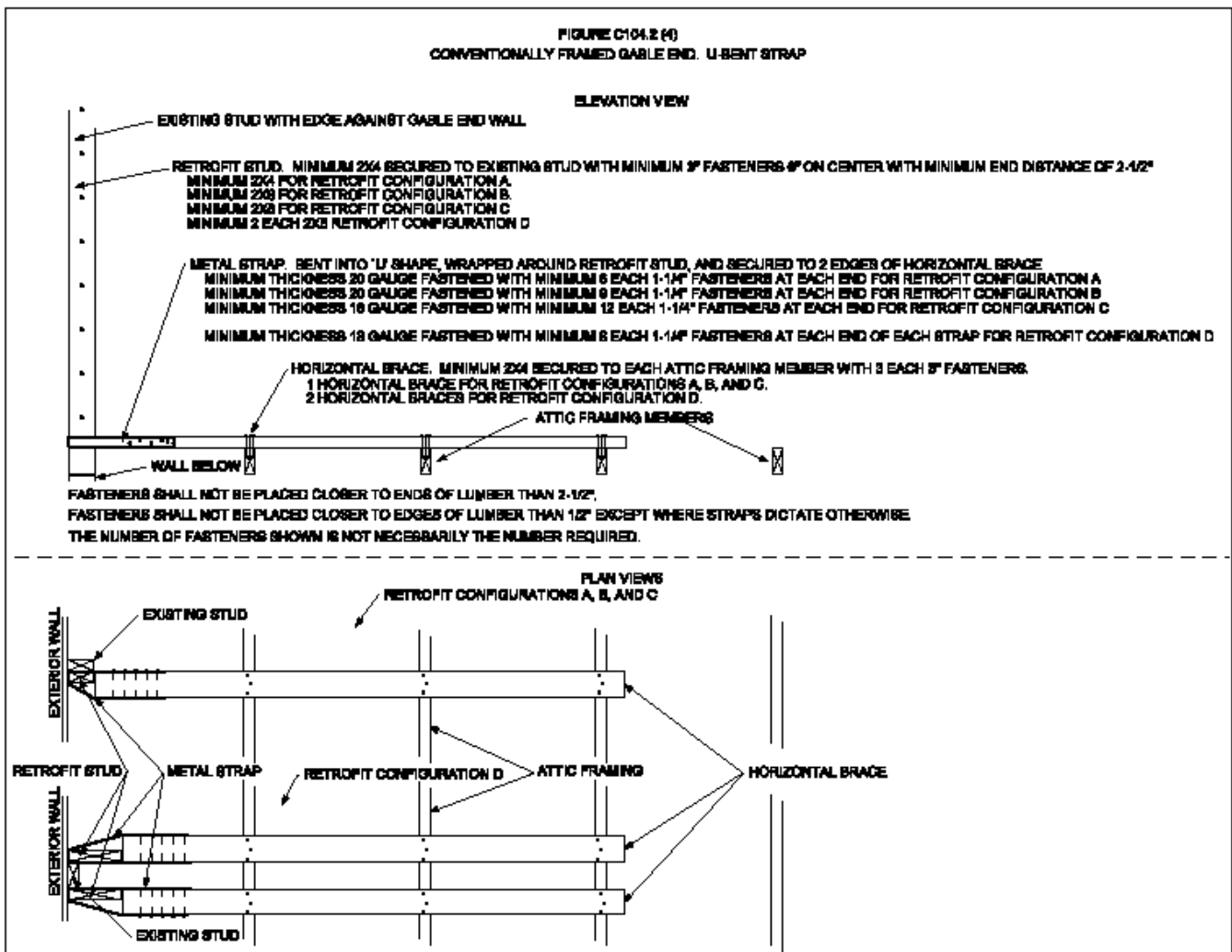


FIGURE C104.2 (4)
CONVENTIONALLY FRAMED GABLE END, U-BENT STRAP



C104.2.1 Existing gable end studs. If the spacing of existing vertical gable end studs in conventionally framed or the truss gable ends is greater than 24 inches, a new stud and corresponding horizontal braces shall be installed such that the maximum spacing between existing and added studs shall be no greater than 24 inches. Additional gable end wall studs shall not be required at locations where their length would be 3 feet or less. Each end of each required new stud shall be attached to the existing roof framing members (truss top chord or rafter and truss bottom chord or ceiling joist) using a minimum of two 3 inch toenail fasteners (#8 wood screws or 10d nails) and a metal connector with minimum uplift capacity of 175 pounds, or nail plates with a minimum of four 1-1/4 inch long fasteners (#8 wood screws or 8d nails).

C104.2.2 Main method of installation. Each horizontal brace shall be fastened to each existing roof or ceiling member that it crosses using three 3-inch long fasteners (#8 wood screws or 10d nails) as indicated in Figure C104.2(1) and Figure C104.2(3) for trusses and Figure C104.2(2) and Figure C104.2(4) for conventionally framed gable end walls. Alternative methods for providing horizontal bracing of the gable end studs as provided in Sections C104.2.3 through C104.2.9 shall be allowed in lieu of this primary installation method.

C104.2.3 Omitted horizontal brace. Where impediments, other permanently attached obstacles or conditions exist that prevent installation in accordance with Section C104.2.2 horizontal braces may be omitted for height limitations corresponding to Retrofit Configurations A and B as defined in Table C104.2 provided installation is as indicated in Figure C104.2.3 and provided all of the following conditions are met. This method is not allowed for Retrofit Configurations C or D.

1. There shall be at least two horizontal braces on each side of an omitted horizontal brace or at least one horizontal brace if it is the end horizontal brace. Omitted horizontal braces must be separated by at least two horizontal braces even if that location is comprised of two retrofit studs and two horizontal braces.

2. Horizontal braces adjacent to the omitted horizontal brace shall be 2x6 lumber, shall butt against the existing studs, and shall be fastened to each existing roof or ceiling member that it crosses using three 3-inch long fasteners (#8 wood screws or 10d nails). For Retrofit Configuration B, 4 fasteners shall be required on at least one of the connections between the horizontal brace and the existing roof and ceiling framing members. Fasteners shall be spaced a minimum of 3/4" from the edges of the horizontal braces and a minimum of 1-3/4" from adjacent fasteners.
3. Where the existing studs on each side of an omitted horizontal brace have their broad face perpendicular to the gable end wall, the retrofit studs at those locations and the retrofit stud at the omitted horizontal brace locations shall be sized such that they protrude a minimum of 3-1/2 inches beyond the interior edge of the existing studs for both Retrofit Configurations A and B. The edges of the three retrofit studs facing towards the interior of the attic shall be aligned such that they are the same distance from the gable end wall.
4. Retrofit studs shall be fastened to existing studs in accordance with Section C104.3.
5. Retrofit studs adjacent to the omitted horizontal brace shall be fastened to the horizontal brace using straps in accordance with Table C104.4.1 consistent with the size of the retrofit stud. The method applicable to Table C104.4.2 is not allowed.
6. A strong back made of minimum of 2x8 lumber shall be placed parallel to the gable end and shall be located on and span between horizontal braces on the two sides of the omitted horizontal brace and shall extend beyond each horizontal braces by a minimum of 2-1/2 inches. The strong back shall be butted to the three retrofit studs. The strong back shall be attached to each of the horizontal braces on which it rests with 5 3 inch long fasteners (#8 screws or 8d nails). Those fasteners shall be spaced a minimum of 3/4 inch from any edge of lumber and shall be spaced a minimum of 2-1/2 inch from each other. Additional compression blocks shall not be required at locations where a strong back butts against a retrofit stud.
7. The retrofit stud at the location of the omitted horizontal braces shall be fastened to the strong back using a connector with minimum uplift capacity of 800 pounds and installed such that this capacity is oriented in the direction perpendicular to the gable end wall.
8. The use of shortened horizontal braces using the alternative method of Section C104.2.5 is not allowable for horizontal braces adjacent to the omitted horizontal braces.
9. Horizontal braces shall be permitted to be interrupted in accordance with Section C104.2.8.

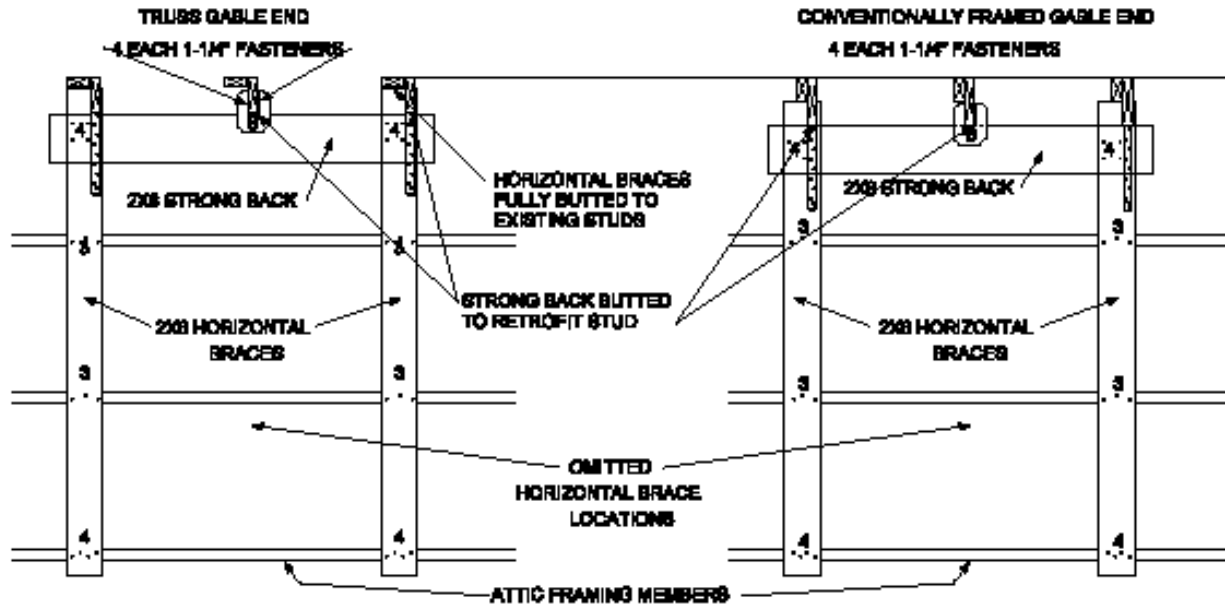
FIGURE G104.2.3
OMITTED HORIZONTAL BRACE

OVERVIEW

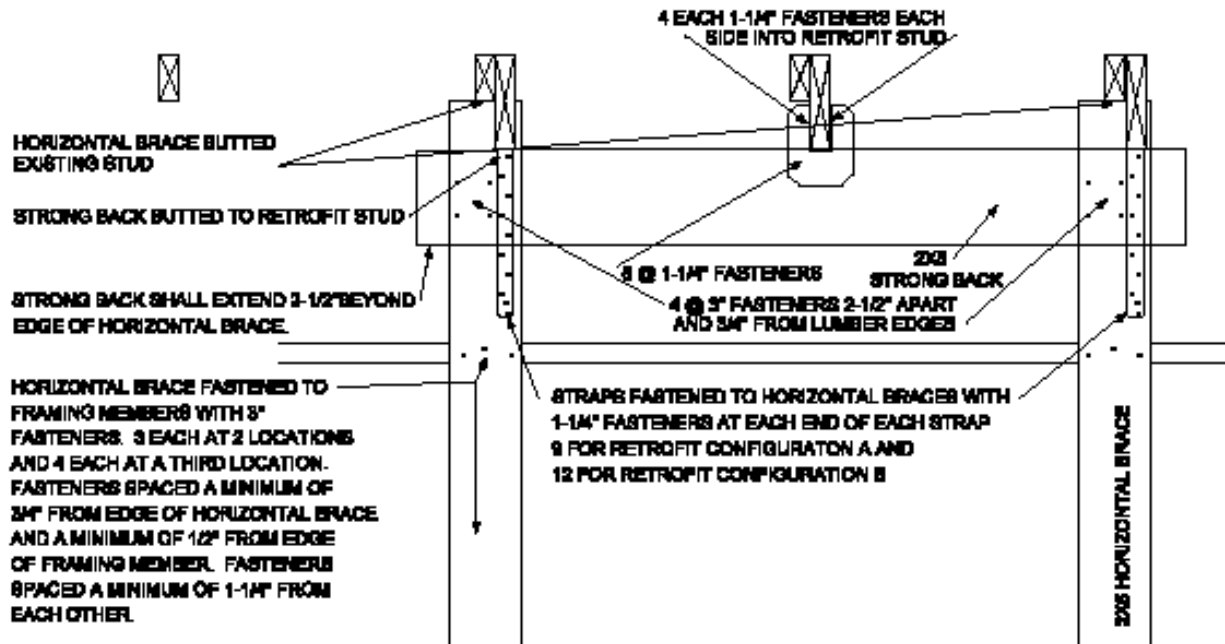
PLAN VIEWS

RETROFIT CONFIGURATION A AND B ONLY
NOT ALLOWED FOR RETROFIT CONFIGURATION C OR D

UNIDENTIFIED NUMBERS INDICATE THE NUMBER OF FASTENERS.



DETAILS OF CONVENTIONALLY FRAMED GABLE



C104.2.4 Omitted horizontal brace and retrofit stud. Where impediments, other permanently attached obstacles or conditions exist that prevent installation in accordance with Section C104.2.2 or Section C104.2.3 by not permitting installation of horizontal braces, then retrofit studs and horizontal brace shall be permitted to be omitted from those locations by installation of ladder assemblies for Retrofit Configurations A and B as defined in Table C104.2 provided all of the following conditions are met. This method is not allowed for Retrofit Configurations C or D.

1. No more than two ladder assemblies are permitted on a single gable end.
2. There shall be at least two retrofit studs and horizontal brace assemblies on either side of the locations where the retrofit studs and horizontal bracing members are omitted (no two ladder braces bearing on a single retrofit stud).
3. Where the existing studs on each side of an omitted horizontal brace have their broad face parallel to the gable end wall the retrofit studs at those locations and the retrofit stud at the omitted horizontal brace locations shall be 2x6 lumber for Retrofit Configuration A and 2x8 lumber for Retrofit Configuration B.
4. Horizontal braces adjacent to the omitted horizontal brace shall be 2x6 lumber and be fastened to each existing roof or ceiling member crossed using three 3-inch long fasteners (#8 wood screws or 10d nails) as indicated in Figure C104.2(1) and Figure C104.2(3) for trusses and Figure C104.2(2) and Figure C104.2(4) for conventionally framed gable end wall. For Retrofit Configuration B, 4 fasteners shall be required on at least one of the connections between the horizontal brace and the existing roof and ceiling framing members.
5. Ladder rungs /shall be provided across the location of the omitted retrofit studs as indicated in Figure C104.2.4(1) for trusses and Figure C104.2.4(2) for conventionally framed gable end walls.
6. Ladder rungs shall be made of at a minimum 2x4 lumber oriented with their broad face horizontal and spaced a maximum of 16-inches on center vertically.
7. Where ladder rungs cross structural members such as the existing stud at the omitted retrofit stud location or gable end vent framing they shall be connected to each other with a metal connector with a minimum capacity of 175 pounds in the direction perpendicular to the gable end wall.
8. Notching of the ladder rungs shall not be permitted unless the net depth of the framing member is a minimum of 3-1/2 inches.

C104.2.5 Short horizontal brace. Where impediments, other permanently attached obstacles or conditions exist that prevent installation in accordance with Sections C104.2.2, C104.2.3, or C104.2.4 by not permitting extension of horizontal braces across the existing framing members such that they can be fastened to a minimum of three framing members and extend at least 6-feet from the gable end wall plus 2-1/2 inches beyond the last roof or ceiling framing member, the horizontal braces may be shortened provided installation is as indicated in Figure C104.2.5 and provided that all of the following conditions are met.

1. The horizontal brace shall be installed across a minimum of two framing spaces, extend a minimum of 4-feet from the gable end wall plus 2-1/2 inches beyond the last roof or ceiling framing member, and be fastened to each existing framing member with three 3-inch long fasteners (#8 wood screws or 10d nails).
2. An anchor block shall be fastened to the side of the horizontal brace in the second framing space from the gable end wall as shown in Figure C104.2.5. The anchor block lumber shall have a minimum edge thickness of 1-1/2 inches and the depth shall be as a minimum the depth of the existing roof or ceiling framing member. Six 3-inch long fasteners (#8 wood screws or 10d nails) shall be used to fasten the anchor block to the side of the horizontal brace.
3. The anchor block shall extend into the space between the roof or ceiling framing members a minimum of one-half the depth of the existing framing members at the location where the anchor block is installed. The anchor block shall be installed tightly between the existing framing members such that the gap at either end shall not exceed $\frac{1}{8}$ inch.
4. The use of omitted horizontal braces using the method of Section C104.2.3 adjacent to a short horizontal brace as defined in this section is not permitted.

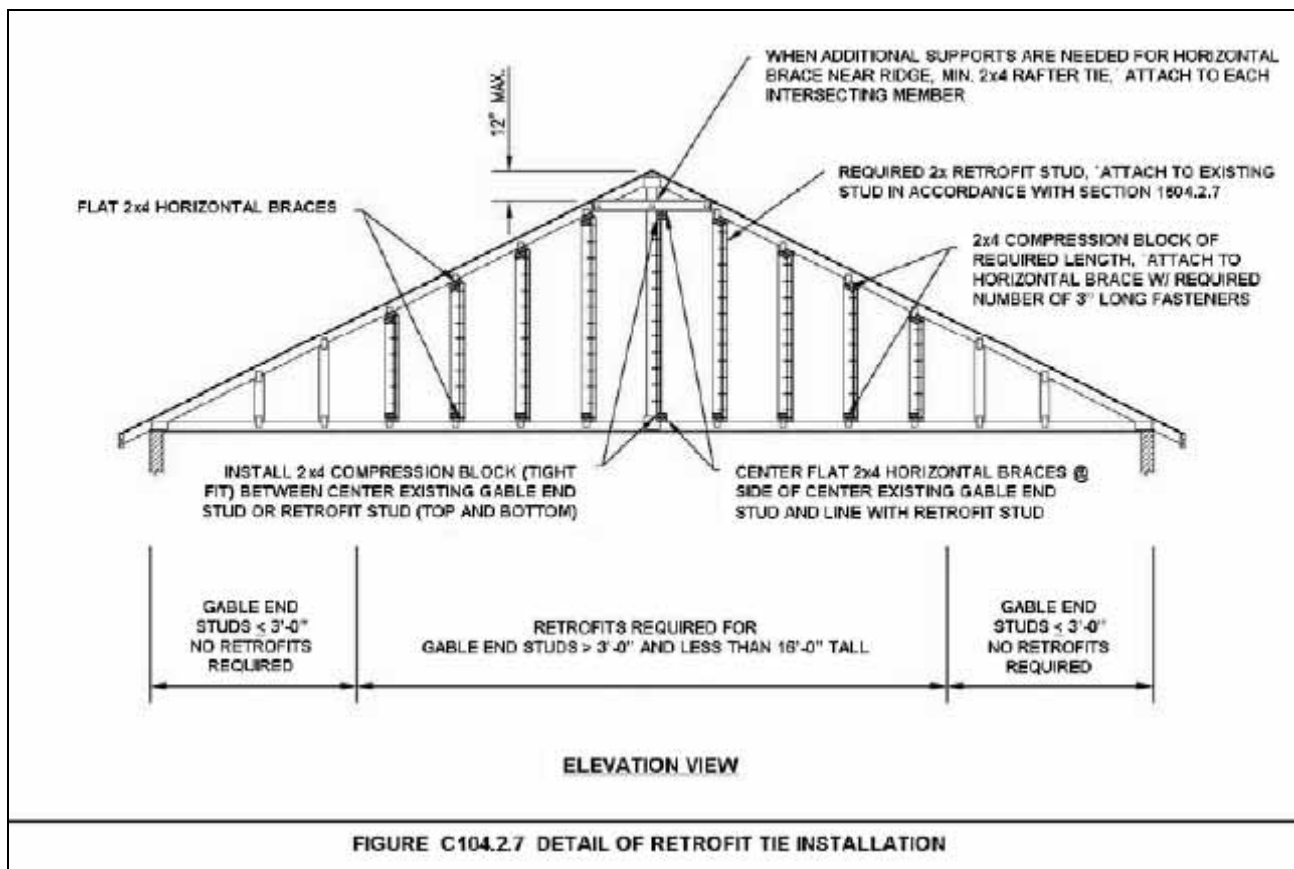
C104.2.6 Installation of horizontal braces onto webs or vertical members of trusses. Where existing conditions preclude installation of horizontal braces on truss top or bottom chords they shall be permitted to be installed on truss webs or vertical members of trusses provided all of the following conditions are met.

1. Horizontal braces shall be installed as close to the top or bottom chords as practical without altering the truss or any of its components and not more than three times the depth of the truss member to which it would ordinarily be attached.
2. A racking block, comprised of an anchor block meeting the definition of anchor block of Section C102 or comprised of minimum 15/32 inch plywood or 7/16 inch OSB, shall be fastened to the horizontal brace in the second framing space from the gable end wall. The racking block shall extend towards the diaphragm (roof or ceiling as appropriate) so that the edge of the racking block closest to the diaphragm is within $\frac{1}{2}$ the depth of

the existing framing member from the diaphragm surface. They shall be attached to horizontal braces using six fasteners (#8 wood screws or 10d nails) of sufficient length to provide 1-1/2 inches of penetration into the horizontal brace.

3. Racking blocks can be fastened to any face or edge of horizontal braces between each web or truss vertical posts to which a horizontal brace is attached. Racking blocks can be on alternate sides of horizontal braces. Racking blocks shall be installed tightly between the lumber of truss members or truss plates such that the gap at either end shall be a maximum of 1/8 inch.

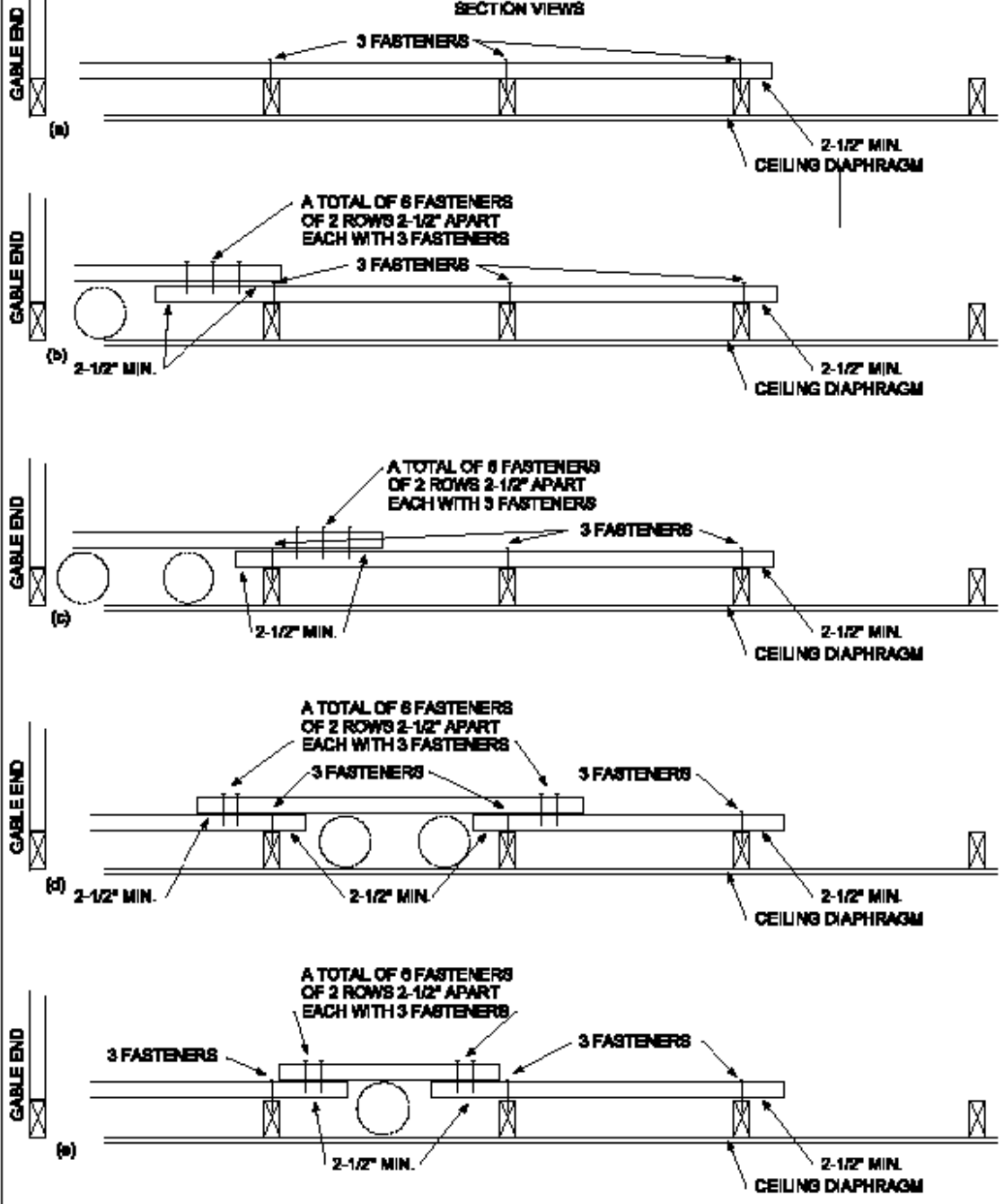
C104.2.7 Alternative method of installation of horizontal braces at truss ridges. Where impediments such as truss plates or access for installation of fasteners limits or restricts installation of horizontal braces near the peak of the roof, ridge ties may be added to provide support for the required horizontal brace. The top of added ridge tie members shall be installed a maximum of 16-inches below the existing ridge line or 4 inches below impediments. The added ridge tie members shall be installed across a minimum of three bays, but no less than 6-feet from the gable end wall plus 2-1/2 inches beyond the last roof or ceiling framing member to permit fastening of the horizontal brace. A minimum of a 2x4 member shall be used for each ridge tie and fastening shall consist of two 3-inch long wood screws, four 3 inch long 10d nails or two 3-1/2 inch long 16d nails driven through and clinched at each top chord or web member intersected by the ridge tie as illustrated in Figure C104.2.7.



C104.2.8 Interrupted horizontal braces. Where impediments, other permanently attached obstacles or conditions exist that prevent installation of horizontal braces in accordance with Section C104.2.2 by preventing the installation of a single continuous horizontal braces then horizontal braces shall be permitted to be interrupted using the methods shown in Figure C104.2.8(1), Figure C104.2.8(2), and Figure C104.2.8(3). For interruptions that occur in the attic framing space closest to the gable end, nine 3 inch fasteners shall be used to connect each section of the interrupted horizontal braces. For interruptions that occur in the second attic space from the gable end, six 3 inch fasteners shall be used to connect each section of the interrupted horizontal braces. For interruptions that occur in the attic framing space farthest from the gable end, three 3 inch fasteners shall be used to connect each section of the interrupted horizontal braces. Horizontal braces shall be continued far enough to allow connections to three existing roof framing members as shown in Figure C104.2.8(1), Figure C104.2.8(2), or Figure C104.2.8(3). Fasteners shall be spaced in accordance with Section C103.6.3. Lumber members used to form horizontal braces shall be the same width and depth as required for an un-interrupted member.

FIGURE C104.2.B (1)
SPLICED HORIZONTAL BRACES

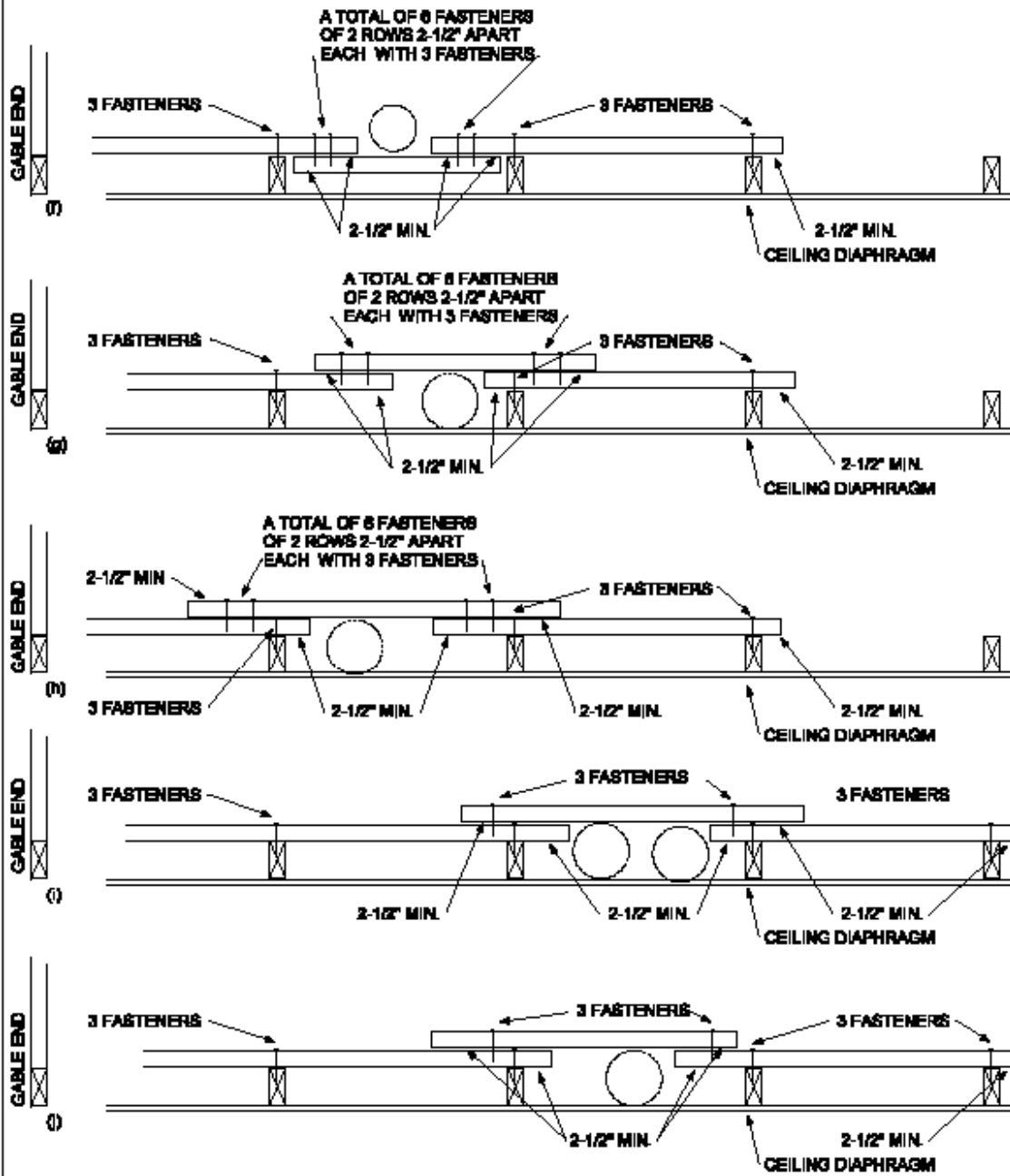
SECTION VIEWS



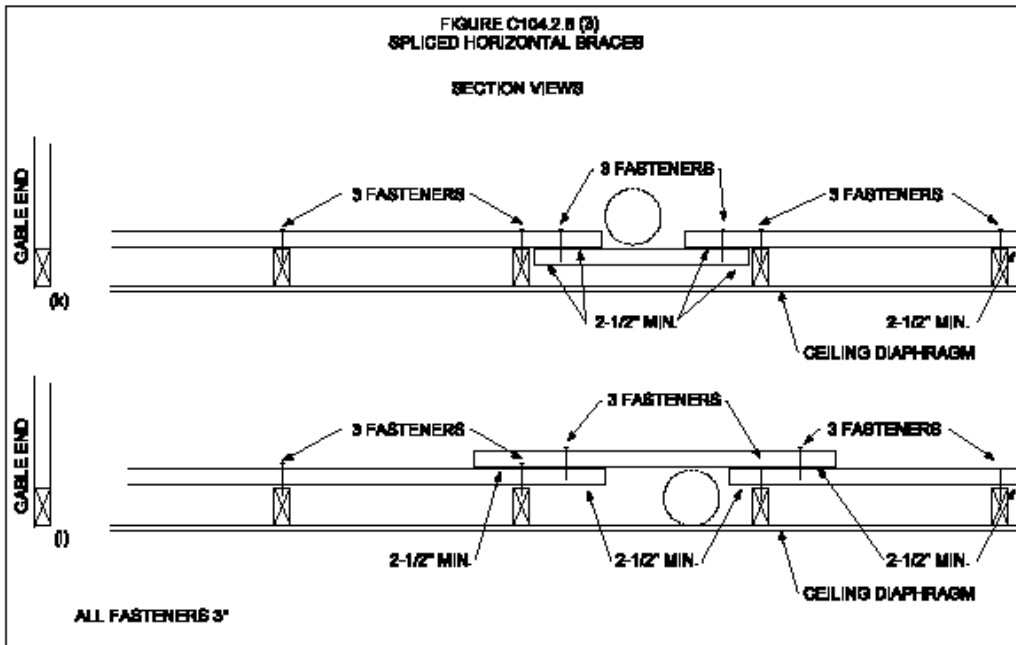
ALL FASTENERS 3"

FIGURE C104.2.B (2)
SPLICED HORIZONTAL BRACES

SECTION VIEWS



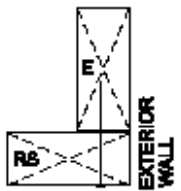
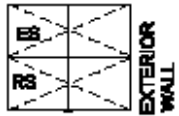


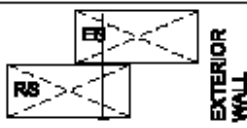
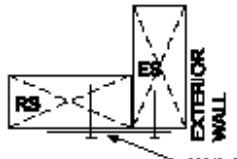
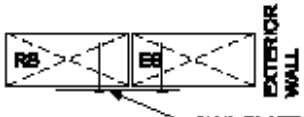
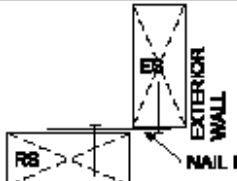
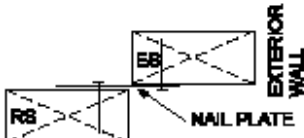
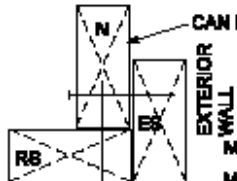
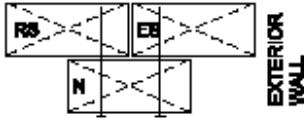
ALL FASTENERS 3"



C104.2.9 Piggyback trusses. Piggyback trusses (trusses composed of two members one above the other) shall be permitted to be retrofitted if either of the following cases is true. 1. The existing studs in both the upper truss and the lower truss to which wall sheathing, panel siding, or other wall façade are attached are sufficiently in line that retrofit studs can be installed and connections made between the two with retrofit stud(s). 2. The same as condition 1 except the studs in the upper truss are not sufficiently in line with ones below and the existing studs in the upper truss are 3 feet or shorter. For condition 1 both the lower stud and the upper stud shall be retrofitted using the methods of Section C104.2. For condition two the retrofit stud shall be connected to the lower studs using the methods of Section C104.2 and be continuous from the bottom horizontal brace to the top horizontal brace. No connection is required between the retrofit stud and the upper stud. In both conditions the bottom chord of the piggy back truss section shall be fastened to each retrofit stud using a connector with minimum axial capacity of 175 pounds.

C104.3 Retrofit studs. Retrofit studs shall be installed in accordance with Section C104.3.1 and using one of the five methods of Sections C104.3.2, through C104.3.6 and as shown in Figure C104.3. For the Retrofit Configuration derived from Table C104.2 the size of retrofit studs shall be as indicated in Table C104.4.1 or Table C104.4.2. Retrofit studs shall extend from the top of the lower horizontal brace to the bottom of the upper horizontal brace except that a maximum gap of 1/8 inch is allowed at the bottom and 1/2 inch at the top. Where wall sheathing, panel siding, or other wall façade is fastened to gable end studs not manufactured into a truss, i.e. are field installed, retrofit studs shall be applied to those field installed studs in accordance with Section C104.2.1.

FIGURE C104.3
METHODS OF INSTALLING RETROFIT STUDS

TRUSS FRAMING PLAN VIEWS	CONVENTIONAL FRAMING PLAN VIEWS	
	STUD FACES PERPENDICULAR TO WALL	STUD FACES PARALLEL TO WALL
		
	<p>METHOD #1: FACE TO EDGE OR TO FACE METHOD OF C104.3.2 MINIMUM 1-1/2" PENETRATION OF FASTENER INTO SECONDARY MEMBER</p>	
		
	<p>METHOD #2: FACE TO OFFSET FACE METHOD OF C104.3.3 MINIMUM 1-1/2" PENETRATION OF FASTENER INTO SECONDARY MEMBER</p>	
		
	<p>METHOD #4: BUTTED RETROFIT STUD METHOD OF C104.3.4 MINIMUM 1-1/4" PENETRATION OF FASTENER INTO LUMBER</p>	
		
	<p>METHOD #5: OFFSET RETROFIT STUD METHOD OF C104.3.5 MINIMUM 1-1/4" PENETRATION OF FASTENER INTO LUMBER</p>	
		
	<p>METHOD #6: NAILER WITH RETROFIT STUD METHOD OF C104.3.6 MINIMUM 1-1/2" PENETRATION OF FASTENER INTO SECONDARY MEMBER</p>	

THE FIGURES DO NOT REFLECT THE NUMBER OF REQUIRED FASTENERS OR SHOW HORIZONTAL BRACES OR STRAPS. FASTENERS SHALL BE PLACED MAXIMUM 8" ON CENTER AND A MINIMUM OF 2-1/2" FROM ENDS. 3" FASTENERS CAN BE INSTALLED FROM EITHER SIDE OF LUMBER AS LONG AS THERE IS 1-1/2" FASTENER PENETRATION. EB INDICATES AN EXISTING STUD. RS INDICATES A RETROFIT STUD. N INDICATES A NAILER.

C104.3.1 Fastening. Where nail plates are not used, retrofit studs shall be attached to existing studs using 3 inch fasteners at a maximum of 6 inches on center but no closer than 2-1/2 inches on center with fasteners no closer than 2-1/2 inches to the ends of members.

C104.3.2 Method #1: Face to edge or to face method. Retrofit studs shall be installed immediately adjacent to existing (Section C104.2) gable end wall studs as indicated in Figure C104.3(a). The retrofit studs shall overlap the edge or side of the existing stud by a minimum of 1-1/4 inches. Fasteners shall be installed as specified in Section C104.3.1.

C104.3.3 Method #2: Face to face offset method. Retrofit studs shall be installed against the face of existing studs as indicated in Figure C104.3(b) such that the faces overlap a minimum of 1-1/2 inch and the edge distance to fasteners is no less than 3/4 inch. Fasteners shall be installed as specified in Section C104.3.1.

C104.3.4 Method #3: Butted retrofit stud method. Provided that all of the following fastening conditions are met retrofit studs shall be permitted to be butted by their edge or face to existing studs with the addition of nail plates as indicated in Figure C104.3(c) and Figure C104.3.4.

1. The 1-1/2 inch edge of retrofit studs shall be installed against the 1-1/2 inch or the broad face of existing studs.
2. A minimum of two nail plates shall be used.
3. Fasteners used to secure nail plates to studs shall be a minimum 1-1/4 inch long (#8 wood screws or 8d nails).
4. Fasteners placed in nail plates shall be a minimum of 2-1/2 inches along the length of lumber. A fastener shall be placed in nail plates a maximum of 6 inches from the ends of the shorter stud.
5. Fasteners shall be placed a minimum of a 1/2 inch from the edges of the studs. Fasteners shall be placed a maximum of 1-1/2 inches from the abutting vertical edges of existing studs and retrofit studs.
6. There shall be at least 3 fasteners through nail plates into all existing and retrofit studs to which it is attached.
7. Where there are 3 fasteners through nail plates onto a single existing or retrofit stud then nail plates shall be spaced a maximum of 15 inches on center.
8. Where there are more than 3 fasteners through nail plates onto a single existing or retrofit stud then nail plates shall be spaced a maximum of 20 inches on center.
9. In line fasteners used to secure nail plates shall be spaced vertically a minimum of 1-1/2 inches on center. Staggered fasteners used to secure nail plates shall be spaced horizontally a minimum of 1/2 inches.

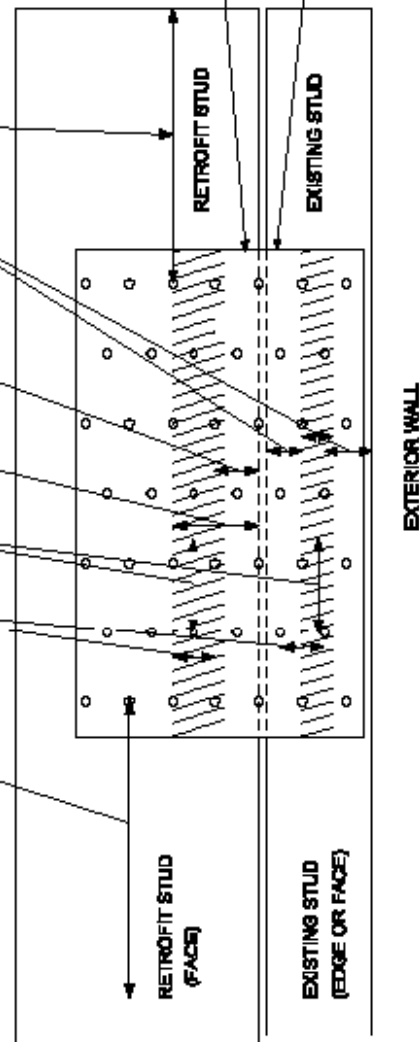
FIGURE C104.3.4
NAIL PLATE FASTENING

ELEVATION VIEW

1. MINIMUM OF TWO PLATES VERTICALLY
CONNECTING THE TWO STUDS

2. NAIL PLATE

- 3. THE CLOSEST FASTENER SHALL BE A MINIMUM OF 2-1/2" AND A MAXIMUM OF 6" FROM THE END OF THE SHORTER OF THE EXISTING OR RETROFIT STUDS.
- 4. FASTENERS ON EXISTING STUD SHALL BE A MINIMUM OF 1/2" FROM EITHER EDGE.
- 5. A SET OF FASTENERS SHALL BE A MINIMUM OF 1/2" FROM THE EDGE NEAREST THE EXISTING STUD AND A MAXIMUM OF 1-1/4" FROM THE EDGE OF THE RETROFIT STUD NEAREST THE EXISTING STUD. SEE NOTE BELOW.
- 6. IN LINE FASTENERS SHALL BE SPACED VERTICALLY A MINIMUM OF 1-1/2" ON CENTER. IN LINE FASTENERS SHALL BE SPACED HORIZONTALLY A MINIMUM OF 1/2" AND A MINIMUM OF 2-1/2".
- 7. THE DISTANCE BETWEEN FASTENERS ON PLATES SHALL BE A MAXIMUM OF 20" ON CENTER.
- 8. FASTENERS SHALL BE MINIMUM 1-1/4" LONG (#6 WOOD SCREWS OR #8 NAILS)



STUD SIZES MAY DIFFER FROM THOSE SHOWN.
DIAGONAL HATCHES INDICATE ALLOWABLE LATERAL RANGE
FOR FASTENERS.
THE RELATIONSHIP BETWEEN STUDS AND PLATES WILL VARY
ACCORDING TO THE PARTICULARS OF THE METHOD USED.

C104.3.5 Method #4: Offset retrofit stud method. Where retrofit studs are placed as indicated in Figure C104.3(d) retrofit studs shall be permitted to be offset from existing studs by use of nail plates such that the vertical corner of a retrofit stud shall be placed at the vertical corner of an existing stud as indicated in Figure C104.3(d) and Figure C104.3.4 provided the fastening conditions of Section C104.3.4 are met.

C104.3.6 Method #5: Nailer with retrofit stud method. Retrofit studs and existing studs shall be permitted to be connected using non-continuous 2x4 nailers as indicated in Figure C104.3(e) provided the following conditions are met.

1. Both the existing stud and the retrofit stud shall be butted to nailers and both shall be fastened to the nailer with 3 inch long fasteners (#8 wood screws or 8d nails). Fasteners connecting each stud to the nailer shall be spaced 6 inches on center.
2. Fasteners into nailers from any direction shall be offset vertically by a minimum of 2-1/2 inches.
3. Fasteners into nailers shall be a minimum of 2-1/2 inches but not more than 6 inches from the end of the shorter of the existing stud and retrofit stud to which they are fastened.

C104.3.7 Reduced depth of retrofit studs. Retrofit studs may be reduced in depth by notching, tapering, or other methods at any number of locations along their length provided that all of the following conditions are met.

1. The retrofit stud to be reduced in depth shall be sized such that the remaining minimum depth of the member at the location of the notch (including cross cut kerfs) shall not be less than that required by Table C104.4.1 or Table C104.4.2.
2. The retrofit stud reduced in depth shall not be spliced within 12 inches of the location of notches. Splice members shall not be notched.
3. The vertical extent of notches shall not exceed 12 inches as measured at the depth of location of reduced depth.
4. A retrofit stud member reduced in depth shall be fastened to the side of the existing gable end wall studs in accordance with Section C104.3.1. Two additional 3 inch fasteners (#8 wood screws or 10d nails) shall be installed on each side of notches in addition to those required by Section C104.3.1.

C104.3.8 Retrofit stud splices. Retrofit studs greater than 8 feet in height may be field spliced in accordance with Figure C104.3.8.

C104.4 Connection between horizontal braces and retrofit studs. Connections between horizontal braces and retrofit studs shall comply with Section C104.4.1 or Section C104.4.2. Each retrofit stud shall be connected to the top and bottom horizontal brace members with a minimum of a 20 gauge 1-1/4 inch wide flat or coil metal strap with pre-punched holes for fasteners. Straps shall be fastened with 1-1/4 inch long fasteners (#8 wood screws or 8d nails) with the number of fasteners as indicated on Table C104.4.1 and Table C104.4.2. Fasteners shall be no closer to the end of lumber than 2-1/2 inches.

C104.4.1 L-bent strap method. Retrofit studs shall be connected to horizontal braces or to strong backs in accordance with Figure C104.2(1), Figure C104.2(2), or Figure C104.2.3, and shall comply with the following conditions.

1. A strap shall be applied to the edges of a retrofit stud nearest the gable end wall and to the face of horizontal braces using at each end of the strap the number of fasteners specified in Table C104.4.1. Straps shall be long enough so that each strap extends sufficient distance onto the vertical face of the retrofit stud that the fastener closest to the ends of the studs is a minimum of 2-1/2 inches from the end of the stud. Straps shall be allowed to be twisted to accommodate the transition between the tops of retrofit studs and horizontal bracings following roof pitches.
2. Compression blocks shall be installed on the horizontal braces directly against either the existing vertical gable end wall stud or the retrofit stud. Figure C104.2(1) (trusses) and Figure C104.2(2) (conventionally framed) show the installation of the compression block against the existing vertical gable end wall stud with the strap from the retrofit stud running beside the compression block. Compression blocks shall be allowed to be placed over straps. Compression blocks shall be fastened to the horizontal braces with at least the minimum number of 3 inch long fasteners (#8 wood screws or 10d nails) specified in Table C104.4.1. End and edge distances for fasteners shall be in accordance with Section C103.6.3.

**TABLE C104.4.1
ELEMENT SIZING AND SPACING FOR L-BENT RETROFIT METHOD**

	<u>Retrofit</u>	<u>Retrofit</u>	<u>Retrofit</u>	<u>Retrofit</u>
	<u>Config.</u>	<u>Config.</u>	<u>Config.</u>	<u>Config.</u>
<u>Retrofit Elements</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
<u>Minimum size and number of Horizontal Braces</u>	<u>2x4</u>	<u>2x4</u>	<u>2x4</u>	<u>2 each 2x4</u>
<u>Minimum size and number of Retrofit Studs</u>	<u>2x4</u>	<u>2x6</u>	<u>2x8</u>	<u>2 each 2x8</u>
<u>Minimum number of fasteners connecting each end of straps to Retrofit Studs or to Horizontal Braces</u>	<u>6</u>	<u>9</u>	<u>12</u>	<u>8 on each strap</u>
<u>Braces</u>				
<u>#8 screws or 10d nails 1-1/4" long</u>				
<u>Minimum number of fasteners to connect Compression Blocks to Horizontal Braces</u>	<u>6</u>	<u>8</u>	<u>10</u>	<u>12</u>
<u>#8 screws or 10d nails 3" long</u>				

For SI: 1 Inch = 25.4mm, 1 Foot = 304.8mm

C104.4.2 U-bent strap method. Retrofit studs shall be connected to horizontal braces in accordance with Figure C104.2(3) or Figure C104.2(4), shall be limited to Retrofit Configurations A and B (Table C104.2), and shall comply with the following conditions.

1. Straps shall be of sufficient length to meet the requirements for the number of fasteners in accordance with Table C104.4.2 and to meet the end distance requirements of Section C103.6.3 shall be shaped around retrofit studs and fastened to the edges of horizontal braces. Straps shall wrap the back edge of the retrofit stud snugly with a maximum gap of ¼ inches. Rounded bends of straps shall be allowed. One fastener shall be installed that connects each strap to the side of the associated retrofit stud.
2. The horizontal brace shall butt snugly against the retrofit stud with a maximum gap of ¼ inches.
3. Straps shall be allowed to be twisted to accommodate the transition between the tops of retrofit studs and horizontal braces that follow the roof pitch.

**TABLE C104.4.2
ELEMENT SIZING AND SPACING FOR U-BENT RETROFIT METHOD**

	<u>Retrofit</u>	<u>Retrofit</u>	<u>Retrofit</u>	<u>Retrofit</u>
	<u>Config.</u>	<u>Config.</u>	<u>Config.</u>	<u>Config.</u>
<u>Retrofit Elements</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
<u>Minimum size and number of Horizontal Braces</u>	<u>2x4</u>	<u>2x4</u>	<u>2x4</u>	<u>2 each 2x4</u>
<u>Minimum size and number of Retrofit Studs</u>	<u>2x4</u>	<u>2x6</u>	<u>2x8</u>	<u>2 each 2x8</u>
<u>Minimum number of fasteners connecting Straps To each edge of Horizontal Braces</u>	<u>6</u>	<u>7</u>	<u>7</u>	<u>6 on side of each strap</u>
<u>#8 screws or 10d nails 1-1/4" long</u>				

For SI: 1 Inch = 25.4mm, 1 Foot = 304.8mm

C104.5 Connection of gable end wall to wall below. The bottom chords or bottom members of wood framed gable end walls shall be attached to the wall below using one of the methods prescribed in Sections C104.5.1 or C104.5.2. The particular method chosen shall correspond to the framing system and type of wall construction encountered.

C104.5.1 Truss gable end wall. The bottom chords of the gable end wall in a truss gable shall be attached to the wall below using right angle brackets. A minimum of two fasteners shall be installed into the bottom chord. The right angle brackets shall be installed throughout the portion of the gable end where the gable end wall height is greater than 3 feet at the spacing specified in Table C104.5.1. Connection to the wall below shall be by one of the methods listed below:

1. For a wood frame wall below, a minimum of two fasteners shall be installed. The fasteners shall be of the same diameter and style specified by the bracket manufacturer and sufficient length to extend through the double top plate of the wall below.
2. For a concrete or masonry wall below without a sill plate, the type and number of fasteners into the wall shall be consistent with the bracket manufacturer's specifications for fasteners installed in concrete or masonry.
3. For a concrete or masonry wall below with a 2x sill plate, the fasteners into the wall below shall be of the diameter and style specified by the bracket manufacturer for concrete or masonry connections; but, long enough to pass through the wood sill plate and provide the required embedment into the concrete or masonry below. Alternatively, the bracket can be anchored to the sill plate using 4 each 1-1/2 inch long fasteners of the same type as specified by the bracket manufacturer for wood connections, provided that the sill plate is anchored to the wall on each side of the bracket by a 1/4-inch diameter masonry screw with a 2-3/4 inches of embedment into the concrete or masonry wall. A 1/4 inch washer shall be placed under the heads of the masonry screws.

**TABLE C104.5.1
SPACING OF RIGHT ANGLE BRACKETS**

<u>Exposure Category</u>	<u>Maximum 3-Sec. Gust Wind Speed – V Mph</u>	<u>Spacing of Right Angle Brackets^a</u>
<u>C</u>	<u>110</u>	<u>38-inches</u>
<u>C</u>	<u>120</u>	<u>32-inches</u>
<u>C</u>	<u>130</u>	<u>28-inches</u>
<u>C</u>	<u>140</u>	<u>24-inches</u>
<u>C</u>	<u>150</u>	<u>20-inches</u>
<u>B</u>	<u>110</u>	<u>48-inches</u>
<u>B</u>	<u>120</u>	<u>40-inches</u>
<u>B</u>	<u>130</u>	<u>36-inches</u>
<u>B</u>	<u>140</u>	<u>30-inches</u>
<u>B</u>	<u>150</u>	<u>26-inches</u>

a. See Section C102 for definition of right angle bracket.

C104.5.2 Conventionally framed gable end wall. Each stud in a conventionally framed gable end wall, throughout the length of the gable end wall where the wall height is greater than 3 feet, shall be attached to the bottom or sill plate using a stud to plate connector with minimum uplift capacity of 175 pounds. The bottom or sill plate shall then be connected to the wall below using one of the methods listed below:

1. For a wood frame wall below, the sill or bottom plate shall be connected to the top plate of the wall below using 1/4 inch diameter lag bolt fasteners of sufficient length to penetrate the bottom plate of the upper gable end wall and extend through the bottom top plate of the wall below. A washer sized for the diameter of the lag bolt shall be placed under the head of each lag bolt. The fasteners shall be installed at the spacing indicated in Table C104.5.2.
2. For a concrete or masonry wall below, the sill or bottom plate shall be connected to the concrete or masonry wall below using 1/4 inch diameter concrete or masonry screws of sufficient length to provide 2-3/4 inches of embedment into the top of the concrete or masonry wall. A washer sized for the diameter of the lag bolt shall be placed under the head of each lag bolt. The fasteners shall be installed at the spacing indicated in Table C104.5.2.

**TABLE C104.5.2
SPACING OF LAG OR MASONRY SCREWS USED TO
CONNECT SILL PLATE OF GABLE END WALL TO TOP OF THE WALL BELOW**

Exposure Category	Maximum 3-Sec. Gust Wind Speed - V mph	Spacing of Lag Screws or Masonry Screws
C	110	19-inches
C	120	16-inches
C	130	14-inches
C	140	14-inches
C	150	10-inches
B	110	24-inches
B	120	20-inches
B	130	18-inches
B	140	15-inches
B	150	13-inches

Reason: This proposal, along with a similar proposal, is requesting the creation of a new set of Appendix chapters that are intended to provide guidance for retrofitting existing structures to strengthen their resistance to wind forces. These new proposed chapters are similar in scope to Appendix A which addresses seismic retrofits for existing buildings. We anticipate that, over time, additional retrofit methods will be provided in this Appendix chapter. These retrofits are voluntary, and as such may or may not meet the requirements of new construction. However, these voluntary measures will serve to better protect the public and reduce damage from high wind events.

The purpose of the proposed addition is to provide prescriptive means for retrofitting gable ends to resist high winds. This code addition will facilitate the retrofitting of gable ends without requiring site specific engineering for common applications, thus removing some of the obstacles that might impede this important retrofit in hurricane prone regions.

Reason for adding provisions for retrofitting gable ends

Gable end failures are one of the most common types of structural failures observed in hurricanes. They have been documented in most major hurricanes and in many weaker hurricanes.

The proposed code addition is intended to be a prescriptive approach to reduce retrofitting costs, facilitate retrofitting, minimize the need for engineering, and facilitate code review and inspection. The addition will provide standardized off the shelf methods that can be readily approved and easily inspected by building department personnel. Building departments can thus become creditable third party resources for authenticating retrofitting just as they do for other structural issues of buildings.

It should be recognized that almost no attempt to retrofit will actually weaken or compromise a building or subject surrounding buildings to risk, on the contrary all will benefit. The retrofitting is voluntary.

Reason for adding retrofit measures to the code

Because most America's buildings located in hurricane prone regions were not built to today's building codes standards, there is significant value added to the code if the retrofitting of buildings could be facilitated by the provision of prescriptive means. This would inherently reduce the cost of retrofitting. The need for structural retrofitting has been highlighted in the recent spate of hurricanes and the insurance crises that has developed in the coastal high wind areas of a number of states because of older buildings that do not meet current building code structural requirements. Clearly, it is in the public's health, welfare, and safety to facilitate retrofitting. Given the importance of retrofitting to the public, retrofitting of buildings should be encouraged and facilitated by removing as many impediments as possible. The code can actually facilitate and encourage retrofitting by providing prescriptive means. Such methods should encourage, facilitate, and reduce the cost of improving America's building stock.

Reason for location in code

The preferred approach is to add an appendix chapter that deals specifically with retrofitting of a voluntary nature. The advantage of this approach is that it easily allows for additional retrofit measures to be added without confusing code users by gable end retrofit being in the repair section and then changing its location to a separate chapter in a subsequent edition when more retrofit measures are added. Further by grouping retrofit measures into a separate chapter users will find them and perhaps even use the chapter as a catalog of potential retrofit measures. Additionally, grouping voluntary measures into a separate chapter, a chapter separate from mandatory measures, will make code administration less prone to confusion.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

ICCFILENAME: STAFFORD-EB2-APP C-2.DOC