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

First Printing

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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 23rd	3:00 pm to 6:00 pm
Saturday, October 24th through Wednesday November 11th	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 indication 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	**<u>October 24 – November 11, 2009</u>** 2009 ICC Annual Conference and Code Development Hearing Balitmore, MD **<u>October 25 – November 1, 2010</u>** 2010 ICC Annual Conference and Final Action Hearing Charlotte, NC	
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
BethTubbs 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
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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

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

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R903.4	S2-09/10, Part III (heard by IRC Plumbing)
R903.4.1	S2-09/10, Part III (heard by IRC Plumbing)
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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
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R905.10.5.1 (New)	S15-09/10, Part II
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R1003.9.3 (New)	S182-09/10, Part II
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R1005.7	M117 PII
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N1101.4.2.1(New)	EC2 Part II
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N1102.2.2.1(New)	EC64 Part II
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N1102.2.11	EC68 Part II
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Table N1102.1.4 (New) N1102.1.4(New)	EC57 Part II
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N1102.3.3 (New)	EC72 Part II
N1102.3.3 (New)	EC73 Part II
N1102.3.3 (New)	EC74 Part II
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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
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N1102.4.4	EC91 Part II
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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)
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N1103.4.1	EC112 Part II
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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
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M1303.1	FG10 PIII
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M1401.1	M9 PII
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M1411.6.1	M133 PII
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M2201.5	M151 PII
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P2603.4	P16 Part II
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Table P2605.1	P70 Part II
P2608.1	P7 Part II
P2608.4	P7 Part II
Table P2608.4	P7 Part II
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P2706.1	P121 Part II
P2708.1.1	P52 Part II
P2708.4 (New)	P53 Part II
P2709.2.1	P54 PartII
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P2709.2.4 (New)	P55 PartII
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P2803.6 (New)	P63 Part II
P2803.6.1	P64 Part II
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P2801.5.1	P67 Part II
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P2901.1	P87 Part II
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IRC (continued)	
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P2902.5.4.1	P99 Part II
P2902.5.5	P94 Part II
P2902.6	P90 Part II
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P2903.5	P72 Part II
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P2905.19.2 (New)	P70 Part II
P2908.1	P108 Part II
P2908.2	P108 Part II
P3001.4 (New)	P109 Part II
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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
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P3111.3	P127 Part II
P3113.4.1	P131 Part II
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Chapter 44	ADM39
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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
TRACK 2	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
TRACK 2	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:

1. Hearing times may be modified at the discretion of the Chairman. Breaks will be announced.
2. Proposed code changes submitted to the International Wildland-Urban Interface Code (IWUIC) to be heard by the IFC Committee.
3. Proposed code changes submitted to the International Zoning (Z) and Property Maintenance (PM) Codes to be heard by the IPM/Z Committee.
4. "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

Registration
Delegate

2009 Annual Conference and
Code Development Hearings

Hearings: October 24–31 and November 4–11
Hilton Baltimore

Conference: November 1–4
Baltimore Convention Center

FIRST NAME AND M.I. _____ LAST NAME/SURNAME _____

JOB TITLE _____

JURISDICTION/ORGANIZATION _____

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CITY _____ STATE/PROVINCE _____ ZIP/POSTAL CODE _____

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☐ Full Conference Registration (includes all business, education and social functions)	$495*	$625*	$560*	$685*
☐ Code Development Hearings only (Registration is required to verify voting status)	FREE Registration		FREE Registration	
☐ One-Day Education ☐ Monday, November 2 ☐ Tuesday, November 3	$125	$160	$160	$190
☐ Golf Tournament (per person)** Handicap _____	$75	$75	$125	$125
☐ Golf Club Rental** ☐ Men's ☐ Women's ☐ Left ☐ Right	$25	$25	$25	$25

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If you are registering for the full conference, please enter a session number for each time slot.
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☐ **Monday, November 2**
1:15 pm–4:15 pm
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1:15 pm–4:15 pm
Session selection: # _____

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MAINE
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ID Number _____

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ID Number _____

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ID Number _____

☐ Department of State, Office of Fire Prevention
Requires Social Security # _____
FDID #/City Code _____
County Code _____
ID Number _____

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☐ Code Officials Qualification Board
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ID Number _____

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ID Number _____

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ID Number _____

RHODE ISLAND
☐ State Building Code Commission
ID Number _____

SOUTH CAROLINA
☐ Department of Labor, Licensing and Regulation Board of Building Codes Council
ID Number _____

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☐ Department of Licensing and Regulation, Electrical Safety and Licensing Advisory Board
ID Number _____

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☐ Division of Occupational and Professional Licensing, Contractor Licensing
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☐ Safety and Buildings Division
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2009/2010 PROPOSED CHANGES TO THE INTERNATIONAL FIRE CODE

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TENTATIVE ORDER OF DISCUSSION

2009/2010 PROPOSED CHANGES TO THE INTERNATIONAL FIRE CODE AND INTERNATIONAL WILDLAND-URBAN INTERFACE 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.

WILDLAND-URBAN
WUIC1-09/10
WUIC2-09/10
WUIC3-09/10
WUIC4-09/10
WUIC5-09/10

FIRE CODE
F1-09/10
  ADM34-09/10
  ADM35-09/10
F2-09/10
F3-09/10
F4-09/10
F5-09/10
F6-09/10
F7-09/10
  RB9-09/10, Part II
F8-09/10
  F30-09/10
  F238-09/10
F9-09/10
F10-09/10
F11-09/10
F12-09/10
F13-09/10
F14-09/10
F15-09/10
F16-09/10
F17-09/10
F18-09/10
F19-09/10
F20-09/10, Part I
F20-09/10, Part II
  F40-09/10
F21-09/10
F22-09/10
F23-09/10
F24-09/10
F25-09/10
F26-09/10
F27-09/10
F28-09/10
F29-09/10
F31-09/10
F32-09/10
  F33-09/10
F34-09/10
F35-09/10
F36-09/10
F37-09/10
F38-09/10
F39-09/10
F41-09/10
F42-09/10
F43-09/10
F44-09/10
F45-09/10
F46-09/10
F47-09/10
F48-09/10
F49-09/10
F50-09/10
F51-09/10
F52-09/10
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F56-09/10
F57-09/10
F58-09/10
F59-09/10
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F61-09/10
F62-09/10
F64-09/10
F65-09/10
F66-09/10
F67-09/10
F68-09/10
F69-09/10
F70-09/10
F71-09/10
F72-09/10
F73-09/10
F74-09/10
F75-09/10
F76-09/10
F77-09/10
F78-09/10
F79-09/10
F80-09/10
F81-09/10
F82-09/10
F83-09/10
F84-09/10
F85-09/10
F86-09/10
F87-09/10
  F89-09/10
  F90-09/10
  F96-09/10
  F97-09/10
F88-09/10
F91-09/10
F92-09/10
F93/09/10
F94-09/10
F95-09/10
F98-09/10
F99-09/10
F100-09/10
F101-09/10
F102-09/10
F103-09/10
F104-09/10
F105-09/10
F106-09/10
F107-09/10
F108-09/10, Part I
F109-09/10
F110-09/10
F111-09/10
F112-09/10, Part I
F113-09/10
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F1–09/10
All Chapters

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

Create "Parts" in the IFC and renumber Chapters as follows:

Part I – Administrative
Chapter 1 Scope and Administration
Chapter 2 Definitions

Part II – General Safety Provisions
Chapter 3 General Requirements
Chapter 4 Emergency Planning and Preparedness

Part III – Building and Equipment Design Features
Chapter 5 Fire Service Features
Chapter 6 Building Services and Systems
Chapter 7 Fire-Resistance-Rated Construction
Chapter 8 Interior Finish, Decorative Materials and Furnishings
Chapter 9 Fire Protection Systems
Chapter 10 Means Of Egress
Chapter ~~46~~ 11 Construction Requirements for Existing Buildings
Chapters 12 through 19 *(reserved)*

Part IV – Special Occupancies and Operations
Chapter ~~11~~ 20 Aviation Facilities
Chapter ~~12~~ 21 Dry Cleaning
Chapter ~~13~~ 22 Combustible Dust-Producing Operations
Chapter ~~22~~ 23 Motor Fuel-Dispensing Facilities and Repair Garages
Chapter ~~15~~ 24 Flammable Finishes
Chapter ~~16~~ 25 Fruit and Crop Ripening
Chapter ~~17~~ 26 Fumigation and Thermal Insecticidal Fogging
Chapter ~~18~~ 27 Semiconductor Fabrication Facilities
Chapter ~~19~~ 28 Lumber Yards and Woodworking Facilities
Chapter ~~20~~ 29 Manufacture of Organic Coatings
Chapter ~~21~~ 30 Industrial Ovens
Chapter ~~24~~ 31 Tents and Other Membrane Structures
Chapter ~~23~~ 32 High-Piled Combustible Storage
Chapter ~~14~~ 33 Fire Safety during Construction and Demolition
Chapter ~~25~~ 34 Tire Rebuilding and Tire Storage
Chapter ~~26~~ 35 Welding and Other Hot Work
Chapter ~~45~~ 36 Marinas
Chapters 37 through 49 *(reserved)*

Part V – Hazardous Materials
Chapter ~~27~~ 50 Hazardous Materials—General Provisions
Chapter ~~28~~ 51 Aerosols
Chapter ~~29~~ 52 Combustible Fibers
Chapter ~~30~~ 53 Compressed Gases
Chapter ~~31~~ 54 Corrosive Materials
Chapter ~~32~~ 55 Cryogenic Fluids
Chapter ~~33~~ 56 Explosives and Fireworks
Chapter ~~34~~ 57 Flammable and Combustible Liquids
Chapter ~~35~~ 58 Flammable Gases and Flammable Cryogenic Fluids
Chapter ~~36~~ 59 Flammable Solids
Chapter ~~37~~ 60 Highly Toxic and Toxic Materials
Chapter ~~38~~ 61 Liquefied Petroleum Gases
Chapter ~~39~~ 62 Organic Peroxides
Chapter ~~40~~ 63 Oxidizers, Oxidizing Gases and Oxidizing Cryogenic Fluids

Chapter ~~41~~ 64 Pyrophoric Materials
Chapter ~~42~~ 65 Pyroxylin (Cellulose Nitrate) Plastics
Chapter ~~43~~ 66 Unstable (Reactive) Materials
Chapter ~~44~~ 67 Water-Reactive Solids and Liquids
Chapters 68 through 79 *(reserved)*

Part VI – Referenced Standards
Chapter ~~47~~ 80 Referenced Standards

Part VII – Appendices
Appendix A Board of Appeals
Appendix B Fire-Flow Requirements for Buildings
Appendix C Fire Hydrant Locations and Distribution
Appendix D Fire Apparatus Access Roads
Appendix E Hazard Categories
Appendix F Hazard Ranking
Appendix G Cryogenic Fluids—Weight and Volume Equivalents
Appendix H Hazardous Materials Management Plan (HMMP) and Hazardous Materials Inventory Statement (HMIS) Instructions
Appendix I Fire Protection Systems – Noncompliant Conditions
Appendix J Emergency Responder Radio Coverage
Index

Reason: In the most recent code change cycle, two new chapters were added to the IFC. One Chapter addressed Marinas and the other contained Construction Requirements for Existing Buildings. Since there was no other location to place these chapters they, were added at the end of the code as Chapters 45 and 46.

Starting with original publication of the IFC in 2000, the hazardous materials provisions have been in the back portion of the code book. But now we have also included a chapter on marinas and a chapter on existing buildings. Neither of these chapters contain subject matter that is consistent with, or appropriately placed with, the concept of hazardous materials.

Therefore, this proposal will reorganize the IFC into 7 Parts. Each Part contains a subject matter and holds the chapters that logically fit under the heading of each Part. It is also foreseeable that additional chapters could be added in the future as regulation for new processes or operations are developed. Therefore, the proposal is designed to accommodate these future chapters by providing reserved (unused) chapters in several Parts. This will allow new chapters to be included into the appropriate Part as they are developed and approved.

Several concepts were used as the foundation to establish the Chapter numbers and locations as follows:

1. Chapters 1-Administration and 2-Definitions are the same subject matter in all of the ICC Codes, so they remain as 1 and 2
2. Chapters 7-Fire-Resistance-Rated Construction, 8-Interior Finish, Decorative Materials and Furnishings, 9-Fire Protection Systems, and 10-Means of Egress are the same subject matter in the IBC. These Chapters remain as 7, 8, 9, and 10 to maintain consistency with the IBC.
3. Chapter 46-Construction Requirements for Existing Buildings has been moved to Chapter 11 in Part III – Building and Equipment Design Features
4. Chapter 24-Tents and Other Membrane Structures has been moved to Chapter 31 in Part IV-Special Occupancies and Operations. This provides consistency with the IBC which has membrane structures in Chapter 31.
5. Chapter 14-Fire Safety during Construction and Demolition has been moved to Chapter 33 in Part IV-Special Occupancies and Operations. This provides consistency with the IBC which has Chapter 33-Safeguards during Construction.
6. Chapter 45-Marinas has been moved to Chapter 36 in Part IV-Special Occupancies and Operations.
7. Part V-Hazardous Materials contains all of the hazardous material regulations.

This is a different approach to the code format than the other ICC Codes utilize. But in the case of the IFC, it has been proven that there is a need to be able to expand and add new chapters that are specific to a subject matter. This proposal will allow for long-term use of the IFC by allowing the addition of new chapters, yet provide future ability to maintain chapter numbering so that the code use will know that Egress is Chapter 10, Flammable Finishes is Chapter 24, Hazardous Materials – General Provisions is Chapter 50.

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

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

ICCFILENAME: LARIVIERE-F24-ALL CHAPTERS.DOC

F2–09/10
202 (New)

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

Add new definition as follows:

SECTION 202
GENERAL DEFINITIONS

FIRE HAZARD. Any thing or act which increases or could cause an increase of the hazard or threat of fire to a greater degree than that customarily recognized as normal by persons in the public service regularly engaged in preventing, suppressing or extinguishing fire or any thing or act which could obstruct, delay, hinder or interfere with the operation of the fire department or the safety of occupants in the event of fire.

Reason: The definition of "Fire Hazard" is not currently found in the IFC. The term is used 31 times in the IFC and is found in the following Chapters: 1, 2, 3, 4, 6, 9, 10, 19, 20, 21, 23, 24, 26, 33, 34 and Appendix E. However, the term is not defined in the code. The inclusion of this definition will further clarify the intent of an otherwise ambiguous term.

A similar proposal was discussed in the last code change cycle. Comments were received and have been addressed as follows:

1. "Why not use the standard Webster definition?" – the Webster Dictionary does not define "Fire Hazard"
2. "Is it better to leave as an undefined term." – The definition of "Fire Hazard" is not currently found in the IFC. The term appears in the IFC 31 times. The term is commonly used in the IFC, so it must have some intended value. For a situation to be a fire hazard it must either increase the potential of ignition, or increase the intensity of fire once it does ignite, or obstruct/hinder fire department operations, or obstruct/hinder occupant egress.
3. "What is difference of fire risk and fire hazard?" – Fire risk occurs in all locations and all situations of work, business, and just plain life. The level of fire risk varies in all situations. However when something occurs to raise or affect the normally expected level of fire risk, the potential of ignition increases and this situation then becomes classified as a fire hazard. As specified in the definition, if the situation creates an increase in the potential for fire (fire risk), it is a fire hazard.
4. "This definition would create a conflict with IFC 906.3." – This is incorrect, the words "fire hazard" are used in this section, however, they do not stand alone. The words are used as part of the term "Class A Fire Hazards". To state that the defined term "fire hazard" must be used in defining "Class A Fire Hazard" is incorrect, and is out of context. This is not the same term. The term "Class A Fire Hazard" is a specific and defined term dealing with Class A materials. This makes as little sense as assuming that Chapter 15 Flammable Finishes only applies to flammable liquids. In case you are wondering…Chapter 15 includes flammable liquids, along with combustible liquids and combustible powders, etc.

The definition of "fire hazard", although a somewhat objective definition, is needed to be able to point back to some code reference when the term is used in the code in those 31 locations.

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

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

ICCFILENAME: LARIVIERE-F1-202 FIRE HAZARD.DOC

F3–09/10
304.3.2

Proponent: Marcelo M. Hirschler, GBH International, representing American Fire Safety Council

Revise as follows:

304.3.2 Capacity exceeding 5.33 cubic feet. Containers with a capacity exceeding 5.33 cubic feet (40 gallons) (0.15 m^3) shall be provided with lids. Containers and lids shall be constructed of noncombustible materials or of combustible materials with a peak rate of heat release not exceeding 300 kW/m^2 when tested in accordance with ASTM E 1354 at an incident heat flux of 50 kW/m^2 in the horizontal orientation.

Exception: Wastebaskets ~~in Group I-3 occupancies shall~~ complying with Section 808.~~1~~.

Reason: This proposal makes the exception more generic and avoids the need for corrections as a function of what may change in Chapter 8. In fact, the 2009 code already has requirements for all "Wastebaskets and linen containers in Group I-2 and I-3 occupancies" in Section 808.1 and not just for wastebaskets in Group I-3 occupancies. The proposal does not introduce any new 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: HIRSCHLER-F7-304.3.2.DOC

F4–09/10
307.1.1

Proponent: A. Keith Brown, North Metro Fire Rescue District, representing Fire Marshal's Association of Colorado

Revise as follows:

307.1.1 Prohibited open burning. *Open burning* shall be prohibited ~~that is offensive or objectionable because of smoke emissions or~~ when atmospheric conditions or local circumstances make such fires hazardous ~~shall be prohibited~~.

Reason: The purpose of the proposed code change is to limit the reasons for prohibiting open burning to circumstances that constitute a fire hazard.

The phrase "offensive or objectionable" in the existing code language is unreasonably subjective, making the prohibition of open burning due to smoke emissions unenforceable. The 2009 IFC does not provide a definition for "offensive or objectionable." Also, there is not a referenced standard that provides a method for measuring or otherwise determining when smoke emissions are "offensive or objectionable." In the absence of such guidance, the legal requirement for consistency of enforcement is unattainable.

Fundamentally and historically, the IFC has regulated fire hazards and not air quality due to smoke from fires. Experience strongly suggests that the present wording encourages citizens to request intervention by the fire code official to resolve neighborhood disputes regarding smoke emissions from many forms of outdoor fires that citizens correctly or incorrectly believe to be "open burning" (e.g., recreational fires, bonfires, charcoal burners, etc.); such situations should be civil matters rather than unlawful acts subject to the penalties prescribed in IFC Section 109.

The proposed wording empowers the fire code official to prohibit open burning when such fires would, in fact, be hazardous due to measurable environmental factors such as weather (e.g., wind, temperature, relative humidity) and/or fuel characteristics (e.g., fuel moisture content).

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-F3- 307.1.1.DOC

F5–09/10
307.1.1, 307.3

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

Revise as follows:

307.1.1 Prohibited open burning. *Open burning* that is offensive or objectionable because of smoke emissions or when atmospheric conditions or local circumstances make such fires hazardous shall be prohibited.

> **Exception:** Prescribed burning for the purpose of reducing the impact of wildland fire when authorized by the *fire code official*.

307.3 Extinguishment authority. ~~The~~ When open burning creates or adds to a hazardous or objectionable situation, or a required permit for *open burning* has not been obtained, the *fire code official* is authorized to order the extinguishment of the open burning operation ~~by the permit holder, another person responsible or the fire department of *open burning* that creates or adds to a hazardous or objectionable situation~~.

Reason: Section 307.1.1 is revised to allow for prescribed burning that is conducted in an effort to minimize the fuel load in wildland and interface areas. Prescribed burning is a common practice and is done with great planning and forethought. The ability for a fire agency to utilize prescribed burning operations in a season when the fire can be controlled, reduces the personnel and resources needed to control a wildland fire when it occurs, and increases the probability that fewer structures and lives are lost to wildland fire.

The current wording of Section 307.3 has a final phrase that states "or the fire department of open burning that creates or adds to a hazardous or objectionable object". This portion of the section is flawed in that either the requirement or intent is missing for this sentence to make sense. This proposal will revise Section 307.3 to simply say that the fire department can order the extinguishment of the fire.

IFC Section 109.2.2 already states "who" must comply with the order. Section 109.2.2 reads as follows:

> **109.2.2 Compliance with orders and notices.** A notice of violation issued or served as provided by this code shall be complied with by the owner, operator, occupant or other person responsible for the condition or violation to which the notice of violation pertains.

By eliminating the statement that the fire department can extinguish the fire, removes the owner's ability to say "put it out yourself" rather than complying with the order. The intent of the section is to have the owner comply, and not have the fire department handle an open burning fire which is not an emergency. The revision in Section 307.3 will allow the fire department to order that the fire be extinguished, and Section 109.2.2 specifies who must comply. This will clarify the application of this section.

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

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

ICCFILENAME: LARIVIERE-F2-307.3.DOC

F6–09/10
315

Proponent: Tom Lariviere, Chairman, Joint Fire Service Review Committee and Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Revise as follows:

SECTION 315
~~MISCELLANEOUS COMBUSTIBLE MATERIALS~~ GENERAL STORAGE

315.1 General. Storage~~, use and handling of miscellaneous combustible materials~~ shall be in accordance with this section.

315.2 Permit required. A permit for miscellaneous combustible storage shall be ~~obtained in accordance with~~ required as set forth in Section 105.6.

~~315.2~~ 315.3 Storage in buildings. Storage of ~~combustible~~ materials in buildings shall be orderly and stacks shall be stable. Storage of combustible materials shall be separated from heaters or heating devices by distance or shielding so that ignition cannot occur.

(Renumber subsequent sections)

Reason: This proposal will modify this section covering storage in buildings in several different ways.

This proposal is intended to clarify that this section contains requirements which apply to storage in general, not just storage of combustible materials. Specifically, Section 315.2.1 requires that a separation be maintained between the top of storage and ceilings or sprinklers. This requirement applies to all storage, whether combustible or not, and providing a clearance from sprinklers and ceilings is critical whether the materials are combustible or not.

The first sentence of Section 315.1 is revised to delete the reference to "use and handling". As stated in the title of the section, this section applies to "storage". Sections 315.1 and 315.2 deal with storage and there are no requirements for use or handling.

The second sentence of Section 315.1 is separated and creates a new Section 315.2 dealing with permits. This follows standard format throughout the rest of the IFC. The new Section 315.2 is also revised to specify that a permit is required only for storage of combustible materials. Even though this section regulates storage of both combustible and noncombustible materials, only combustible materials are required to obtain a permit when the storage exceeds 2500 cubic feet. The quantity limit is specified in the permit requirements in Section 105.6.29.

Section 315.2 is renumbered to 315.3 and revised to specify that the first sentence applies to ALL storage, and the second sentence applies to combustible storage. This will then state that all storage, whether combustible or not, is regulated and should be orderly. This means that the stored materials, whether combustible or not, are orderly, and that the stacks of stored materials need to be stable. These requirements allow for aisles being maintained, and the reduction of injury or blocking of exit during a seismic event or even when materials are hit with a hose stream during fire operations.

Hazards specific to 'combustible' materials have been more clearly identified. The second sentence in 315.3 is revised to specify that only combustible materials need to be separated from ignition sources. It is not necessary to separate non-combustible materials from ignition sources because there is no hazard.

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

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

ICCFILENAME: LARIVIERE-F3-315.DOC

F7–09/10
316.4 (New)

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

Add new text as follows:

316.4 Obstructions on roofs. Installing or maintaining wires, cables, ropes, aerial antennas, or other suspended obstructions installed or maintained on the roofs of buildings having a roof slope of less than 30 degrees, shall be located to provide a vertical clearance of not less than 7 feet (2133 mm) between the roof surface and such obstruction.

Exception: Obstructions shall be permitted to be installed less than 7 feet (2133 mm) high provided they are protected in a manner to prevent injury to firefighters working on the roof.

(Renumber subsequent sections)

Reason: This proposal will increase for firefighter safety when performing fire suppression related duties on a rooftop, and will also protect maintenance workers as they are working on a rooftop.

Obstructions below 7 feet from the roof surface may be difficult or impossible to see at night or when obscured by smoke conditions. Many accidents have occurred where an obstruction was not seen and was run into by someone on the roof. In these instances, people have been injured, strangled, entangled, and fallen from rooftops.

This proposal does not prohibit the installation of these items, but it requires that they are identified or protected. For example, protection may be as simple as placing a white 2" diameter plastic pipe around the guy wire used to secure an antenna. Or be constructing an obstruction below the guy wire so that walking under the wire is not possible.

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

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

ICCFILENAME: LARIVIERE-F4-316.4.DOC

F8–09/10

316.0 (New), 905.3.8 (IBC [F] 905.3.8) (New)

Proponent: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Add new text as follows:

SECTION 316.0
ROOF GARDENS AND LANDSCAPED ROOFS

316.1 General. Rooftop gardens and landscaped roofs shall be installed and maintained in accordance with this code and Sections 1505.0 and 1507.16 of the *International Building Code*.

316.2 Rooftop garden or landscaped roof size. Rooftop garden or landscaped roof areas shall not exceed 15,625 ft2 (1,450 m^2) in size for any single area with a maximum dimension of 125 ft (39 m) in length or width. A minimum 3 ft (0.9 m) wide clearance shall be provided between adjacent rooftop garden or landscaped roof areas.

316.3 Rooftop structure and equipment clearance. A minimum 3 ft (0.9 m) wide clearance shall be provided between the rooftop garden or landscaped roof and rooftop structures, including but not limited to mechanical and machine rooms, penthouses, skylights, roof vents, solar panels, antenna supports, and building service equipment.

316.4 Vegetation. Vegetation shall be maintained as described in Sections 316.4.1 and 316.4.2

316.4.1 Irrigation. Supplemental irrigation shall be provided as necessary to maintain levels of hydration necessary to keep green roof plants alive and to keep dry foliage to a minimum.

316.4.2 Dead foliage. Dead foliage and biomass shall be removed immediately.

905.3.8 (IBC [F] 905.3.8) Roof gardens and landscaped roofs. Buildings or structures with roof gardens or landscaped roofs that are equipped with a standpipe shall extend the standpipe to the roof level on which the roof garden or landscaped roof is located.

Reason: As rooftop gardens and landscaped roofs gain in acceptance and popularity reasonable requirements need to be added to the codes to address the fuel load that these additions can add to a building or structure.

New Section 316.0 is proposed to be added to the International Fire Code to manage the size of any one area utilized for these improvements, provide for a reasonable 3 foot clearance to structures and equipment that require access for maintenance and fire response purposes and to control fire exposure. A requirement that means for hydration be provided and that dead foliage and biomass be removed immediately.

A new section is proposed for the construction of buildings that have fire standpipe systems for the standpipe to be extended to the roof if a rooftop garden or landscape is proposed.

Cost Impact: These requirements will increase the cost of construction for those buildings where a roof garden or landscaped roof is proposed to be installed on the roof.

Analysis: Code Change S10-09/10 appears on the hearing order of the IBC-Fire Safety Committee and proposes revisions to IBC Table 1505.1 and Section 1507.16 on this topic. Code change F238-09/10 proposes similar requirements.

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

ICCFILENAME: DAVIDSON-SHUMAN-F9-316.0.DOC

F9–09/10
318 (New)

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

Add new section as follows:

SECTION 318
VEGETATION ON ROOFS

318.1 Maintenance of vegetation. Vegetation placed upon buildings shall be maintained to prevent the accumulation of weeds, grass, vines, trees, or other growth that is capable of being ignited. All vegetation that poses a fire hazard to the building or exposure structures shall be removed from the building.

318.2 Maintenance plan. The fire code official is authorized to require a maintenance plan for vegetation placed on roofs due to the size of a roof garden, materials used, or when a fire hazard may exist to the building or exposures due to the lack of maintenance.

318.3 Maintenance equipment. Fueled equipment stored on roofs and used for the care and maintenance of vegetation on roofs shall be stored in accordance with Section 313.

Reason: A separate section is being proposed to address the placement of vegetation on roofs. It was originally considered to be a sub-section of Section 304, but vegetation on roofs does not fit within the title and is outside the scope of the Section.

Roof gardens (Green roofs) are an increasing condition and the benefits of having them are gaining popularity in protecting our environment. High-profile roof gardens, such as those seen in the Chicago area, have been thoroughly designed and are well maintained; thus seeing the benefit to our environment and energy use reduction. However, some are turning to the 'do-it-yourself' style of making a roof garden and placing vegetation on roofs for more of a feel good or aesthetic reason rather than the original purpose. The latter type of roof garden placement places a great fire risk for buildings and exposure buildings due to the possible lack of maintenance in the future. In essence, an unmaintained roof garden in similar to a brush fire being conducted on top of a building rather than on the ground. This creates an increased exposure hazard as roof covering rating requirements are based on flying embers, not falling ones.

Section 318.1 sets a basic level of maintenance, similar to that found in Section 304 for the maintenance of vegetation in and around a building. Section 318.2 gives the fire code official the ability to request a maintenance plan of the vegetation, which is beneficial to determine if the roof garden will be maintained or is just a bunch of vegetation placed on the roof. The maintenance plan is also beneficial to determine what happens to a building that goes vacant or when the building owner does not keep up with the maintenance. Section 318.3 sends the code user to 313 for appropriate storage of fueling equipment.

Due to the relatively new topic of green roofs and the increased popularity of them, it is appropriate to set basic guidelines to maintain them rather than wait for an incident.

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

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

ICCFILENAME: NICHOLS-F6-318.DOC

F10–09/10
401.6 (New)

Proponent: Michael Jacoby, Seven Valleys, PA, representing self

Add new text as follows:

401.6 Geographical locational Information. A site's geographical location being the site's latitude / longitude coordinates centered on the structure, recorded in decimal for accuracy shall be entered as part of a site's official locational records, in plans and documents.

(Renumber subsequent sections)

Reason: By having accurate geographical locational information which is essential for emergency planning and preparedness to protect those within your communities that have families or loved ones with special needs and by using latitude and longitude coordinates centered on a facility at the time of construction that over time this will eliminate the continuing locational problems being found within mapping databases combined with confusion that you may encounter when Out-Of-Area-Assistance is required for emergencies.

Simply put… State Highway Numbers, Road Names and Postal Delivery Addresses even a community for industrial park may change its name but a site's set of latitude and longitude coordinates will always stay constant.

In other words if you've ever driven to a wrong location when using address numbers and road names etc. especially when every second counts you should immediately understand why this proposed change is so important.

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

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

ICCFILENAME: JACOBY-F1-401.6.DOC

F11–09/10
403.2.1

Proponent: Amber Anderson/Stuart Tom, Cosumnes CSD Fire Department, representing California Fire Chief's Association

Revise as follows:

403.2.1 Contents. The public safety plan, where required by Section 403.2, shall address such items as emergency vehicle ingress and egress, fire protection, emergency egress or escape routes, emergency medical services, public assembly areas and the directing of both attendees and vehicles (including the parking of vehicles), vendor and food concession distribution, and the need for the presence of law enforcement, and fire and emergency medical services personnel at the event.

Reason: This code sections intent is clear with regards to additional public safety requirements that may be necessary as determined by the fire code official when certain conditions warrant. The additional proposed language for this section merely adds the ability of the fire code official to require emergency egress or escape plans to the other identified elements within the section. Including the proposed language to the existing code section will ensure that emergency egress or escape plans are included with the other requirements that the fire code official may deem necessary.

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

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

ICCFILENAME: ANDERSON-TOM-F2-403.2.1.DOC

F12–09/10
404.3.2

Proponent: Gregory J. Cahanin, Cahanin Fire & Code Consulting, representing the Michael Minger Foundation

Revise as follows:

404.3.2 Fire safety plans. Fire safety plans shall include the following:

1. The procedure for reporting a fire or other emergency.
2. The life safety strategy and procedures for notifying, relocating or evacuating occupants, including occupants who need assistance. Emphasis shall be given to identifying individuals with mobility and cognitive disabilities and integrating their special needs into fire safety plans.
3. Site plans indicating the following:
   - 3.1. The occupancy assembly point.
   - 3.2. The locations of fire hydrants.
   - 3.3. The normal routes of fire department vehicle access.
4. Floor plans identifying the locations of the following:
   - 4.1. Exits.
   - 4.2. Primary evacuation routes.
   - 4.3. Secondary evacuation routes.
   - 4.4. Accessible egress routes.
   - 4.5. Areas of refuge.
   - 4.6. Exterior areas for assisted rescue.
   - 4.7. Manual fire alarm boxes.
   - 4.8. Portable fire extinguishers.
   - 4.9. Occupant-use hose stations.
   - 4.10. Fire alarm annunciators and controls.
5. A list of major fire hazards associated with the normal use and occupancy of the premises, including maintenance and housekeeping procedures.

6. Identification and assignment of personnel responsible for maintenance of systems and equipment installed to prevent or control fires.
7. Identification and assignment of personnel responsible for maintenance, housekeeping and controlling fuel hazard sources.

Reason: Provisions for individuals with mobility disabilities are well established in the physical environment requirements of the IBC's Accessibility chapter. Once the building is constructed with the accessibility features the maintenance codes need to have requirements in place that recognize that movement of these individuals in an emergency has to be defined, planned, and communicated. We are also at a point of recognizing that individuals with cognitive disabilities may need additional education or notice of what to do in fire emergencies. This simple addition to the IFC (and the IPMC coordination if approved here) will prompt property owners and operators to consider the sometimes unique needs of the occupants in their buildings in an emergency. This simple requirement begins the dialog between occupants and building operators to help insure that when an emergency occurs everyone will have the opportunity to move safely to the outside. Proper egress planning lessens the burden of emergency personnel in providing rescue services while the suppression effort is ongoing.

The submittal of this proposal and several others with the ICC is part of the work of the Michael H. Minger Foundation, as a result of a Department of Homeland Security Fire Prevention and Safety Grant to study how colleges and universities respond to and provide for students with physical and learning disabilities in a fire event. The study identified model practices being used by campuses regarding fire safety, housing and evacuation policies and procedures. The proposed changes to the IPMC lay the foundation for uniform fire safety planning in the campus environment in a nationally recognized document while also establishing a clear base for egress planning and performance in all types of occupancies.

The Michael H. Minger Foundation was established in 2005. The purpose of the Foundation is to improve fire safety standards and enhance fire safety systems on college and university campuses and to educate parents and students and raise awareness of the reality and risk of campus fires. This non-profit organization was founded to honor the life of Michael H. Minger, an outstanding young man, who lost his life in a college dormitory fire. The Michael Minger Act in Kentucky established a requirement for fire sprinklers in college housing. A governor's task force focusing on campus safety in Kentucky was lead by Gail Minger, the director of the Michael H. Minger Foundation.

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

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

ICCFILENAME: CAHANIN-F2-404.3.2

F13–09/10
404.6 (New)

Proponent: Gregory J. Cahanin, Cahanin Fire & Code Consulting, representing the Michael Minger Foundation

Add new text as follows:

404.6 Posting of evacuation plan. A posted evacuation plan consisting of a floor plan layout indicating the available evacuation routes with identification of key emergency components, such as areas of rescue assistance, shall be provided near the main entry to the floor or building where access by the general public occurs in Group A-3, B and R-2 occupancies .

Reason: Within ANSI A17.1 for elevators there is now a requirement for 'in case of fire use stairs' placards to be posted at elevator call buttons and this proposal is a better detailed extension of that requirement document in that the posted plan will clearly define where the stairs and areas of rescue assistance are located. A companion proposal for a new 404.5.1 requires posting of egress paths from dorm rooms and this new section is an extension into public area notice.

The information provided on the plan will communicate the available means of egress to the occupants. It is also recognized that there is no specific form of education being provided to the general population related to the provisions being provided for accessibility in buildings. The evacuation plan can begin the educational process by identifying building provisions for egress in a public area.

The submittal of this proposal and several others with the ICC is part of the work of the Michael H. Minger Foundation, as a result of a Department of Homeland Security Fire Prevention and Safety Grant to study how colleges and universities respond to and provide for students with physical and learning disabilities in a fire event. The study identified model practices being used by campuses regarding fire safety, housing and evacuation policies and procedures. The proposed changes to the IPMC lay the foundation for uniform fire safety planning in the campus environment in a nationally recognized document while also establishing a clear base for egress planning and performance in all types of occupancies.

The Michael H. Minger Foundation was established in 2005. The purpose of the Foundation is to improve fire safety standards and enhance fire safety systems on college and university campuses and to educate parents and students and raise awareness of the reality and risk of campus fires. This non-profit organization was founded to honor the life of Michael H. Minger, an outstanding young man, who lost his life in a college dormitory fire. The Michael Minger Act in Kentucky established a requirement for fire sprinklers in college housing. A governor's task force focusing on campus safety in Kentucky was lead by Gail Minger, the director of the Michael H. Minger Foundation.

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

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

ICCFILENAME: CAHANIN-F1-404.6.DOC

F14–09/10
408.4 through 408.4.4 (New), Chapter 47, Appendix K (New)

Proponent: William Winslow, CIH, CFI, CMI, Winslow Partnership, representing self

1. Add new text as follows:

408.4 Group H occupancies and outdoor areas with hazardous materials. Group H occupancies and outdoor areas with hazardous materials shall comply with Sections 408.4.1 through 408.4.4 when such occupancies or facilities are required by 40CFR, Section 68.130 to have a Risk Management Plan (RMP). See Appendix K for further information on chemicals and threshold quantities that require a RMP.

408.4.1 Emergency response plan. An emergency response plan describing procedures for mitigating an unintentional chemical release shall be prepared prior to occupancy. A copy of the plan shall be maintained on-site, and upon request, a copy of the plan shall be provided to the fire code official for approval.

408.4.2 Training. Employees who are designated as emergency responders shall be trained to perform duties assigned in the Emergency Response Plan. Training criteria shall be provided in the Emergency Response Plan.

408.4.3 Equipment. Equipment and supplies specified in the Emergency Response Plan for use in the event of an unintentional chemical release shall be maintained on-site or shall be available for delivery to the site as specified in the plan.

408.4.4 Emergency drill. When required by the fire code official, an annual drill shall be conducted to practice the Emergency Response Plan. The fire code official shall be notified of the date and time of a scheduled drill not less than sixty days prior to the event. When an emergency drill identifies deficiencies in the Emergency Response Plan, the plan shall be updated to correct noted deficiencies.

2. Add new standard to Chapter 47 as follows:

EPA

40 CFR, Part 68 Subparts F and G – 2000	Chemical Accident Prevention Provisions - Regulated Substances for Accidental Release Prevention and Risk Management Plan

3. Add new Appendix K as follows:

(Underlining in the body of the substances tables omitted for clarity)

APPENDIX K
HAZARDOUS MATERIALS AND THRESHOLD QUANTITIES FOR EMERGENCY RESPONSE PLANNING

This appendix is for informational purposes and is not intended for adoption.

SECTION K101
GENERAL

K101.1 Scope. The *International Fire Code*, Section 408.4 establishes requirements for Group H-1, H-2, H-3 and H-4 occupancies and outdoor facilities to have an emergency response plan when threshold quantities for certain chemicals are exceeded. Section 408.4 intends for the emergency response planning requirements, including the list of applicable chemicals and threshold quantities, to:

1. Remain consistent with the U.S. Environmental Protection Agency's (EPA) Risk Management Plan (RMP) filing thresholds specified in Title 40, Section 68.130 of the Code of Federal Regulations, and
2. Remain consistent with the regulations for facilities requiring a RMP, as specified in Section 112(r) of the Clean Air Act.

Table K101(1) and Table K101(2) provide EPA's threshold quantities for regulated chemicals as of January 1, 2009. This information is provided as a reference for application of Section 408.4, but because the list of applicable chemicals and quantities under Federal law may change over time, it is recommended that the source Federal documents be consulted for the most up-to-date information when applying the code.

TABLE K101(1)
LIST OF REGULATED TOXIC SUBSTANCES AND THRESHOLD QUANTITIES FOR ACCIDENTAL RELEASE PREVENTION
(Source: 40CFR, Part 68, Sec. 68.130; Revised as of July 1, 2000)

(The font for the 2 tables was left as submitted due to technical difficulties in formatting)

Chemical name	CAS No.	Threshold quantity (lbs)
Acrolein [2-Propenal].....	107-02-8	5,000
Acrylonitrile [2-Propenenitrile].	107-13-1	20,000
Acrylyl chloride [2-Propenoyl chloride].	814-68-6	5,000
Allyl alcohol [2-Propen-l-ol]..	107-18-61	15,000
Allylamine [2-Propen-l-amine]..	107-11-9	10,000
Ammonia (anhydrous).....	7664-41-7	10,000
Ammonia (conc 20% or greater)..	7664-41-7	20,000
Arsenous trichloride.....	7784-34-1	15,000
Arsine.....	7784-42-1	1,000
Boron trichloride [Borane, trichloro-].	10294-34-5	5,000
Boron trifluoride [Borane, trifluoro-].	7637-07-2	5,000
Boron trifluoride compound with methyl ether (1:1) [Boron, trifluoro [oxybis [metane]]-, T-4-.	353-42-4	15,000
Bromine.....	7726-95-6	10,000
Carbon disulfide.....	75-15-0	20,000
Chlorine.....	7782-50-5	2,500
Chlorine dioxide [Chlorine oxide (ClO2)].	10049-04-4	1,000
Chloroform [Methane, trichloro-].	67-66-3	20,000
Chloromethyl ether [Methane, oxybis[chloro-].	542-88-1	1,000
Chloromethyl methyl ether [Methane, chloromethoxy-].	107-30-2	5,000
Crotonaldehyde [2-Butenal].....	4170-30-3	20,000
Crotonaldehyde, (E)- [2-Butenal, (E)-].	123-73-9	20,000
Cyanogen chloride.....	506-77-4	10,000
Cyclohexylamine [Cyclohexanamine].	108-91-8	15,000
Diborane.....	19287-45-7	2,500
Dimethyldichlorosilane [Silane, dichlorodimethyl-].	75-78-5	5,000
1,1-Dimethylhydrazine [Hydrazine, 1,1-dimethyl-].	57-14-7	15,000
Epichlorohydrin [Oxirane, (chloromethyl)-].	106-89-8	20,000
Ethylenediamine [1,2-Ethanediamine].	107-15-3	20,000
Ethyleneimine [Aziridine].....	151-56-4	10,000
Ethylene oxide [Oxirane].....	75-21-8	10,000
Fluorine.....	7782-41-4	1,000
Formaldehyde (solution).....	50-00-0	15,000
Furan.....	110-00-9	5,000
Hydrazine.....	302-01-2	15,000

Hydrochloric acid (conc 37% or greater).	7647-01-0	15,000
Hydrocyanic acid.....	74-90-8	2,500
Hydrogen chloride (anhydrous) [Hydrochloric acid].	7647-01-0	5,000
Hydrogen fluoride/Hydrofluoric acid (conc 50% or greater) [Hydrofluoric acid].	7664-39-3	1,000
Hydrogen selenide.....	7783-07-5	500
Hydrogen sulfide.....	7783-06-4	10,000
Iron, pentacarbonyl- [Iron carbonyl (Fe(CO)5), (TB-5-11)-].	13463-40-6	2,500
Isobutyronitrile [Propanenitrile, 2-methyl-].	78-82-0	20,000
Isopropyl chloroformate [Carbonochloridic acid, 1-methylethyl ester].	108-23-6	15,000
Methacrylonitrile [2-Propenenitrile, 2-methyl-].	126-98-7	10,000
Methyl chloride [Methane, chloro-].	74-87-3	10,000
Methyl chloroformate [Carbonochloridic acid, methylester].	79-22-1	5,000
Methyl hydrazine [Hydrazine, methyl-].	60-34-4	15,000
Methyl isocyanate [Methane, isocyanato-].	624-83-9	10,000
Methyl mercaptan [Methanethiol]	74-93-1	10,000
Methyl thiocyanate [Thiocyanic acid, methyl ester].	556-64-9	20,000
Methyltrichlorosilane [Silane, trichloromethyl-].	75-79-6	5,000
Nickel carbonyl.....	13463-39-3	1,000
Nitric acid (conc 80% or greater).	7697-37-2	15,000
Nitric oxide [Nitrogen oxide (NO)].	10102-43-9	10,000
Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide] \1\.	8014-95-7	10,000
Peracetic acid [Ethaneperoxoic acid].	79-21-0	10,000
Perchloromethylmercaptan [Methanesulfenyl chloride, trichloro-].	594-42-3	10,000
Phosgene [Carbonic dichloride].	75-44-5	500
Phosphine.....	7803-51-2	5,000
Phosphorus oxychloride [Phosphoryl chloride].	10025-87-3	5,000
Phosphorus trichloride [Phosphorous trichloride].	7719-12-2	15,000
Piperidine.....	110-89-4	15,000
Propionitrile [Propanenitrile].	107-12-0	10,000
Propyl chloroformate [Carbonochloridic acid, propylester].	109-61-5	15,000
Propyleneimine [Aziridine, 2-methyl-].	75-55-8	10,000
Propylene oxide [Oxirane, methyl-].	75-56-9	10,000

Sulfur dioxide (anhydrous).....	7446-09-5	5,000
Sulfur tetrafluoride [Sulfur fluoride (SF4), (T-4)-].	7783-60-0	2,500
Sulfur trioxide.....	7446-11-9	10,000
Tetramethyllead [Plumbane, tetramethyl-].	75-74-1	10,000
Tetranitromethane [Methane, tetranitro-].	509-14-8	10,000
Titanium tetrachloride [Titanium chloride (TiCl4) (T-4)-].	7550-45-0	2,500
Toluene 2,4-diisocyanate [Benzene, 2,4-diisocyanato-1-methyl-] \1\.	584-84-9	10,000
Toluene 2,6-diisocyanate [Benzene, 1,3-diisocyanato-2-methyl-] \1\.	91-08-7	10,000
Toluene diisocyanate (unspecified isomer) [Benzene, 1,3-diisocyanatomethyl-] \1\.	26471-62-5	10,000
Trimethylchlorosilane [Silane, chlorotrimethyl-].	75-77-4	10,000
Vinyl acetate monomer [Acetic acid ethenyl ester].	108-05-4	15,000

TABLE K101(2)

FLAMMABLE SUBSTANCES AND THRESHOLD QUANTITIES FOR ACCIDENTAL RELEASE PREVENTION[1]

(Source: 40CFR, Part 68, Sec. 68.130; Revised as of July 1, 2000)

Chemical name	CAS No.	Threshold quantity (lbs)
Acetaldehyde.....	75-07-0	10,000
Acetylene [Ethyne].....	74-86-2	10,000
Bromotrifluorethylene [Ethene, bromotrifluoro-].	598-73-2	10,000
1,3-Butadiene.....	106-99-0	10,000
Butane.....	106-97-8	10,000
1-Butene.....	106-98-9	10,000
2-Butene.....	107-01-7	10,000
Butene.....	25167-67-3	10,000
2-Butene-cis.....	590-18-1	10,000
2-Butene-trans [2-Butene, (E)].	624-64-6	10,000
Carbon oxysulfide [Carbon oxide sulfide (COS)].	463-58-1	10,000
Chlorine monoxide [Chlorine oxide].	7791-21-1	10,000
2-Chloropropylene [1-Propene, 2-chloro-].	557-98-2	10,000
1-Chloropropylene [1-Propene, 1-chloro-].	590-21-6	10,000
Cyanogen [Ethanedinitrile].....	460-19-5	10,000
Cyclopropane.....	75-19-4	10,000
Dichlorosilane [Silane, dichloro-].	4109-96-0	10,000
Difluoroethane [Ethane, 1,1-difluoro-].	75-37-6	10,000
Dimethylamine [Methanamine, N-methyl-].	124-40-3	10,000

2,2-Dimethylpropane [Propane, 2,2-dimethyl-].	463-82-1	10,000
Ethane.....	74-84-0	10,000
Ethyl acetylene [1-Butyne].....	107-00-6	10,000
Ethylamine [Ethanamine].....	75-04-7	10,000
Ethyl chloride [Ethane, chloro-].	75-00-3	10,000
Ethylene [Ethene].....	74-85-1	10,000
Ethyl ether [Ethane, 1,1'-oxybis-].	60-29-7	10,000
Ethyl mercaptan [Ethanethiol]..	75-08-1	10,000
Ethyl nitrite [Nitrous acid, ethyl ester].	109-95-5	10,000
Hydrogen.....	1333-74-0	10,000
Isobutane [Propane, 2-methyl]..	75-28-5	10,000
Isopentane [Butane, 2-methyl-].	78-78-4	10,000
Isoprene [1,3-Butadinene, 2-methyl-].	78-79-5	10,000
Isopropylamine [2-Propanamine].	75-31-0	10,000
Isopropyl chloride [Propane, 2-chloro-].	75-29-6	10,000
Methane.....	74-82-8	10,000
Methylamine [Methanamine].....	74-89-5	10,000
3-Methyl-1-butene.....	563-45-1	10,000
2-Methyl-1-butene.....	563-46-2	10,000
Methyl ether [Methane, oxybis-]	115-10-6	10,000
Methyl formate [Formic acid, methyl ester].	107-31-3	10,000
2-Methylpropene [1-Propene, 2-methyl-].	115-11-7	10,000
1,3-Pentadinene.....	504-60-9	10,000
Pentane.....	109-66-0	10,000
1-Pentene.....	109-67-1	10,000
2-Pentene, (E)-.....	646-04-8	10,000
2-Pentene, (Z)-.....	627-20-3	10,000
Propadiene [1,2-Propadiene]....	463-49-0	10,000
Propane.....	74-98-6	10,000
Propylene [1-Propene].....	115-07-1	10,000
Propyne [1-Propyne].....	74-99-7	10,000
Silane.....	7803-62-5	10,000
Tetrafluoroethylene [Ethene, tetrafluoro-].	116-14-3	10,000
Tetramethylsilane [Silane, tetramethyl-].	75-76-3	10,000
Trichlorosilane [Silane, trichloro-].	10025-78-2	10,000
Trifluorochloroethylene [Ethene, chlorotrifluoro-].	79-38-9	10,000
Trimethylamine [Methanamine, N,N-dimethyl-].	75-50-3	10,000
Vinyl acetylene [1-Buten-3-yne]	689-97-4	10,000
Vinyl chloride [Ethene, chloro-].	75-01-4	10,000
Vinyl ethyl ether [Ethene, ethoxy-].	109-92-2	10,000
Vinyl fluoride [Ethene, fluoro-].	75-02-5	10,000
Vinylidene chloride [Ethene, 1,1-dichloro-].	75-35-4	10,000
Vinylidene fluoride [Ethene, 1,1-difluoro-].	75-38-7	10,000

Vinyl methyl ether [Ethene, methoxy-].	107-25-5	10,000

[1]A flammable substance when used as a fuel or held for sale as a fuel at a retail facility is excluded from all provisions of 40CFR, Part 68.

Reason: Dalton, Georgia, April 11, 2006 - A final report issued by the U.S. Chemical Safety and Hazard Investigation Board (CSB) concluded inadequate emergency planning by the facility, city, and county contributed to the severity of a runaway chemical reaction and toxic vapor cloud release at MFG Chemical Inc. One problem is that emergency plans required under CCA 112(r) and other federal regulations do not have to be approved by the FCO and do not require periodic drills. This code change will allow the FCO to require emergency planning, training, and drills that meet the needs of the fire department for facilities with hazardous materials that exceed the threshold quantity for risk management planning found in CCA 112(r). It will also ensure that the FCO has the authority to require the plan be written and implemented before a new facility begins operation. The provision for approval by the FCO is in agreement with NFPA 600, which applies to any organized, private, industrial group of employees having fire-fighting response duties, such as emergency brigades, emergency response teams, fire teams, and plant emergency organizations. Section 1.3.2 of NFPA 600 states, " The authority having jurisdiction shall be permitted to examine and approve organization, operations, training". The 60 day notification of an upcoming drill will provide the time necessary for the fire department to include the drill in its training schedule.

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

Analysis: A review of the standard(s) proposed for inclusion in the code, 40 CFR, Part 68 Subparts F and G – 2000, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009.

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

ICCFILENAME: WINSLOW-F3-408.4 (NEW)-REVISED.DOC

F15–09/10
408.7.5 (New)

Proponent: Robert E. Ellison, Jr., Detention and Correctional Inspector for the South Carolina Department of Corrections, representing self

Add new text as follows:

408.7.5 Other occupancies. Buildings or portions of buildings in Group I-3 occupancies where security operations necessitate the locking of required means of egress shall be permitted to be classified as a different occupancy. Occupancies classified as other than Group I-3 shall meet the applicable requirements of this code for that occupancy provided provisions are made for the release of occupants at all times.

Means of egress from detention and correctional occupancies that traverse other use areas shall, as a minimum, conform to requirements for detention and correctional occupancies.

> **Exception:** It shall be permissible to exit through a horizontal exit into other contiguous occupancies that do not conform to detention and correctional occupancy egress provisions but that do comply with requirements set forth in the appropriate occupancy, as long as the occupancy is not a Group H use.

Reason: To allow existing correctional facilities the same latitude in providing necessary security measures in portions of existing buildings, and separate buildings on an correctional complex (that are classified as other than I-3 occupancy) as the International Building Code does for newly constructed buildings. To be consistent with current International Building Code text and commentary that permits this application in new buildings. Current provisions of the International Fire Code do not address this issue for existing buildings.

Many existing occupancies (constructed prior to the extensive code changes for I-3 occupancies that included IBC 408.2) are still in use. Many of these existing I-3 facilities have attached occupancies or separate buildings that are designated as other than I-3 occupancy, in which there is a necessity of locking of exit doors for security purposes. The change would allow these existing occupancies the ability to secure exit doors for security purposes (if provisions for unlocking and exiting are adhered to), as provided for in the IBC for new construction..

Additional documentation: (Excerpt from IBC 2006 Commentary)

IBC 408.2

♦ In accordance with the provisions of Section 508.3, portions of an occupancy in Group I-3 may be classified as a separate occupancy and meet the provisions of the code for that occupancy. Since the area may be used by the residents, however, a need may exist for the other occupancy to also contain security provisions, such as the locking of egress doors. This section specifically permits such a condition as long as arrangements have been made for release of the occupants within these areas at any time they are occupied. Acceptable methods include having either staff operated locks or remote release of the locks, similar to that which is provided in the housing areas.

Although it is indicated that the section applies to portions of occupancies in Group 1-3, consideration should be given to allow the necessary security to be provided in separate buildings that are part of a detention or correctional facility. Applications of this section should be restricted to the buildings that must be secure because they are occupied by residents, and arrangements for quick release of the locks must be provided at all times the building is occupied. If residents are to be permitted into an area or building without staff supervision, the residents should be able to initiate their own evacuation.

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

Analysis: The future maintenance of the technical content of proposed IFC Section 408.7.5 will be the responsibility of the IBC-General Code Development Committee. The need for and suitability of having the new section appear in the IFC is a matter to be determined by the IFC Code Development Committee.

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

ICCFILENAME: ELLISON-F1-408.7.5 NEW.DOC

F16–09/10
503.2.2.1 (New)

Proponent: Carl D. Wren, Fire Department, City of Austin, TX, representing self

Add new text as follows:

503.2.2.1 Decrease in width. The fire code official shall have the authority to approve a decrease in the minimum access width. In evaluating reduced access widths, the fire code official shall consider traffic safety issues, maximum building heights, fixed fire suppression systems, the degree of street interconnections, and the adequacy of turning radii. When necessary to demonstrate compliance, the fire code official may require technical assistance provided by traffic safety professionals as well as fire safety professionals in accordance with Section 104.7.2.

Reason: For a number of years the fire service has been exploring strategic partnerships for reducing the overall risk to our communities from a variety of hazards rather than restricting its efforts to simply reducing deaths and injuries from fire related emergencies. This effort is evident in the objectives of the National Fire Academy Course "Strategies for Community Risk Reduction" and its predecessor course "Strategic Analysis of Community Risk Reduction" as well as in the NFPA "Risk Watch" program. With this general idea of overall risk to the community and a specific consideration of the potential for reducing traffic injuries and fatalities in mind, it may often be advantageous to plan for traffic calming during the site plan or subdivision design phases of a project and for the fire code official to be able to choose to accept a design with narrower but significantly interconnected streets over the potential for the jurisdiction to attempt the installation of traffic calming measures as an afterthought, or over the use of cul-de-sacs or other dead-ends with forced turnaround situations.

While the issue of environmental quality is not a goal or objective directly attributed to the fire code, environmental improvements have been a by-product of code development issues such as handling and storing hazardous materials. The EPA has also weighed in on the issue of authority to consider alternate roadway designs and has cited at least two (2) potential benefits of giving fire officials the clear authority to consider and potentially to approve narrower streets in some circumstances. First, representatives of the EPA have noted their position that interconnected narrower streets support more pedestrian friendly cities or neighborhoods and can therefore result in reduced vehicle miles traveled and an attendant reduction in carbon emissions. Second, they have noted that they support this approach as a way to give opportunity to consider and possibly use low-impact development (LID) techniques or green infrastructure for storm water treatment. They believe this will reduce the quantity and improve the quality of storm water runoff.

Finally, this proposal simply clarifies and makes explicit what the proponent considers to be a currently implied authority under IFC sections 104.8, 104.9 and 503.1.2. It affords an opportunity to give developers credit for reduced fire risks due to fire sprinkler protection and acknowledges that there is a potential for major reductions in traffic casualties for well thought out narrow street configurations. Further information on the potential impact of street widths on traffic related injuries can be obtained through a 1997 study by Peter Swift et al that is currently being peer reviewed.

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

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

ICCFILENAME: WREN-F1-503.2.2.1.DOC

F17–09/10
504.3.1, 502.1

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

Add new text as follows:

503.4.1. Traffic calming devices. Traffic calming devices are prohibited unless approved by the *fire code official*.

502.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

TRAFFIC CALMING DEVICES. Traffic calming devices are design elements of fire apparatus access roads such as street alignment, installation of barriers, and other physical measures intended to reduce traffic and cut-through volumes, and slow vehicle speeds.

Reason: Many communities are facing increased traffic volumes. Both new and existing streets are experiencing higher vehicular volumes and speeds as drivers attempt to find "short cuts" to ease their commutes. Designers, planning departments and traffic departments are increasingly turning to traffic calming measures to preserve the quality and enjoyment of life for their citizens.

A key interest of all emergency services is to provide timely response to emergencies. Traffic calming devices can unduly delay and result in damage to emergency apparatus. This proposed language will allow fire officials to restrict traffic calming devices to those that will minimize these problems.

Standard emergency medical service response times are based on 4-6 minutes. This time frame is based on the fact that brain damage resulting from cardiac arrest typically occurs within 4-6 minutes. Delaying, or extending, these response times in any fashion places the public at greater risk.

Traffic officials and fire officials both have the responsibility to ensure that public interests are properly considered in their decision-making process. Both sets of officials have detailed regulations to provide for those interests.

This proposal requires approval of traffic calming measures by the fire code official. What it doesn't do is detail how that approval is to be made within various jurisdictions. Each jurisdiction has their own traffic pattern emergency response challenges. The purpose of this proposal is to ensure that the fire department is part of this decision-making process. This proposal requires approval of traffic calming measures in private fire access roads and public roads.

Many traffic calming designs include various road configurations that delay, or even restrict, fire apparatus access. Such items may include "round-abouts", speed humps, narrowing of streets, winding roads rather than straight roads, etc. All of these items slow the response time of any emergency response vehicle whether it be law enforcement, medical services, or fire.

The definition for traffic calming is based on the definition provided by the Institute of Transportation Engineers.

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

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

ICCFILENAME: LARIVIERE-F5-504.3.1.DOC

F18–09/10
505.1 (IBC [F] 501.2)

Proponent: Amber Anderson and Stuart Tom, representing California Fire Chief's Association

1. Revise as follows:

505.1 Address Identification. New and existing buildings shall have *approved* address numbers, building numbers or *approved* building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. When required by the Fire Code Official, address numbers shall be provided in additional *approved* locations to facilitate emergency response. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall be a minimum of 4 inches (101.6 mm) high with a minimum stroke width of 0.5 inch (12.7 mm). Where access is by means of a private road and the building cannot be viewed from the *public way*, a monument, pole or other sign or means shall be used to identify the structure. Address numbers shall be maintained.

2. Revise IBC as follows:

[F] 501.2 Address identification. New and existing buildings shall be provided with *approved* address numbers or letters. Each character shall be a minimum 4 inches (102 mm) high and a minimum of 0.5 inch (12.7 mm) wide. They shall be installed on a contrasting background and be plainly visible from the street or road fronting the property. When required by the building official, address numbers shall be provided in additional *approved* locations to facilitate emergency response. Where access is by means of a private road and the building address cannot be viewed from the *public way*, a monument, pole or other *approved* sign or means shall be used to identify the structure. Address numbers shall be maintained.

Reason: The added code language provides the Fire Code Official and Building Official with the authority to require additional address locations for facilities, campuses, strip malls, business parks, residences and other properties where identification of buildings is essential to emergency responders. The additional requirements proposed by the added language will assist various emergency responders in identifying specific addresses when an emergency response from locations other than the primary access point is required.

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

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

ICCFILENAME: ANDERSON-TOM-F3-505.1~G1-501.2.doc

F19–09/10
506.1, 506.1.2 (New), Chapter 47

Proponent: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

1. Revise as follows:

506.1 Where required. Where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the fire code official is authorized to require a key box to be installed in an approved location. The key box shall be of an approved type listed in accordance with UL 1037 and shall contain keys to gain necessary access as required by the fire code official.

506.1.2 Non-standardized fire service elevator keys. Key boxes provided for non-standardized fire service elevator keys shall comply with Section 506.1 and items 1 through 6 of this section.

1. The key box shall be compatible with an existing rapid entry key box system in use in the jurisdiction and approved by the fire code official.
2. The front cover shall be permanently labeled with the words "Fire Department Use Only – Elevator keys."
3. The key box shall be mounted at each elevator bank at the lobby nearest to the lowest level of fire department access.
4. The key box shall be mounted 5'6" above the finished floor to the right side of the elevator bank.
5. Contents of the key box are limited to fire service elevator keys. Additional elevator access tools, keys and information pertinent to emergency planning or elevator access shall be permitted when authorized by the fire code official.
6. In buildings with two or more elevator banks, a single key box shall be permitted to be used when such elevator banks are separated by not more than 30 feet. Additional key boxes shall be provided for each individual elevator or elevator bank separated by more than 30 feet.

   Exception: A single key box shall be permitted to be located adjacent to a fire command center or the non-standard fire service elevator key to be secured in a key box used for other purposes and located in accordance with Section 506.1 when approved by the Fire Chief.

2. Add new standard to Chapter 47 as follows:

UL

ANSI/UL 1037-99	Standard for Antitheft Alarms and Devices.

Reason: This proposal is a companion to a proposal calling for the standardization of fire service elevator keys to provide for rapid access to fire service access elevators and elevators with Phase I or Phase II emergency recall operation. That proposal includes a provision to allow placement of a non-standard fire service elevator key in a key box if there is a practical difficulty in providing a standardized key.

This proposal sets outs standards for the key boxes intended to be used for the elevator key and provides for compatibility with existing rapid entry systems; labeling of the key box; height and location of the key box(s); use of the key box for other items; and an exception to use a key box installed near a fire command center or for other purposes.

The proposal also provides for a level of security for the key box. The fire code currently provides the fire code official with the authority to require a key box within which will be keys that will provide access to secured facilities and/or locations at those facilities. There is an obligation to make sure the key box required by (or approved by) the fire code official is secure to prevent the key box from becoming a security threat.

This proposal addresses this issue of security by requiring an approved key box to be listed in accordance with UL standard 1037, The Standard for Antitheft alarms and devices. The major key box manufacturers have their rapid entry devices listed under this standard.

In preparing this proposal, statewide regulations requiring standardized fire service elevator keys (or Master Elevator Keys) from Florida, Louisiana and New Jersey were reviewed. Since some states and local jurisdictions have already begun to address this issue with the adoption of regulations and other states and jurisdictions are considering this topic it is beneficial to building owners and code officials to have a standard set of requirements contained within the model codes.

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

Analysis: A review of the standard proposed for inclusion in the code, ANSI/UL 1037-99, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009.

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

ICCFILENAME: DAVIDSON-SHUMAN-F13-506.DOC

F20–09/10
506.3 (New); IBC 3003.3 (New)

Proponent: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

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 – IFC

Revise section title and add new text as follows:

SECTION 506
KEY BOXES AND FIRE SERVICE ELEVATOR KEYS

506.3 Standardized fire service elevator keys. All buildings with elevators equipped with Phase I Emergency Recall, Phase II emergency in-car operation, or a Fire Service Access Elevator shall be equipped to operate with a standardized fire service elevator key approved by the fire code official.

Exception: Where there is a practical difficulty to providing a standardized key the owner shall place the building's non-standardized fire service elevator keys in a key box installed in accordance with Section 506.1.

506.3.1 Requirements for standardized fire service elevator keys. Standardized fire service elevator keys shall comply with all of the following:

1. All fire service elevator keys within the jurisdiction shall be uniform and specific for the jurisdiction. Keys shall be cut to a uniform key code.
2. Fire service elevator keys shall be a patent protected design to prevent unauthorized duplication.
3. Fire service elevator keys shall be factory restricted by the manufacturer to prevent the unauthorized distribution of key blanks. No uncut key blanks shall be permitted to leave the factory
4. Fire service elevator keys subject to these rules shall be engraved with the words "DO NOT DUPLICATE".

506.3.2 Access to standardized fire service keys. Access to standardized fire service elevator keys shall be restricted to the following:

1. Elevator owners or their authorized agents;
2. Elevator contractors.
3. Elevator Inspectors of the jurisdiction.
4. Fire code officials of the jurisdiction.
5. The fire department and other emergency response agencies designated by the fire code official.

506.3.3 Duplication or distribution of keys. No person may duplicate a standardized fire service elevator key or issue, give, or sell a duplicated key unless in accordance with this code.

506.3.4 Responsibility to provide keys. The building owner shall provide up to three (3) standardized fire service elevator keys where required by the fire code official, upon installation of a standardized fire service key switch or switches in the building.

PART II – IBC GENERAL

Add new text as follows:

3003.3 Standardized fire service elevator keys. All elevators shall be equipped to operate with a standardized fire service elevator key in accordance with the *International Fire Code*.

Reason: When fire departments and other public agencies respond to emergencies the ability to quickly access the location of the emergency can be the deciding factor of a successful response. Elevators are increasingly being relied upon for emergency operations and their importance has been highlight by recent additions to the International Building Code requiring the installation of fire service access elevators and providing requirements for the installation of occupant evacuation elevators.

One of the difficulties the fire service and other emergency response agencies have when accessing facilities and attempting to use elevators is the increasing number of non-standardized keys which may not be available at the time of response. Even when emergency responders are provided the necessary keys in case of response, the correct key may have to be identified from a large collection of keys for any one building. In larger jurisdictions the sheer number of keys makes the possession of the keys unwieldy for the emergency responders.

The purpose Part1 of this proposal is to provide for a standardized fire service elevator key to reduce the number of keys necessary for accessing elevators in an emergency. As drafted this section will only apply to those buildings that have elevators with Phase I or Phase II emergency service or to those buildings with a fire service access elevator.

The proposal also provides for a level of security for the standardized key. Access to the key that can take control of an elevator is an existing area of vulnerability for buildings and one that was not addressed in the past with simple key designs being utilized. Since this proposal will create a standardized key, it also includes rules for the safeguarding of that key.

Part 2 of this proposal is included to simply place a pointer in the International Building Code should the International Fire Code Committee approve Part 1 of this proposal.

Because the International Codes are written to enable jurisdictions to adopt the codes at the State, Local or Regional levels the proposal follows that format and designated the “fire code official” as the regulating official. However, it is expected, and preferred, that a State level agency designate a standardized key for all jurisdictions to provide for a statewide standardized key.

In preparing this proposal, statewide regulations requiring standardized fire service elevator keys (or Master Elevator Keys) from Florida, Louisiana and New Jersey were reviewed. Since some states and local jurisdictions have already begun to address this issue with the adoption of regulations and other states and jurisdictions are considering this topic it is beneficial to building owners and code officials to have a standard set of requirements contained within the model codes.

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

Analysis: Similar requirements are proposed in code change proposal F40-09/10.

PART I – IFC

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: DAVIDSON-SHUMAN-F5-506.3.DOC

F21–09/10
507.5.1.1 (New)

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

Add new text as follows:

507.5.1.1 Hydrant for standpipe systems. Buildings equipped with a standpipe system installed in accordance with Section 905 shall have a fire hydrant within 100 feet of the fire department connections.

Exception: The distance shall be permitted to be greater than 100 feet when approved by the fire code official.

Reason: NFPA 14 Section 6.4.5.4 requires that a fire hydrant be placed within 100 feet from a fire department connection, unless otherwise approved by the AHJ (6.4.5.4.1). However, this section is generally missed as the site work and site approval is based on the fire apparatus access road and fire department water supply requirements in IFC Chapter 5. By placing this requirement in Section 507, the code user is better directed to this requirement during the site design and not an afterthought as it usually happens during the building permit plan review.

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

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

ICCFILENAME: NICHOLS-F3-507.5.1.1.DOC

F22–09/10
508.1.2 (IBC [F] 911.1.2)

Proponent: Lee Kranz, City of Bellevue, WA, representing The Washington Association of Building Officials (WABO), Technical Code Development Committee

Revise as follows:

508.1.2 (IBC [F] 911.1.2) Separation. The fire command center shall be separated from the remainder of the building by not less than a ~~1-hour~~ 2-hour *fire barrier* constructed in accordance with Section 707 of the International Building Code or *horizontal* assembly constructed in accordance with Section 712 of the International Building Code, or both.

Reason: Section 909.20.6.1 was changed in the 2009 IBC to require not less than 2-hour fire protection for smoke-proof enclosure pressurization fan power wiring and control wiring. Since this wiring is required to extend into the fire command room the rating of the room should be at least equal to the rating of the wiring serving it. If the fire command room is not equal to the fire-resistance rating of the wiring serving it is not possible to comply with Section 909.20.6.1 as the panel and switch gear within the panel does not permit installation of a 2 hour rated assembly to protect it.

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

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

ICCFILENAME: KRANZ-F1-911.1.2~RENAMED 508.1.2.doc

F23–09/10
508.1.5 (IBC [F] 911.1.5)

Proponent: Joe McElvaney, Phoenix, AZ, representing self

Revise as follows:

508.1.5 (IBC [F] 911.1.5) Required features. The *fire command center* shall comply with NFPA 72 and shall contain the following features:

1. The emergency voice/alarm communication system control unit.
2. The fire department communications system.
3. Fire detection and alarm system annunciator.
4. Annunciator unit visually indicating the location of the elevators and whether they are operational.
5. ~~Status indicators and controls for air distribution systems~~.
6. The fire-fighter's control panel required by Section 909.16 for smoke control systems installed in the building.
7. Controls for unlocking *stairway* doors simultaneously.
8. Sprinkler valve and water-flow detector display panels.
9. Emergency and standby power status indicators.
10. A telephone for fire department use with controlled access to the public telephone system.
11. Fire pump status indicators.
12. Schematic building plans indicating the typical floor plan and detailing the building core, *means of egress*, *fire protection systems*, fire-fighting equipment and fire department access, and the location of *fire walls*, *fire barriers*, *fire partitions*, *smoke barriers* and smoke partitions.
13. Work table.
14. Generator supervision devices, manual start and transfer features.
15. Public address system, where specifically required by other sections of this code.
16. Elevator fire recall switch in accordance with ASME A17.1.
17. Elevator emergency or standby power selector switch(es), where emergency or standby power is provided.

Reason: The IFC and IBC have smoke and fire dampers, smoke detection for the air distribution systems, automatic fire sprinkler system throughout. All these reduce and/or limit the travel of smoke. Today energy management system /computers that are used on air distribution system, turn on or off air distribution system items (i.e. fans, damper) If some that do not have knowledge of the air distribution system and start to turn on/off fan or open/close damper one can cause major damage to the air handling units and duct. If the goal of this item is to be used after a fire (to move smoke form one area to another area and to limit damage) then this can be done with energy management system with the help of the building engineer. Additional panel is not need. If the building has a smoke control system then a panel with be still require by item 6 of this section

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

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

ICCFILENAME: MCELVANEY-F1-508.1.5.DOC

F24–09/10
508.1.5 (IBC [F] 911.1.5)

Proponent: Joe McElvaney, Phoenix, AZ, representing self

Revise as follows:

508.1.5 (IBC [F] 911.1.5) Required features. The *fire command center* shall comply with NFPA 72 and shall contain the following features:

1. The emergency voice/alarm communication system control unit.
2. The fire department communications system.
3. Fire detection and alarm system annunciator.
4. Annunciator unit visually indicating the location of the elevators and whether they are operational.
5. Status indicators and controls for air distribution systems.
6. The fire-fighter's control panel required by Section 909.16 for smoke control systems installed in the building.
7. Controls for unlocking *stairway* doors simultaneously.
8. Sprinkler valve and water-flow detector display panels.
9. Emergency and standby power status indicators.
10. A telephone for fire department use with controlled access to the public telephone system.
11. ~~Fire pump status indicators.~~
12. Schematic building plans indicating the typical floor plan and detailing the building core, *means of egress*, *fire protection systems*, fire-fighting equipment and fire department access, and the location of *fire walls*, *fire barriers*, *fire partitions*, *smoke barriers* and smoke partitions.
13. Work table.
14. Generator supervision devices, manual start and transfer features.
15. Public address system, where specifically required by other sections of this code.
16. Elevator fire recall switch in accordance with ASME A17.1.
17. Elevator emergency or standby power selector switch(es), where emergency or standby power is provided.

Reason: The current IFC and NFPA 20 do not have a list of items that shall have their status indicated. NFPA 72 does have a section that lists items that should be monitored where required by another code. If an alarm system is installed and the fire pump is monitored per NFPA 72 via the fire alarm panel, there is no need to have another panel on the wall that has the fire pump status. The fire alarm system can do all of this. Also, Section 508 does not tell us what type of fire pump status we need to have monitored.

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

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

ICCFILENAME: MCELVANEY-F2-508.1.5-2.DOC

F25–09/10
508.1.5 (IBC [F] 911.1.5)

Proponent: Gary Lewis, Chair, ICC Ad Hoc Committee on Terrorism-Resistant Buildings

Revise as follows:

508.1.5 (IBC [F] 911.1.5) Required features. The fire command center shall comply with NFPA 72 and shall contain the following features.

1. The emergency voice/alarm communication system unit.
2. The fire department communications system.
3. Fire-detection and alarm system annunciator system.
4. Annunciator visually indicating the location of the elevators and whether they are operational.
5. Status indicators and controls for air handling systems.
6. The fire-fighters control panel required by Section 909.16 for smoke control systems installed in the building.
7. Controls for unlocking stairway doors simultaneously.
8. Sprinkler valve and water-flow detector display panels.
9. Emergency and standby power status indicators.
10. A telephone for fire department use with controlled access to the public telephone system.

11. Fire pump status indicators.
12. Schematic building plans, including a Building Information Card approved by the fire department, which shall provide building statistics including address, height, width and type of construction; stairway access, designation, floors served, pressurization, standpipe availability; elevators bank designation, car numbers, and floors served; ventilation details, including HVAC zones, location of mechanical equipment rooms, and offsite emergency phone numbers; utilities, fuel oil tank locations, gas service locations, electrical service locations; fire protection systems details, including standpipe locations, valve locations, pump room locations; hazardous materials and locations; and, contact phone numbers for building engineers, managers and fire safety directors. The Building Information Card shall also indicate ~~indicating~~ the typical floor plan and detailing the building core, means of egress, fire protection systems, elevator locations, firefighting equipment and fire department access and the location fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions.
13. Work table.
14. Generator supervision devices, manual start and transfer features.
15. Public address system, where specifically required by other sections of this code.
16. Elevator fire recall switch in accordance with ASME A17.1.
17. Elevator emergency or standby power selector switch(es), where emergency or standby power is provided.

Reason: This proposal is a revised follow-up to a similar proposal defeated last cycle. It is part of a package of submittals generated by the ICC's Ad Hoc Committee on Terrorism-Resistant Buildings. The proposal seeks to slightly modify and revise an existing provision of the IBC and a parallel provision in the IFC related to fire command centers in high-rise buildings.

The scope of the proposal has been reduced to simply codifying Item #12 of the list of required fire department support features in the center. There is a need to provide complete, yet concise information to the responding fire service to assist in assessment and management of the rescue and fire fighting efforts.

The Final Report on the Collapse of the World Trade Center contained 30 key recommendations compiled by the National Institute of Standards and Technology designed to address the building vulnerabilities learned in that tragedy. Three of those thirty recommendations (Items #15, 23 and 24) embrace increasing situational awareness and emergency communications of first responders in large-scale emergencies. In fact, the command center was recently doubled in size, and now also contains additional elevator control switching, a relatively new enhancement.

The proposed Building Information Card in #12, as utilized by the NYFD, puts critical response information in a user-friendly format and medium. A simulation of the Building Information Card used in New York City follows:

Bibliography: National Institute of Standards & Technology, Final Report of the National Construction safety Team on the Collapses of the World Trade Center Towers. United States Government Printing Office: Washington, D.C. September 2005.

Cost Impact: The Ad Hoc Committee anticipates no additional cost to construction resulting from this proposal as the bulk of this information must already be provided based on the current code.

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

ICCFILENAME: LEWIS-F1-508.1.5.DOC

F26–09/10
509.1.1 (New)

Proponents: Amber Anderson/Stuart Tom, Cosumnes CSD Fire Department, representing California Fire Chief's Association

Add new text follows:

509.1.1 Utility identification. When required by the fire code official, gas shut off valves, electric meters, service switches and other utility equipment shall be clearly and legibly marked to identify the unit or space that it serves. Identification shall be made in an approved manner, readily visible and shall be maintained.

Reason: The current code does not require the identification of utilities at multi-unit/multi-building properties. The added code language provides the Fire Code Official authority to require utility identification for services serving multi-unit/multi-building properties including facilities, campuses, strip malls, business parks and residential properties where identification of utilities is essential to emergency responders.

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

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

ICCFILENAME: ANDERSON-TOM-F4- 509.1.1.DOC

F27–09/10
510, 502.1, Appendix J, 105.7.12 (New)

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

1. Revise as follows:

SECTION 510
EMERGENCY RESPONDER RADIO COVERAGE

510.1 Emergency responder radio coverage in new buildings. All new buildings shall have *approved* radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This section shall not require improvement of the existing public safety communication systems.

Exceptions:

1. Where *approved* by the *building code official* and the *fire code official*, a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained in lieu of an *approved* radio coverage system.
2. Where it is determined by the *fire code official* that the radio coverage system is not needed.

~~510.3~~ **510.2 Emergency responder radio coverage in existing buildings**. Existing buildings that do not have *approved* radio coverage for emergency responders within the building shall be equipped with such coverage according to one of the following:

1. Whenever existing wired communication system cannot be repaired or is being replaced, or where not *approved* in accordance with Section 510.1 Exception 1.
2. Within a time frame established by the adopting authority.

~~J101.2~~ **510.3 Permit required.** A construction permit ~~is required~~ for installation of or modification to emergency responder radio coverage systems and related equipment is required as specified in Section 105.7.12. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

510.4 Technical requirements. Systems, components, and equipment required to provide emergency responder radio coverage system shall comply with Sections 511.4.1 through 511.4.2.5.

~~510.2~~ **510.4.1 Radio signal strength.** The building shall be considered to have acceptable emergency responder radio coverage when signal strength measurements in 95 percent of all areas on each floor of the building meet the signal strength requirements in Sections ~~510.2.1~~ 510.4.1.1 and ~~510.2.2~~ 510.4.1.2.

~~510.2.1~~ **510.4.1.1 Minimum signal strength into the building**. A minimum signal strength of -95 dBm shall be receivable within the building.

~~510.2.2~~ **510.4.1.2 Minimum signal strength out of the building**. A minimum signal strength of -100 dBm shall be received by the agency's radio system when transmitted from within the building.

~~J103.1~~ **510.4.2 System design.** The emergency responder radio coverage system shall be designed in accordance with Sections ~~510.3.2.1~~ 510.4.2.1 through ~~510.3.2.5~~ 510.4.2.5.

~~J103.1.1~~ **510.4.2.1 Amplification systems allowed.** Buildings and structures which cannot support the required level of radio coverage shall be equipped with a radiating cable system, a distributed antenna system with Federal Communications Commission (FCC)-certified signal boosters, or other system approved by the *fire code official* in order to achieve the required adequate radio coverage.

~~J103.1.2~~ **510.4.2.2 Technical criteria.** The *fire code official* shall maintain a document providing the specific technical information and requirements for the emergency responder radio coverage system. This document shall contain, but not be limited to, the various frequencies required, the location of radio sites, effective radiated power of radio sites, and other supporting technical information.

~~J103.1.3~~ **510.4.2.3 Secondary power.** Emergency responder radio coverage systems shall be provided with an *approved* secondary source of power. The secondary power supply shall be capable of operating the emergency responder radio coverage system for a period of at least 12 hours. When primary power is lost, the power supply to the emergency responder radio coverage system shall automatically transfer to the secondary power supply.

~~J103.1.4~~ **510.4.2.4 Signal booster requirements.** If used, signal boosters shall meet the following requirements:

1. All signal booster components shall be contained in a NEMA4-type water proof cabinet.
2. Battery systems used for the emergency power source shall be contained in a NEMA4-type water proof cabinet.
3. The ~~system shall include automatic alarming of malfunctions of the~~ signal booster system and battery system~~. Any resulting trouble alarm shall be automatically transmitted to an approved central station or proprietary supervising station as defined in NFPA 72~~ shall be electrically supervised and monitored by a supervisory service, or when approved by the *fire code official*, shall sound an audible signal at a constantly attended location.
4. Equipment shall have FCC Certification prior to installation.

~~J103.1.5~~ **510.4.2.5 Additional frequencies and change of frequencies.** The emergency responder radio coverage system shall be capable of modification or expansion in the event frequency changes are required by the FCC or additional frequencies are made available by the FCC.

~~J103.2~~ **510.5 Installation requirements.** The installation of the public safety radio coverage system shall be in accordance with Sections ~~J103.2.1~~ 510.5.1 through ~~J103.2.5~~ 510.5.5.

~~J103.2.1~~ **510.5.1 Approval prior to installation**. No amplification system capable of operating on frequencies licensed to any public safety agency by the FCC shall be installed without prior coordination and approval of the *fire code official*.

~~J103.2.3~~ **510.5.3 Minimum qualifications of personnel.** The minimum qualifications of the system designer and lead installation personnel shall include:

1. A Valid FCC issued General Radio Operators License, and
2. Certification of in-building system training issued by a nationally recognized organization, school or a certificate issued by the manufacturer of the equipment being installed.

The agency may waive these requirements upon successful demonstration of adequate skills and experience satisfactory to the *fire code official*.

~~J103.2.4~~ **510.5.4 Acceptance test procedure**. When an emergency responder radio coverage system is required, and upon completion of installation, the building *owner* shall have the radio system tested to ensure that two-way coverage on each floor of the building is a minimum of 90 percent. The test procedure shall be conducted as follows:

1. Each floor of the building shall be divided into a grid of 20 approximately equal areas.
2. The test shall be conducted using a calibrated portable radio of the latest brand and model used by the agency talking through the agency's radio communications system.
3. A maximum of two nonadjacent areas will be allowed to fail the test.
4. In the event that three of the areas fail the test, in order to be more statistically accurate, the floor may be divided into 40 equal areas. A maximum of four nonadjacent areas will be allowed to fail the test. If the system fails the 40-area test, the system shall be altered to meet the 90 percent coverage requirement.
5. A test location approximately in the center of each grid area will be selected for the test, then the radio will be enabled to verify two-way communications to and from the outside of the building through the public agency's radio communications system. Once the test location has been selected, that location shall represent the entire area. If the test fails in the selected test location, that grid area shall fail, and prospecting for a better spot within the grid area will not be allowed.
6. The gain values of all amplifiers shall be measured and the test measurement results shall be kept on file with the building owner so that the measurements can be verified during annual tests. In the event that the measurement results become lost, the building owner will be required to rerun the acceptance test to reestablish the gain values.
7. As part of the installation a spectrum analyzer or other suitable test equipment shall be utilized to insure spurious oscillations are not being generated by the subject signal booster. This test will be conducted at time of installation and subsequent annual inspections.

~~J103.2.5~~ 510.5.5 **FCC compliance.** The emergency responder radio coverage system installation and components shall also comply with all applicable federal regulations, including but not limited to, FCC 47 CFR 90.219.

~~J103.3~~ 510.6 **Maintenance.** The emergency responder radio coverage system shall be maintained operational at all times in accordance with Sections ~~510.5.1~~ 510.6.1 through ~~510.5.3~~ 510.6.3.

~~**J103.3.1 Maintenance.** The public radio coverage system shall be maintained operational at all times.~~

~~**J103.3.2 Permit required.** A construction permit, as required by Section 105.7.5 of the *International Fire* Code, shall be obtained prior to the modification or alteration of the emergency responder radio coverage system.~~

~~J103.3.3~~ 510.6.1 **Testing and proof of compliance**. The emergency responder radio coverage system shall be inspected and tested annually or whenever structural changes occur including additions or remodels that could materially change the original field performance tests. Testing shall consist of the following:

1. In-building coverage test as described in Section ~~J103.2.4~~ 510.5.4.
2. Signal boosters shall be tested to ensure that the gain is the same as it was upon initial installation and acceptance.
3. Backup batteries and power supplies shall be tested under load of a period of one hour to verify that they will properly operate during an actual power outage. If within the one hour test period the battery exhibits symptoms of failure, the test shall be extended for additional one hour periods until the integrity of the battery can be determined.
4. All other active components shall be checked to verify operation within the manufacturer's specifications.
5. At the conclusion of the testing a report which shall verify compliance with Section ~~J103.3.4~~ 510.5.4 be submitted to the *fire code official*.

~~J103.3.4~~ 510.6.2 **Additional frequencies.** The building *owner* shall modify or expand the emergency responder radio coverage system at their expense in the event frequency changes are required by the FCC or additional frequencies are made available by the FCC. Prior approval of a public safety radio coverage system on previous frequencies does not exempt this section.

~~J103.3.5~~ 510.6.3 **Field testing.** Agency personnel shall have the right to enter onto the property at any reasonable time to conduct field-testing to verify the required level of radio coverage.

~~**J102.1 Definitions.** For the purpose of this appendix, certain terms are defined as follows:~~

502.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

AGENCY. Any emergency responder department within the jurisdiction that utilizes radio frequencies for communication. This could include, but not be limited to, various public safety agencies such as fire department, emergency medical services and law enforcement.

2. Add new text as follows:

105.7.12 Radio coverage system. A construction permit is required for installation of or modification to emergency responder radio coverage systems and related equipment. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

(Renumber subsequent sections)

3. Delete Appendix J without substitution:

~~APPENDIX J~~
~~EMERGENCY RESPONDER RADIO COVERAGE~~

Reason: This proposal takes the requirements for emergency responder radio coverage made last code cycle and finishes the process. Appendix J was included in the 2009 edition and contains the installation and testing criteria for the emergency responder radio coverage system. In this proposal, the entire appendix is relocated into the code. This action is the result of a request by the Code Development Committee last cycle and can be seen in their Reason Statement in Report on Hearings.

As the appendix is relocated into the code, some minor clarifications occurred. The following revisions are made:

1. 510.1 – the term "new" is included to clarify the difference between Section 510.1 (new construction) and 510.2 (existing construction)

2. 510.3 – this section has been relocated and includes three sections from the appendix which dealt with permits. Sections J101.2, J103.2.2 and J103.3.2 all referenced permits. This revision will provide a single section which covers permits for these systems.
3. 105.7.12 – this permit requirement is added to Chapter 1. Since the appendix is deleted, the permit requirement also needs to be located within the code. This is editorial.
4. 510.4.2.4 – Item 3 is revised to correlate with the new wording used in other sections of the code when referencing monitoring of systems. 510.6 – The two sections from the Appendix J103.3 and J103.3.1 have been combined into one section for simplicity.

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

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

ICCFILENAME: LARIVIERE-F33-510.DOC

F28–09/10

510.1, 510.3, 510.4 (New), 510.5 (New), 502.1; Appendix J103.2.3, J103.2.4

Proponent: A. Keith Brown, North Metro Fire Rescue District, representing Fire Marshal's Association of Colorado

1. Revise as follows:

510.1 Emergency responder radio coverage in buildings. All buildings shall have *approved* radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. Buildings and structures which cannot support the required level of radio coverage shall be equipped with a radiating cable system, a distributed antenna system with FCC certified signal boosters, or other system *approved* by the fire code official in order to achieve the required radio coverage. This section shall not require improvement of the existing public safety communication systems.

Exceptions:

1. Where *approved* by the building official and the *fire code official*, a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained in lieu of an *approved* radio coverage system.
2. ~~Where it is determined by the *fire code official* that the radio coverage system is not needed.~~ One- and two-family dwellings.

510.3 Emergency responder radio coverage in existing buildings. Existing buildings that do not have approved radio coverage for emergency responders within the building shall be equipped with such coverage according to one of the following:

1. Wherever existing wired communication system cannot be repaired or is being replaced, or where not a*pproved* in accordance with Section 510.1, Exception 1.
2. Within a time frame established by the adopting authority.

Exception: One- and two-family dwellings.

2. Add new text as follows:

510.4 Inspection, testing and maintenance. Emergency responder radio communication systems shall be maintained in an operative condition at all times, and shall be replaced or repaired where defective or degraded.

510.4.1 Testing and proof of compliance. The emergency responder radio coverage system shall be inspected and tested annually or whenever structural changes occur including additions, alterations, or remodels that could materially change the original field performance tests. At the conclusion of the testing, a report verifying compliance with Sections 510.4.2 and 510.4.3, as applicable, shall be submitted to the *fire code official*.

510.4.2 Annual tests. Within one year of issuance of the certificate of occupancy, and annually thereafter, the building owner of any building for which an emergency responder communication radio system is installed shall test all active components of the system, including, but not limited to, amplifiers, power supplies, supervisory signals and backup batteries. Amplifiers shall be tested to ensure that the gain is the same as it was upon initial installation and acceptance. Backup batteries and power supplies shall be tested under load for a period of one hour to verify that they will properly operate during an actual power outage. If within the one hour test period, in the opinion of the testing technician, the battery exhibits symptoms of failure, the test shall be extended for additional one hour periods until the

testing technician confirms the integrity of the battery. All other active components shall be checked to determine that they are operating within the manufacturer's specifications for the intended purpose. If the communications appear to have degraded or if the tests fail to demonstrate adequate system performance, the owner of the building or structure is required to remedy the problem and restore the system in a manner consistent with the original approval criteria.

510.4.3 Five year tests. In addition to the annual test, the building owner shall perform a radio coverage test a minimum of once every five years to ensure that the radio system continues to meet the requirements of the original acceptance test. The procedure set forth in 510.4.2 shall apply to such tests.

510.4.4 Field testing by emergency response agencies. Emergency response agencies are authorized to conduct annual tests on all systems. If communications appear to have degraded or if the tests fail to demonstrate adequate system performance the owner of the building or structure shall remedy the problem and restore the system in a manner consistent with the original approval criteria.

510.4.5 Degradation due to building, additions, remodels or alterations. If the degradation to the system is due to building additions, remodels or alterations, the owner of the building or structure shall remedy the problem and restore the system in a manner consistent with the original approval criteria in order to obtain a final inspection for occupancy.

510.4.6 Degradation due to system failure. Any system degradation or failure not related to the performance of the owner's on site system shall be the responsibility of the appropriate emergency service agency.

510.4.7 Qualifications of testing personnel. All annual and five year tests shall be conducted, documented, and signed by a person in possession of a current FCC license, or a current technician certification issued by the Associated Public Safety Communications Officials - International or the Personal Communications Industry Association. All test records shall be retained on the inspected premises by the building owner and a copy submitted to the *fire code official*.

510.5 Additional frequencies. The building owner shall modify or expand the emergency responder radio coverage system, at no expense to the emergency response agency, in the event frequency changes are required by the FCC, additional frequencies are made available by the FCC, or frequency changes are initiated by the emergency response agency. Prior approval of a public safety radio coverage system on previous frequencies does not exempt this section.

3. Revise as follows:

502.1 ~~J102.1~~ Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

EMERGENCY RESPONSE AGENCY. Any of various public safety agencies such as fire departments, emergency medical services and law enforcement ~~emergency responder department~~ within the jurisdiction that utilizes radio frequencies for communication. ~~This could include, but not be limited to, various public safety agencies such as fire department, emergency medical services and law enforcement~~.

510.2.2 Minimum signal strength out of the building. A minimum signal strength of -100 dBm shall be received by the emergency response agency's radio system when transmitted from within the building.

J103.2.3 Minimum qualifications of personnel. The minimum qualifications of the system designer and lead installation personnel shall include:

1. A valid FCC-issued General Radio Operators License, and
2. Certification of in-building system training issued by a nationally recognized organization or school or a certificate issued by the manufacturer of the equipment being installed.

The emergency response agency may waive these requirements upon successful demonstration of adequate skills and experience satisfactory to the *fire code official*.

J103.2.4 Acceptance test procedure. When an emergency responder radio coverage system is required, and upon completion of installation, the building *owner* shall have the radio system tested to ensure that two-way coverage on each floor of the building is a minimum of 90 percent. The test procedure shall be conducted as follows:

1. Each floor of the building shall be divided into a grid of 20 approximately equal areas.

2. The test shall be conducted using a calibrated portable radio of the latest brand and model used by the emergency response agency talking through the emergency response agency's radio communications system.
3. A maximum of two nonadjacent areas shall be allowed to fail the test.
4. In the event that three of the areas fail the test, in order to be more statistically accurate, the floor may be divided into 40 equal areas. A maximum of four nonadjacent areas shall be allowed to fail the test. If the system fails the 40-area test, the system shall be altered to meet the 90-percent coverage requirement.
5. A test location approximately in the center of each grid area shall be selected for the test, then the radio shall be enabled to verify two-way communications to and from the outside of the building through the ~~public~~ emergency response agency's radio communications system. Once the test location has been selected, that location shall represent the entire area. If the test fails in the selected test location, that grid area shall fail, and prospecting for a better spot within the grid area shall not be allowed.
6. The gain values of all amplifiers shall be measured and the test measurement results shall be kept on file with the building owner so that the measurements can be verified during annual tests. In the event that the measurement results become lost, the building owner shall be required to rerun the acceptance test to reestablish the gain values.
7. As part of the installation a spectrum analyzer or other suitable test equipment shall be utilized to insure spurious oscillations are not being generated by the subject signal booster. This test shall be conducted at time of installation and subsequent annual inspections.

4. Delete without substitution:

~~J103.1.1 Amplification systems allowed.~~
~~J103.3 Maintenance.~~

Reason: The purposes of the proposed code change are:
Item 1:

1. Clarify that Section 510.1 does not require the addition of a radio-coverage system where approved radio coverage exists;
2. Delete the existing Section 510.1 Exception 2 that allows a vital requirement to be eliminated for any arbitrary and capricious reason and without providing an equivalent level of safety for emergency responders;
3. Except one- and two-family dwellings from all requirements of Section 510;
4. Ensure the continuing operability of radio coverage systems, where required, even in the event of frequency changes;
5. Establish documentation requirements for inspection and testing of radio coverage systems.

The existing, charging language of Section 510.1 implies, or could easily be construed to require, that some sort of public-safety radio-amplification system is required in all new buildings regardless of existing signal strengths, especially when Exception 1 (referencing an in-building communication system) is considered. The proposed language, which inserts Section J103.1.1, makes clear that Section 510.1 applies only to buildings and structures that do not already support the required level of radio coverage. Where acceptable emergency responder radio coverage is lacking, the new language (again from J103.1.1) identifies the allowable amplification systems that may be used to achieve required radio coverage.

The existing Exception 2 of Section 510.1 may be unique in the IFC in that no criteria or logical nexus is stated or implied to provide a reasonable basis for eliminating radio coverage for emergency responders, a fire service feature vital to firefighter safety. If Exception 2 was intended to mean that a radio coverage system is not needed when a building is shown to support acceptable radio coverage without such a system, then the language used is, at best, imprecise and, at worst, outrageously broad so as to violate the long-established principles of equivalent effectiveness elucidated in IFC Sections 104.8 and 104.9

The proposed exceptions to Section 510.1 and 510.3 for one- and two-family dwellings constructed under the IBC (e.g., where the IRC is not adopted) are intended simply to clarify that radio coverage systems will not be required in such buildings, thus preventing potential overzealous application of Section 510. Note that the proposed language references "dwellings," the definition of which (IFC Chapter 2) explicitly excludes townhouses as well as condominium/apartment buildings containing more than two dwelling units. Thus, even though each condominium in a Group R-2 high rise may itself be a single dwelling unit, the proposed exceptions for one- and two-family dwellings would not preclude requiring a radio-coverage system in said high rise. Because IFC Section 105.7 does not presently require a permit for the installation or modification of emergency responder radio coverage systems, dwellings constructed pursuant to the IRC are not impacted by the proposed change, per IFC Section 102.5 Item 1.

Item 2: The proposed Section 510.4 provides requirements for on-going maintenance and recurring testing of installed radio-coverage systems, similar to inspection, testing, and maintenance requirements for other systems (see IFC Sections 901.6, 604.3, 2703.2.6, et al.). Section 510 in the 2009 IFC lacks any such explicit requirements. Absent local adoption of Appendix J, assurance of dependable radio coverage necessary for the safety of emergency responders would appear to rest wholly on the general provisions of IFC Sections 106 and 107, which sections prescribe neither the frequency of testing (see Section 107.2) nor the qualifications of personnel competent to execute the highly technical testing of radio-amplification systems.

Section 510.5, as proposed, both mandates that radio coverage systems be upgraded as needed to accommodate frequency changes and makes such upgrades the responsibility of the building owner. The proposed language stems from Section J103.3.4.

Item 3: The purpose of this portion of the proposed code change is to define and clarify in the body of the code a foundational term used within the context of IFC Section 510 and Appendix J - Emergency Responder Radio Coverage. The proposed text stems from the definition contained in IFC Section J102.1.

Item 4: The content of the noted appendix sections was moved into Section 510. Deletion of those appendix sections eliminates the potential for conflicts between Section 510 and Appendix J.

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-F2- 510.1~REVISED.DOC

F29–09/10
510.1

Proponent: Ronald Marts, Telecordia, Qwest Communications, AT&T

Revise as follows:

510.1 Emergency responder radio coverage in buildings. All buildings shall have *approved* radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This section shall not require improvement of the existing public safety communication systems.

Exceptions:

1. Where *approved* by the building official and the *fire code official*, a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained in lieu of an *approved* radio coverage system.
2. Where it is determined by the *fire code official* that the radio coverage system is not needed.
3. In telecommunications buildings, where emergency responder radio coverage is required and such systems, components or equipment required may have a negative impact of radio frequency interference (RFI) on local, regional and/or national telecommunications functions of the facility, it shall be permitted to provide a function switch for the activation of the internal emergency responder radio system. The location of the function switch shall be approved by the fire code official.

Reason: This specific activation of the facilities internal emergency responder radio system will limit potential inference with the vital telecommunications operations of the facility to 24/7 exposure to these signals. The potential for interference with the operations of the telecommunications facility operations is unique to each space and operation of the facility and places in direct risk emergency services, national security and defense, and other critical telecommunications functions of the facility.

To date, studies have suggested that RFI from these transmitters may affect telecommunications equipment and thus telecommunications service.

Cost Impact: The code change proposal will have a small impact on construction cost

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

ICCFILENAME: MARTS-F1-510.1.DOC

F30–09/10
511 (New)

Proponents: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Add new section as follows:

SECTION 511
SOLAR PHOTOVOLTAIC INSTALLATIONS

511.1 General. The installation of solar photovoltaic installations shall comply with Table 601 and Chapter 16 of the *International Building Code*. The installation shall also comply with Sections 511.2 through 511.11 and NFPA 70.

511.2 Circuit marking. To facilitate identifying energized electrical lines that connect the solar panels to the inverter, to prevent these conduits from being cut when venting for smoke removal, markings shall be provided to give emergency responders appropriate warning that a solar electric system is present.

511.3 Materials. The materials used for marking shall be reflective, weather resistant and suitable for the environment.

511.4 Main service disconnect. For residential occupancies, the marking shall be placed within the main service disconnect. If the main service disconnect is operable with the service panel closed, then the marking shall be placed on the outside cover. For commercial occupancies, the marking shall be placed adjacent to the main service disconnect in a location clearly visible from the location where the lever is operated.

511.4.1. Marking content and format. The marking shall contain the words "CAUTION: SOLAR ELECTRIC CONNECTED" in capital letters a minimum of 3/8 inches in height with white letters on a red background.

511.5 DC conduit, raceways, enclosures, cable assemblies, and junction boxes. Marking shall be provided on all interior and exterior dc conduit, raceways, enclosures, cable assemblies, and junction boxes to alert the fire service to their presence. The marking shall be placed every 10 feet or fraction thereof, at turns and above and below penetrations, and on all dc combiner and junction boxes.

511.5.1 Marking content and format. The marking shall contain the words "CAUTION: SOLAR ELECTRIC CONNECTED" in capital letters a minimum of 3/8 inches in height with white letters on a red background.

511.5.2 Locations of DC conductors. Conduit, wiring systems, and raceways for photovoltaic circuits shall be located as close as possible to the ridge or hip or valley and from the hip or valley as directly as possible to an outside wall to reduce trip hazards and maximize ventilation opportunities. Conduit runs between sub arrays and to DC combiner boxes shall be installed in a manner that minimizes total amount of conduit on the roof by taking the shortest path from the array to the DC combiner box. The DC combiner boxes shall be located such that conduit runs are minimized in the pathways between arrays.

511.6 Power disconnects. A power disconnect shall be located within 3 feet of the photovoltaic array to provide for de-energizing the DC circuit(s) from the array to the inverter. The disconnect shall be label with reflective lettering.

511.7 Access, pathways for smoke ventilation. Roof access and spacing requirements shall be observed in order to ensure access to the roof; provide pathways to specific areas of the roof; provide for smoke ventilation operations; and to provide emergency egress from the roof.

511.8 Roof access points. Roof access points shall be defined as an area that does not place ground ladders over openings such as windows or doors, and are located at strong points of building construction in locations where the access point does not conflict with overhead obstructions such as tree limbs, wires, or signs.

511.9. Residential systems-One- and two-family residential dwellings. Access shall be provided in accordance with Sections 511.9.1 through 511.9.3

511.9.1 Residential buildings with hip roof layouts. Panels shall be located in a manner that provides one (1) three-foot (3') wide clear access pathway from the eave to the ridge on each roof slope where panels are located. The access pathway shall be located at a structurally strong location on the building such as along a underlying bearing wall.

511.9.2 Residential buildings with a single ridge. Panels shall be located in a manner that provides two (2) three-foot (3') wide access pathways from the eave to the ridge on each roof slope where panels are located.

511.9.3 Hips and Valleys: Panels shall be located no closer than one and one half (1.5) feet to a hip or a valley if panels are to be placed on both sides of a hip or valley. If the panels are to be located on only one side of a hip or valley that is of equal length then the panels shall be permitted to be placed directly adjacent to the hip or valley.

511.9.4 Ventilation. Panels shall be located no higher than three feet (3) below the ridge.

> **Exception:** The fire department is authorized to allow panels to be located two (2) feet below the ridge if a product or method acceptable to the fire department has been provided for ventilation.

511.10 All other occupancies. Access shall be provided in accordance with Sections 511.10.1 through 511.10.3

511.10.1 Access. There shall be a minimum six (6) foot wide clear perimeter around the edges of the roof.

> **Exception:** If either axis of the building is 250 feet or less, there shall be a minimum four feet (4') wide clear perimeter around the edges of the roof.

511.10.2 Pathways. The solar installation shall be designed to provide designated pathways. The pathways shall meet the following requirements:

1. The pathway shall be over structural members
2. The center line axis pathways shall be provided in both axis of the roof. Center line axis pathways shall run on structural members or over the next closest structural member nearest to the center lines of the roof
3. Shall be straight line not less than 4 feet clear to skylights and/or ventilation hatches

4. Shall be straight line not less than 4 feet clear to roof standpipes
5. Shall provide not less than 4 feet clear around roof access hatch with at least one not less than 4 feet clear pathway to parapet or roof edge

511.10.3 Ventilation. The solar installation shall be designed to meet the following requirements.

1. Arrays shall be no greater than 150 by 150 feet in distance in either axis
2. Ventilation options between array sections shall be either a pathway 8 feet or greater in width; a 4 feet or greater in width pathway and bordering on existing roof skylights or ventilation hatches; or a 4 feet or greater in width pathway and bordering 4' x 8' "venting cutouts" every 20 feet on alternating sides of the pathway

511.11 Ground mounted photovoltaic arrays. Ground mounted photovoltaic arrays shall comply with Sections 511.1 through 511.6 and this section. Setback requirements do not apply to ground-mounted, free standing photovoltaic arrays. A clear brush area of 10' is required for ground mounted photovoltaic arrays.

Reason: Photovoltaic arrays are increasing in popularity as an alternative energy source. These arrays, which cannot be shut down and retain electrical charges present unique hazards to firefighters operating on roofs with arrays or nearby circuits.

This proposal is intended to provide general requirements to allow for increased safety of firefighters working around and near the arrays.

These provisions were created from a "DRAFT SOLAR PHOTOVOLTAIC INSTALLATION GUIDELINE " prepared by the CAL FIRE, Office of the State Fire Marshal, local California fire departments, and the solar photovoltaic industry.

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

Analysis: Code change proposal F238-09/10 proposes similar requirements.

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

ICCFILENAME: DAVIDSON-SHUMAN-F20-511.DOC

F31–09/10
602.1 [IBC [F] 2702.1 (New)]

Proponent: John England, MCO, England Enterprises Inc., representing the Cities of Beaufort and Hardeeville, SC

1. Add new definitions as follows:

602.1 Definitions. The following words and terms shall, for the purposes of this chapter, and as used elsewhere in the code, have the meanings shown herein.

EMERGENCY POWER. Electrical power provided by an automatic backup system that will energize within 10 seconds.

STANDBY POWER. Electrical power provided by an automatic backup system that will energize within 60 seconds.

2. Add new text as follows:

IBC [F] SECTION 2702
DEFINITIONS

IBC [F] 2702.1 Definitions. The following words and terms shall, for the purposes of this chapter, and as used elsewhere in this code, have the meanings shown herein.

IBC [F] EMERGENCY POWER. Electrical power provided by an automatic backup system that will energize within 10 seconds.

IBC [F] STANDBY POWER. Electrical power provided by an automatic backup system that will energize within 60 seconds.

(Renumber subsequent sections)

Reason: Many people do not understand these simple definitions.

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

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

F32–09/10
603.3.2

Proponent: John Levey, Oilheat Associates, representing the National Oilheat Research Alliance

Revise as follows:

603.3.2 Fuel oil storage inside buildings. Fuel oil storage inside buildings shall comply with Sections 603.3.2.1 through 603.3.2.5 or Chapter 34.

> **Exception:** The storage of fuel oil used for space or water heating inside buildings in quantities exceeding 660 gallons (2498 L) shall comply with NFPA 31.

Reason: In 603.3.1 the current code refers to NFPA-31 for storage exceeding 660 gallons.

Our proposal is to use similar language in 603.3.2 for tanks that are used for space/water heating only.

Limiting the inside storage to 660 gallons will leave a large numbers of building owners with significantly less on-site storage than is acceptable. While average annual consumption of fuel oil is just under 1,000 gallons, many larger homes consume well over 2,000 gallons per year.

It is a common practice in many areas for two and three level buildings to have a separate oil furnace and tank for each floor.

The proposed change is intended to address the need for larger inside storage capacities than currently permitted, without the additional financial and logistical burdens involved with the installation of protected tanks.

"Protected" tanks (double wall, insulated tanks) are not practical for inside fuel oil storage in most locations due to size and weight constraints. A 3000 gallon "protected" tank weighs 1,874 pounds and is 52" in diameter. A typical 330 gallon tank weighs 320 pounds and is 27" wide. Installers must lift and move these tanks as access to machinery and elevators to move them is unlikely.

"Protected" tanks typically require an investment that is approximately ten times the investment for unprotected tanks. We believe this will discourage the proactive replacement of aging tanks and lead to additional releases of product and the resulting environmental consequences.

In jurisdictions that previously followed NFPA 31, four (4) 330 tanks have been allowed for a number of years. The replacement of these tanks will require that the storage capacity be downsized, providing a disincentive to proactive replacement.

Properly installed standard UL listed fuel oil storage tanks (UL 80 and UL 2258), installed in accordance with NFPA-31 have a well established safety record, merely changing the storage capacity for fuel oil should not cause additional fire hazards.

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

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

ICCFILENAME: LEVEY-F1-603.3.1.DOC

F33–09/10
604.2.19 (New) [IBC [F] 2702.2.21 (New)]

Proponent: James Harper, City of Omaha, representing Nebraska Code Officials Association

Add new text as follows:

604.2.19 (IBC [F] 2702.2.21) Exhaust fans in shaft enclosures. Standby power shall be provided to exhaust fans installed in shaft enclosures in accordance with the *International Mechanical Code* and Section 716.5.3 of the *International Building Code*.

Reason: Section 504.8 of the IMC requires that an exhaust fan installed in a shaft enclosure in lieu of dampers be connected to standby power, however such requirement is not captured in Chapter 27 of the IBC. In addition, Exception 2 of Section 716.5.3 provides a similar exception where an exhaust fan is provided in lieu of dampers. (Sec. 716.5.3 of the IBC is repeated as Section 607.5.5 of the IMC.) It is essential that such fans be connected to standby power. Standby and emergency power requirements are also referenced in IBC Chapter 27 which provides a single convenient location in the code for determining standby and emergency power requirements. The requirements in the IMC should appear in IBC Chapter 27.

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

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

ICCFILENAME: HARPER-G1-2702.2.21~RENAMED-F1-604.2.19.doc

F34–09/10
604.5 (New)

Proponent: Manny Muniz, California Deputy State Fire Marshal (Ret.), representing self

Add new text as follows:

604.5 Periodic testing of battery unit means of egress illumination. Required means of egress illumination utilizing battery-operated unit equipment in accordance with Section 1006.3 shall be periodically tested in accordance with Section 604.5.1, 604.5.2 or 604.5.3, as applicable.

604.5.1 Non-computer-based/non-self-testing/non-self-diagnosing battery operated unit equipment. Non-computer-based/non-self-testing/non-self-diagnosing battery operated unit equipment shall be functionally tested at 30-day intervals for not less than 30 seconds and annually for not less than 90 minutes. Throughout the duration of such tests, the equipment shall be fully operational.

604.5.1.1 Written records. A written record shall be maintained by the owner in accordance with Section 604.3.2 of functional tests.

604.5.2 Self-testing/self-diagnostic battery-operated unit equipment. Self-testing/self-diagnostic battery-operated unit equipment shall be visually inspected, automatically perform a minimum 30 second operational test and a diagnostic routine not less than once every 30 days. Failures shall be indicated by a status indicator. A full functional test shall be conducted annually for not less than 90 minutes. Throughout the duration of such tests, the equipment shall be fully operational.

604.5.2.1 Written records. A written record shall be maintained by the owner in accordance with Section 604.3.2 of visual inspections and operational tests.

604.5.3 Computer-based, self-testing/self-diagnostic battery-operated unit equipment. Computer-based, self-testing/self-diagnostic battery-operated unit equipment shall automatically perform a minimum 30 second operational test and a diagnostic routine not less than once every 30 days. The equipment shall also perform automatically a minimum 90 minute annual function test. Throughout the duration of such tests, the equipment shall be fully operational.

604.5.2.2 Test records. The computer-based, self-testing/self-diagnostic system shall have the capability to provide documentation of the tests and failures upon request of the fire code official.

(Renumber subsequent section)

Reason: IFC Section 107.1 requires that any device, equipment or system required for compliance with the provisions of the code, shall be continuously maintained in accordance with the code and applicable referenced standards. Section 604.3 requires that emergency and standby power systems be maintained in accordance with NFPA 110 and 111. The IFC does not, however, contain maintenance and testing requirements for means of egress illumination that is provided by battery-operated unit equipment as allowed by Section 1006.3. Both NFPA 110 and 111 specifically exclude such equipment from their scopes.

This proposal seeks to fill the void in the IFC by providing periodic testing requirements for the three types of battery operated unit equipment found in the field, i.e., non-computer-based/non-self-testing/non-self-diagnosing, self-testing/self-diagnostic and computer-based, self-testing/self-diagnostic . Similar provisions have been in NFPA 101 since the 2003 edition.

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

Analysis: Similar requirements are proposed in code change proposal F35-09/10.

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

ICCFILENAME: MUNIZ-F1-604.5

F35–09/10
604.5 (New)

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

Add new text as follows:

604.5 Emergency lighting equipment. Emergency lighting shall be inspected and tested in accordance with Section 604.5.1 through 604.5.2.1.

604.5.1 Activation test. An activation test of the emergency lighting equipment shall be completed monthly. The activation test shall ensure the emergency lighting activates automatically upon normal electrical disconnect and stays sufficiently illuminated for a minimum of 30 seconds.

604.5.1.1 Activation test record. Records shall be maintained on the premises for a minimum of 3 years and submitted to the fire code official upon request. The record shall include the location of the emergency lighting tested, whether the unit passed or failed, the date of the test, and the person completing the test.

604.5.2 Power test. For battery powered emergency lighting, a power test of the emergency lighting equipment shall be completed annually. The power test shall operate the emergency lighting for a minimum of 90 minutes and shall remain sufficiently illuminated for the duration of the test.

604.5.2.1 Power test record. Records shall be maintained on the premises for a minimum of 3 years and submitted to the fire code official upon request. The record shall include the location of the emergency lighting tested, whether the unit passed or failed, the date of the test, and the person completing the test.

~~**604.5**~~ **604.6 Supervision of maintenance and testing.** Routine maintenance, inspection and operational testing shall be overseen by a properly instructed individual.

Reason: IBC 1006.3 permits the use of unit equipment as sufficient to provide means of egress illumination. However, NFPA 111 Section 1.1.4.1 Item 4 specifically exempts unit equipment from being covered by the maintenance standard (NFPA 110 does not apply). This provides a gap in the IFC for maintaining the most common type of emergency lighting in smaller buildings, self-contained unit lighting.

The requirements found herein are based on a combination of current State of New York provisions for maintaining lighting equipment and NFPA 101Section 7.9.3. Records retention requirements are similar to the requirements for fire protection system maintenance records in IFC Section 901.

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

Analysis: Similar requirements are proposed in code change proposal F34-09/10.

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

ICCFILENAME: NICHOLS-F2-604.5 NEW.DOC

F36–09/10
605.1

Proponent: Philip M. Chandler, representing New York State Department of State, Office of Fire Protection & Control

Revise as follows:

605.1 Abatement of electrical hazards. ~~Identified electrical hazards shall be abated. Identified hazardous electrical conditions in permanent wiring shall be brought to the attention of the responsible code official.~~ Where it is found that the electrical system in a structure constitutes a hazard to the occupants or the structure by reason of inadequate service, improper fusing, insufficient receptacle and lighting outlets, improper wiring or installation, deterioration or damage, or for similar reasons, the fire code official shall require the defects to be corrected to eliminate the hazard. Electrical wiring, devices, appliances and other equipment that is modified or damaged and constitutes an electrical shock or fire hazard shall not be used.

Reason: The proposed revision will make this section consistent with the requirements of the *International Property Maintenance* Code (IPMC), Section 604.3. The new language clearly identifies important electrical hazards that create a risk of fire and eliminates much ambiguity found in the old 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: CHANDLER-F1-605.1.DOC

F37–09/10
605.1.1 (New)

Proponent: Philip M. Chandler, representing New York State Department of State, Office of Fire Protection & Control

Add new text as follows:

605.1.1 Electrical inspection. In accordance with the provisions of Section 104.7.2, the fire code official is authorized to require an inspection and report on the safety of a structure's electrical system, wiring, devices, appliances and equipment. The inspection and report shall be prepared by a qualified engineer, specialist, laboratory or fire safety specialty organization acceptable to the fire code official.

Reason: The fire code official may have reason to believe that the electrical safety of a structure is compromised, yet lack the highly technical knowledge or specialized skills to make a final determination. Inasmuch as the risk of shock or hazard of fire are very real consequences of defective electrical systems and equipment, this authorization of the fire code official to obtain technical assistance is warranted.

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

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

ICCFILENAME: CHANDLER-F2-605.1.1.DOC

F38–09/10
605.10, 605.10.1, 605.10.2 (All new)

Proponents: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Add new text as follows:

605.10 Abandoned or unused wiring. Installed supply circuits and interconnecting cables that are no longer in use shall be maintained in accordance with this code and NFPA 70, or removed.

605.10.1 Abandoned wiring. Installed supply circuits and interconnecting cables that are not terminated at devices or equipment and have not been tagged for future use shall be considered abandoned.

605.10.1.1 Identification tags. Tags intended to identify supply circuits and interconnecting cable for future use shall have the following information.

1. The date the circuit or cable was tagged as intended for future use.
2. The expected date of the future use.
3. A description of what the intended future use is.

605.10.2 Removal. Accessible portions of abandoned supply circuits and interconnecting cables, including wiring tagged for future use that has not been utilized within one year of tagging, shall be removed.

(Renumber subsequent section)

Reason: A growing problem in existing buildings is the accumulation of abandoned or unused wiring. This sometimes hidden hazard provides increased fuel loads and entanglement hazards for firefighters. Though provisions for maintaining or removing such wiring are contained within NFPA 70, it is the fire code official who is responsible for maintenance inspections and the code official most likely to encounter this hazard.

This proposal takes the requirements found in the electrical code and places them directly within the fire code for direct application by the fire code official. The proposal also puts a one year limit on wiring that has been tagged for future use to eliminate a loophole in current requirements. This will increase the ability of the fire service to reduce unnecessary fuel loads and to eliminate a distinct hazard to firefighters.

Following are excerpts from the electrical code as background.

372.13 Discontinued Outlets.
When an outlet is abandoned, discontinued, or removed, the sections of circuit conductors supplying the outlet shall be removed from the raceway. No splices or reinsulated conductors, such as would be the case of abandoned outlets on loop wiring, shall be allowed in raceways.

374.7 Discontinued Outlets.
When an outlet is abandoned, discontinued, or removed, the sections of circuit conductors supplying the outlet shall be removed from the raceway. No splices or reinsulated conductors, such as would be the case with abandoned outlets on loop wiring, shall be allowed in raceways.

390.7 Discontinued Outlets.
When an outlet is abandoned, discontinued, or removed, the sections of circuit conductors supplying the outlet shall be removed from the raceway. No splices or reinsulated conductors, such as would be the case with abandoned outlets on loop wiring, shall be allowed in raceways.

640.2 Definitions.
For purposes of this article, the following definitions apply.

Abandoned Audio Distribution Cable. Installed audio distribution cable that is not terminated at equipment and not identified for future use with a tag.

(C) Abandoned Audio Distribution Cables. The accessible portion of abandoned audio distribution cables shall be removed.

645.2 Definition.
Abandoned Supply Circuits and Interconnecting Cables. Installed supply circuits and interconnecting cables that are not terminated at equipment and not identified for future use by a tag.

645.5 Supply Circuits and Interconnecting Cables.

(F) Abandoned Supply Circuits and Interconnecting Cables. The accessible portion of abandoned supply circuits and interconnecting cables shall be removed unless contained in a metal raceway.

(G) Installed Supply Circuits and Interconnecting Cables Identified for Future Use.
- *(1) Supply circuits and interconnecting cables identified for future use shall be marked with a tag of sufficient durability to withstand the environment involved.*
- *(2) Supply circuit tags and interconnecting cable tags shall have the following information:*
  - *a. Date identified for future use*
  - *b. Date of intended use*
  - *c. Information relating to the intended future use*

725.2 Definitions.
Abandoned Class 2, Class 3, and PLTC Cable. Installed Class 2, Class 3, and PLTC cable that is not terminated at equipment and not identified for future use with a tag.

725.25 Abandoned Cables.
The accessible portion of abandoned Class 2, Class 3, and PLTC cables shall be removed. Where cables are identified for future use with a tag, the tag shall be of sufficient durability to withstand the environment involved.

760.2 Definitions.
Abandoned Fire Alarm Cable. Installed fire alarm cable that is not terminated at equipment other than a connector and not identified for future use with a tag.

760.3 Other Articles.
Circuits and equipment shall comply with 760.3(A) through (G). Only those sections of Article 300 referenced in this article shall apply to fire alarm systems.
- *(A) Spread of Fire or Products of Combustion. Section 300.21. The accessible portion of abandoned fire alarm cables shall be removed.*

760.25 Abandoned Cables.
The accessible portion of abandoned fire alarm cables shall be removed. Where cables are identified for future use with a tag, the tag shall be of sufficient durability to withstand the environment involved.

770.2 Definitions.
See Article 100. For purposes of this article, the following additional definitions apply.
Abandoned Optical Fiber Cable. Installed optical fiber cable that is not terminated at equipment other than a connector and not identified for future use with a tag.

770.25 Abandoned Cables.
The accessible portion of abandoned optical fiber cables shall be removed. Where cables are identified for future use with a tag, the tag shall be of sufficient durability to withstand the environment involved.

800.2 Definitions.
See Article 100. For the purposes of this article, the following additional definitions apply.
Abandoned Communications Cable. Installed communications cable that is not terminated at both ends at a connector or other equipment and not identified for future use with a tag.

800.25 Abandoned Cables.
The accessible portion of abandoned communications cables shall be removed. Where cables are identified for future use with a tag, the tag shall be of sufficient durability to withstand the environment involved.

820.2 Definitions.
See Article 100. For the purposes of this article, the following additional definitions apply.
Abandoned Coaxial Cable. Installed coaxial cable that is not terminated at equipment other than a coaxial connector and not identified for future use with a tag.

FPN: See Article 100 for a definition of Equipment.

820.25 Abandoned Cables.
The accessible portion of abandoned coaxial cables shall be removed. Where cables are identified for future use with a tag, the tag shall be of sufficient durability to withstand the environment involved.

830.2 Definitions.
See Article 100. For purposes of this article, the following additional definitions apply.
Abandoned Network-Powered Broadband Communications Cable. Installed network-powered broadband communications cable that is not terminated at equipment other than a connector and not identified for future use with a tag.

830.25 Abandoned Cables.
The accessible portion of abandoned network-powered broadband cables shall be removed. Where cables are identified for future use with a tag, the tag shall be of sufficient durability to withstand the environment involved.

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

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

ICCFILENAME: DAVIDSON-SHUMAN-F6-605.10.DOC

F39–09/10
606.9, 606.9.1; IMC [F] 1106.5, [F] 1106.5.1

Proponent: Jeffrey M. Shapiro, P.E., International Code Consultants representing International Institute of Ammonia Refrigeration

1. Revise as follows:

606.9 Remote controls. Where flammable refrigerants are used and compliance with Section 1106 of the *International Mechanical Code* is required, remote control of the mechanical equipment and appliances located in the machinery room as required by Sections 606.9.1 and 606.9.2 shall be provided at an approved location immediately outside the machinery room and adjacent to its principal entrance.

606.9.1 Refrigeration system emergency shutoff. A clearly identified switch of the break-glass type or with an approved tamper resistant cover shall provide off-only control of refrigerant compressors, refrigerant pumps, and normally closed, automatic refrigerant valves located in the machinery room. Additionally, this equipment shall be automatically shut off whenever the refrigerant vapor concentration in the machinery room exceeds the vapor detector's upper detection limit or 25 percent of the LEL, whichever is lower.

~~**Exception:** In machinery rooms where only nonflammable refrigerants are used, only compressors are required to be stopped by vapor detection or the cut-off switch.~~

2. Revise IMC as follows:

[F] 1106.5 Remote controls. Remote control of the mechanical equipment and appliances located in the machinery room shall comply with Sections 1106.5.1 and 1106.5.2 ~~be provided as required by Section 606.9 of the *International Fire Code*~~.

[F] 1106.5.1 Refrigeration system emergency shutoff. A clearly identified switch of the break-glass type or with an approved tamper resistant cover shall provide off-only control of refrigerant compressors, refrigerant pumps, and normally closed, automatic refrigerant valves located in the machinery room. Additionally, this equipment shall be automatically shut off whenever the refrigerant vapor concentration in the machinery room exceeds the vapor detector's upper detection limit or 25 percent of the LEL, whichever is lower.

~~**Exception:** In machinery rooms where only nonflammable refrigerants are used, only compressors are required to be stopped by vapor detection or the cut-off switch.~~

Reason: The recommended revisions eliminate a conflict among the IMC, the IFC and ASHRAE 15, which is the nationally recognized standard governing refrigeration safety. The problem originates with IMC 1106.5. The exception to IMC 1106.5.1 affects nonflammable refrigerants, but because nonflammable refrigerants are excluded from Section 1106.5 as a whole [IMC Section 1106.1 states that 1106 only applies when triggered by IMC 1104.2, and the last sentence of 1104.2 only triggers 1106 when dealing with flammable refrigerants (classified as A2, A3, B2 and B3)], the exception is meaningless.

The IMC's current structure of applying Section 1106 and the remote shutoff control requirements only to flammable refrigerants is consistent with ASHRAE 15, Section 8.12. On the other hand, IFC 606.9 misses this limitation, but compensates by providing the exception to 606.9.1, which partially exempts nonflammable refrigerants. The most effective fix to all of this is to maintain the current correlation between the IMC and ASHRAE 15 and to modify the IFC to agree by placing the flammability constraint in 606.9 rather than in an exception.

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

Analysis: In order to maintain proper correlation of the IFC and IMC on the same subject, the changes made to IFC 606.9.1 by code change F52-06/07 should also have been applied to IMC [F] 1106.5.1 in the 2009 edition, however they were not. The ICC Code Correlation Committee (CCC), at its August 6, 2009 meeting, approved the needed revision to IMC Section [F] 1106.5.1 to read as IFC 606.9.1 in the 2012 edition. The text of Section [F] 1106.5.1, as approved by the CCC, not the current text of the 2009 IMC, is shown in Item 2 of this proposal for clarity.

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

ICCFILENAME: SHAPIRO-F3-606.9

F40–09/10
607.4

Proponent: Richard P. Rogozinski, New York State Office of Fire Prevention and Control

Revise as follows:

607.4 Elevator keys. Keys for the elevator car doors and firefighter service keys shall be kept in an approved location for immediate use by the fire department. Existing firefighter service elevator key switches shall be operable by a standard key as defined in section 2.27.8 of ASME A17.1-2007.

Reason: To reduce time spent by emergency response personnel looking for the right key to operate an elevator.

Example: At the Governor Nelson A Rockefeller Empire State Plaza in Albany, NY, there were no less than 4 fire service keys to operate the elevators on fire service in this large office complex before one key was chosen to operate all cars regardless of the elevator company.

2.27.8 Switch Keys:

The key switches required by 2.27.2 through 2.27.5 for all elevators in a building shall be operable by the same key. The keys shall be Group 3 Security (Group 3 covers access or operation of equipment by firefighters and emergency personnel). There shall be a key for each switch provided.

These keys shall be kept on the premises in a location readily accessible to firefighters and emergency personnel, but not where they are available to the public. This key shall be of a tubular, 7 pin, style 137 construction and shall have a bitting code of 6143521. The key shall be coded "FEO-K1." The possession of the "FEO-K1" key shall be limited to elevator personnel, emergency personnel, and elevator equipment manufacturers.

Where provided, a lock box, including its lock and other components, shall conform to the requirements of UL 1037.

Cost Impact: The code change proposal will have a cost to retro-fit the key switches.

Analysis: Similar requirements are proposed in code change proposal F20-09/10.

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

ICCFILENAME: ROGOZINSKI-F1-607.3.DOC

F41–09/10
608.5.2

Proponent: Stephen McCluer, APC by Schneider Electric, representing IEEE Stationary Battery Committee

Revise as follows:

608.5.2 Recombinant battery neutralization. For VRLA or other types of ~~sealed~~ batteries with immobilized electrolyte, the method and material shall be capable of neutralizing a spill of 3.0 percent of the capacity of the largest cell or block in the room to a pH between 5.0 and 9.0.

Exception: Lithium-ion and lithium metal polymer batteries shall not require neutralization.

Reason: In Section 608.5.2, delete the reference to "sealed" batteries. This term is widely misused to include valve-regulated cells which, by definition, cannot be totally sealed for escape of gas because they have a pressure relief valve, although they *are* sealed to prevent the escape of electrolyte.

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

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

ICCFILENAME: MCCLUER-F1-608.5.1

F42–09/10
608.6.1

Proponent: Stephen McCluer /APC by Schneider Electric /representing IEEE Stationary Battery Committee

Revise as follows:

608.6.1 Room ventilation. Ventilation shall be provided in accordance with the *International Mechanical Code* and the following:

1. For flooded lead-acid, flooded Ni-Cad and VRLA batteries, the ventilation system shall be designed to limit the maximum concentration of hydrogen to 1.0 percent of the total volume of the room; or
2. Continuous ventilation shall be provided at a rate of not less than 1 cubic foot per minute per square foot (1 ft_3/min/ft_2) [0.0051 m_3/s × m_2] of floor area of the room.

   Exception: Lithium-Ion and Lithium Metal Polymer batteries shall not require additional ventilation beyond what would normally be required for human occupancy of the space per the *International Mechanical Code*.

Reason: The implication of the existing text is that Li-Ion and LMP batteries do not require any ventilation. This is not correct. LI-Ion and LMP batteries do require some ventilation, but they do not require additional ventilation beyond what is required by the IMC per 608.6.1.

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

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

ICCFILENAME: MCCLUER-F5- 608.6.1.DOC

F43–09/10
608.6.1, 608.6.2; IMC [F] 502.4, [F] 502.5, [F] 502.5.2

Proponent: Jonathan C. Siu, City of Seattle, WA, Seattle Department of Planning & Development

1. Revise the IFC as follows:

608.6.1 Room ventilation. Ventilation shall be provided in accordance with the *International Mechanical Code* and the following:

1. For flooded lead-acid, flooded Ni-Cad and VRLA batteries, the ventilation system shall be designed to limit the maximum concentration of hydrogen to 1.0 percent of the total volume of the room; and ~~or~~
2. Continuous ventilation shall be provided at a rate of not less than 1 cubic foot per minute per square foot (1 ft3/min/ft2) [0.0051 m3/s × m2] of floor area of the room.

   Exception: Lithium-ion and lithium metal polymer batteries shall not require ventilation.

608.6.2 Cabinet ventilation. When VRLA batteries are installed inside a cabinet, the cabinet shall be *approved* for use in occupied spaces and shall be mechanically or naturally vented ~~by one of~~ in accordance with the following ~~methods~~:

1. The cabinet ventilation shall limit the maximum concentration of hydrogen to 1 percent of the total volume of the cabinet during the worst-case event of simultaneous “boost” charging of all the batteries in the cabinet; and ~~or~~
2. When calculations are not available to substantiate the ventilation rate, continuous ventilation shall be provided at a rate of not less than 1 cubic foot per minute per square foot [1 ft3/min/ft2 or 0.0051 m3/(s _m2)] of floor area covered by the cabinet. The room in which the cabinet is installed shall also be ventilated as required in Section 608.6.1.

2. Revise the IMC as follows:

[F] 502.4 Stationary storage battery systems. Stationary storage battery systems, as regulated by Section 608 of the *International Fire Code*, shall be provided with ventilation in accordance with this chapter and Sections 502.4.1 and ~~or~~ 502.4.2.

Exception: Lithium-ion batteries shall not require ventilation.

[F] 502.5 Valve-regulated lead-acid batteries in cabinets. Valve-regulated lead-acid (VRLA) batteries installed in cabinets, as regulated by Section 608.6.2 of the *International Fire Code*, shall be provided with ventilation in accordance with Sections 502.5.1 and ~~or~~ 502.5.2.

[F] 502.5.2 Ventilation rate in cabinets. Continuous cabinet ventilation shall be provided at a rate of not less than 1 cubic foot per minute per square foot (cfm/ft2) [0.00508 m3/(s ● m2)] of the floor area covered by the cabinet. The room in which the cabinet is installed shall also be ventilated as required by Sections 502.4.1 and ~~or~~ 502.4.2.

Reason: Where lead-acid batteries are stored within an enclosed space, production of hydrogen is a concern. In order to maintain the hydrogen level below the lower flammable limit (LFL), the ventilation system shall be designed such that the concentration of hydrogen is limited by Section 608.6.1(1) and 608.6.2(1) (IMC Section 502.4.1) and a minimum continuous ventilation rate is provided in accordance with Sections 608.6.1(2) and 608.6.2(2) (IMC Section 502.4.2). This proposal modifies the code language so that the criteria of both sections are to be met, rather than that of one or the other.

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

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

ICCFILENAME: SIU-F3-608.6.1-608.6.2

F44–09/10
610 (New); 601.1

Proponent: Bob Eugene/Underwriters Laboratories Inc/Underwriters Laboratories Inc

1. Add new section as follows:

SECTION 610
COMMERCIAL KITCHEN COOKING OIL
STORAGE TANK SYSTEMS

610.1 General. Storage of cooking oil (grease) in commercial cooking operations shall comply with Chapter 34. Systems used to store cooking oils in larger than 60 gallon (227 L) aboveground tanks shall also comply with Sections 610.2 through 610.5. For purposes of this section, cooking oil shall be classified as a Class IIIB liquid unless otherwise determined by testing.

610.2 Storage tanks. Cooking oil storage tanks shall be listed in accordance with UL 142 or UL 80, and shall be installed in accordance with Section 3404 and the tank manufacturer's instructions.

610.3 System components. Cooking oil storage system components, including but not limited to piping, connections, fittings, valves, tubing, and other related components used for the transfer of cooking oil from the cooking appliance to the storage tank, and from the storage tank to the discharge point, shall be installed in accordance with Section 3403.6.

610.4 Tank venting. Normal and emergency venting for cooking oil storage tanks shall terminate outside the building as specified in Sections 3404.2.7.3 and 3404.2.7.4.

610.5 Electrical equipment. Electrical equipment used for the operation and heating of the cooking grease storage system shall be listed and comply with NFPA 70.

2. Revise as follows:

601.1 Scope. The provisions of this chapter shall apply to the installation, operation and maintenance of fuel-fired appliances and heating systems, emergency and standby power systems, electrical systems and equipment, mechanical refrigeration systems, elevator recall, stationary storage battery systems and commercial kitchen ~~hoods~~ equipment.

3. Add new referenced standards to Chapter 47 as follows:

UL

80-07	Standard for Steel Tanks for Oil-Burner Fuels and Other Combustible Liquids
142-06	Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids

Reason: There is a large market for collecting and recycling used cooking oil (grease) from commercial cooking operations. This is sometimes done using a system designed to store the used cooking oil on-site in an aboveground tank. These systems typically include features to assist in pumping the grease from the cooking appliance to the storage tank, and to pump the grease from the storage tank to a recovery truck. Some systems include heating elements that assist in keeping the grease in a form that is easily pumped to the truck.

This arrangement could create a problem if the system is not properly designed and installed. Without these new requirements, many installations of this product may not be installed with the safety features needed to protect employees and the public.

Last cycle a similar proposal was disapproved because, among other reasons, it would have required tank venting requirements to be applied to 55 gallon drums and smaller containers of used cooking oil. In this proposal, section 610.2 to 610.5 requirements only kick in for tanks larger than 60 gallons, which is consistent with the container size limitations specified in 3404.3.

This proposal accomplishes the following:

~~1.~~1. Clarifies that the storage of cooking oils (commonly Class IIIB combustible liquids) in any containers shall comply with Chapter 34 requirements.

~~2.~~2. Establishes requirements for cooking oil storage tank systems, including those that heat the stored liquid.

~~3.~~3. Revises the scope of 601.1 to cover these systems.

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

Analysis: A review of the standard proposed for inclusion in the code, UL 142-06, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009. UL 80 is currently referenced in the IRC.

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

ICCFILENAME: EUGENE-F2-610 sub only

F45–09/10
610 (New), 601.1

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

1. Add new text as follows:

SECTION 610
EMERGENCY SHOWER AND EYE WASH STATION

610.1 Emergency shower and eye wash station required. In areas of Group I-2 and Ambulatory Health Care Facilities where chemicals are used that could necessitate the immediate flushing with water after an exposure, an emergency shower and eye wash station shall be installed and maintained in accordance with Section 411 of the *International Plumbing Code*.

2. Revise as follows:

601.1 Scope. The provisions of this chapter shall apply to the installation, operation and maintenance of fuel-fired appliances and heating systems, emergency and standby power systems, electrical systems and equipment, mechanical refrigeration systems, elevator recall, stationary storage battery systems, ~~and~~ commercial kitchen hoods, and emergency shower and eye wash stations.

Reason: This proposal will require the installation of an emergency shower and eye wash in Group I-2 occupancies and Ambulatory Surgical Centers. The eye wash and shower will be required in areas of the facility where hazardous chemicals are being used. IPC Section 411 currently has design criteria and requirements for emergency shower and eye wash stations when they are installed.

This equipment will allow for immediate treatment of chemical burns and exposures which will increase the safety of employees and occupants.

Currently, many health care facilities are constructed under the IBC and IFC. The owner can receive a Certificate of Occupancy for the new facility and then apply for approval and licensing through Federal Centers for Medicare and Medicaid Services (CMS). This requirement is in the Federal CMS regulations and must be complied with before any license is approved. By including this provision in the International Codes, the emergency shower and eye wash will be provided during construction and design under the I-Codes and eliminate frustration, delay and additional expense when the owner applies for licensing through Federal CMS. This proposal will correlate the IBC and IFC with Federal CMS Regulations for these facilities.

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

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

ICCFILENAME: LARIVIERE-F7-610 NEW.DOC

F46–09/10
703.2

Proponent: John Woestman, The Kellen Company, representing the Door Safety Council (DSC)

Revise as follows:

703.2 Opening protectives. Opening protectives shall be maintained in an operative condition in accordance with NFPA 80. Where required by the fire code official, the application of field applied labels associated with the maintenance of opening protectives shall follow the requirements of the *approved* third-party certification organization accredited for *listing* the opening protective. Fire doors and *smoke barrier* doors shall not be blocked or obstructed or otherwise made inoperable. Fusible links shall be replaced promptly whenever fused or damaged. Fire door assemblies shall not be modified.

Reason: This code proposal addresses the very real issue of maintaining labeled opening protectives by requiring field applied labels to follow the requirements of the third-party certification organization which is accredited for listing the specific opening protective. Ongoing maintenance is now an IFC requirement, and this code change provides an enforceable method of allowing maintenance of labeled protectives.

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

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

ICCFILENAME: WOESTMAN-F3-1030.2-2.DOC

F47–09/10
Table 803.3

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

Revise table as follows:

TABLE 803.3
INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY[k]

	Sprinklered[l]			Nonsprinklered		
Group	Exit enclosures and exit passageways[a,b]	Corridors	Rooms and enclosed spaces[c]	Exit enclosures and exit passageways[a,b]	Corridors	Rooms and enclosed spaces[c]
B, E, M, R-1, ~~R-4~~	B	C	C	A	B	C
R-4	B	C	C	A	B	B

(Portions of table and footnotes not shown remain unchanged)

Reason: Table 803.3 in the IFC governs wall and ceiling finish in existing buildings. Table 803.3 in the IBC governs wall and ceiling finish for new buildings.

Code change F116 07-08 amended IBC Table 803.3 to require interior finishes in new Group R-4 buildings to have a minimum of Class B flame-spread rating for wall coverings in "rooms and enclosed spaces".

Code Change F116 07-08 created an inconsistency between the 2009 IBC and 2009 IFC. The requirements for R-4 nonsprinklered buildings are no longer consistent in the IFC and the IBC. The IBC will require a Class B flame-spread rating, but then once the building is built and occupied, the IFC reduces the flame-spread rating to Class C for maintenance requirements of the same building and also for any new wall coverings installed after the Certificate of Occupancy is obtained.

This proposal will correlate the maintenance requirements in the IFC with the construction requirements in the IBC. The flame spread rating for interior finish in Group R-4 will be required to be Class B, the same as is required in the IBC. With this proposed change, the IFC will require that the flame-spread rating be maintained to the same level of the original required flame-spread rating.

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

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

ICCFILENAME: LARIVIERE-F30-TABLE 803.3.DOC

F48–09/10
803.5.1

Proponent: Marcelo M. Hirschler, GBH International, representing American Fire Safety Council

Revise as follows:

803.5.1 Textile wall or ceiling coverings. Textile wall or ceiling coverings shall comply with one of the following:

1. The wall or ceiling covering shall have a class A flame spread index in accordance with ASTM E 84 or UL 723 and be protected by automatic sprinklers installed in accordance with Section 903.3.1.1 or 903.3.1.2,
2. The wall covering shall meet the criteria of Sections 803.5.1.1 or 803.5.1.2 when tested in the manner intended for use in accordance with NFPA 265 using the product mounting system, including adhesive, of actual use, or
3. The wall or ceiling covering shall meet the criteria of Sections 803.1.2.1 when tested in accordance with NFPA 286 using the product mounting system, including adhesive, of actual use.

Reason: The text of Section 803.5 does not make it clear that textile ceiling coverings, just like textile wall coverings, are only permitted to be installed when tested in accordance with ASTM E 84 if the compartment is fully protected by sprinklers. The reason for this is the same reason that the requirement exists for textile wall coverings: it has long been known that the ASTM E 84 (Steiner tunnel) test can produce misleading results when applied to thin materials such as textile wall coverings. The new text also needs to make it clear that NFPA 265 is inappropriate for testing ceiling coverings since the burner flame does not reach the ceiling. This proposal is simple clarification.

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

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

ICCFILENAME: HIRSCHLER-F4-803.5.1.DOC

F49–09/10
803.5.2 (New)

Proponent: Marcelo M. Hirschler, GBH International, representing American Fire Safety Council

Add new text as follows:

803.5.2 Newly introduced textile wall and ceiling coverings. Newly introduced textile wall and ceiling coverings shall comply with one of the following:

1. The wall or ceiling covering shall have a class A flame spread index in accordance with ASTM E 84 or UL 723 and be protected by automatic sprinklers installed in accordance with Section 903.3.1.1 or 903.3.1.2. Test specimen preparation and mounting shall be in accordance with ASTM E 2404.
2. The wall covering shall meet the criteria of Section 803.5.1.2 when tested in the manner intended for use in accordance with NFPA 265 using the product mounting system (including adhesive) of actual use, or
3. The wall or ceiling covering shall meet the criteria of Sections 803.1.2.1 when tested in accordance with NFPA 286 using the product mounting system (including adhesive) of actual use.

Reason: The correct specimen preparation and mounting method for textile, paper and vinyl wall and ceiling coverings tested in accordance with ASTM E 84 (Steiner tunnel) test is ASTM E 2404. At the last cycle there was concern about the application of this requirement retroactively to existing textile wall and ceiling coverings, potentially tested before the development of ASTM E 2404. Therefore, this new text clarifies that the change applies only to newly introduced textile wall and ceiling coverings.
The new subsections address the requirements for wall and ceiling coverings, as appropriate:

1. They point out again that textile ceiling coverings, just like textile wall coverings, are only permitted to be installed when tested in accordance with ASTM E 84 if the compartment is fully protected by sprinklers. The reason for this is the same reason that the requirement exists for textile wall coverings. The reason is that it has long been known that the ASTM E 84 (Steiner tunnel) test can produce misleading results when applied to thin materials such as wall coverings.
2. The new text also makes it clear that NFPA 265 is inappropriate for testing ceiling coverings since the burner flame does not reach the ceiling.
3. The new text eliminates reference to Method A of NFPA 265 for newly introduced textile wall coverings, since this method has been eliminated from the body of the standard. Method A applies only to materials tested in the past (i.e. existing materials).

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

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

ICCFILENAME: HIRSCHLER-F14-803.5.2.DOC

F50–09/10
803.6.1, 803.6.2

Proponent: Marcelo M. Hirschler, GBH International, representing American Fire Safety Council

Revise as follows:

803.6.1 General. Expanded vinyl wall or ceiling coverings shall comply with the requirements of Section 803.1.2 using the product mounting system (including adhesive) of actual use. Expanded vinyl wall or ceiling coverings complying with Section 803.1.2 shall not be required to comply with Section 803.1.1.

803.6.2 Compliance alternative. Expanded vinyl wall or ceiling coverings shall be allowed to comply with ~~the requirements for textile wall or ceiling coverings in Section 803.5. When tested in accordance with ASTM E 84 or UL 723, test specimen preparation shall be in accordance with ASTM E 2404~~ one of the following:

1. The wall or ceiling covering shall have a class A flame spread index in accordance with ASTM E 84 or UL 723 and be protected by automatic sprinklers installed in accordance with Section 903.3.1.1 or 903.3.1.2. Test specimen preparation and mounting shall be in accordance with ASTM E 2404.
2. The wall covering shall meet the criteria of Section 803.5.1.2 when tested in the manner intended for use in accordance with NFPA 265 using the product mounting system (including adhesive) of actual use.
3. The wall or ceiling covering shall meet the criteria of Sections 803.1.2.1 when tested in accordance with NFPA 286 using the product mounting system (including adhesive) of actual use.

Reason: Instead of sending code users to another section, it is best simply to state the requirements for expanded vinyl wall or ceiling covering materials directly. The correct specimen preparation and mounting method for textile, paper and vinyl wall and ceiling coverings tested in accordance with ASTM E 84 (Steiner tunnel) test is ASTM E 2404. The revised text addresses the requirements for wall and ceiling coverings, as appropriate:

1. They point out again that expanded vinyl wall and ceiling coverings are only permitted to be installed when tested in accordance with ASTM E 84 if the compartment is fully protected by sprinklers.
2. The new text also makes it clear that NFPA 265 is inappropriate for testing ceiling coverings since the burner flame does not reach the ceiling.
3. The new text eliminates reference to Method A of NFPA 265, which has been eliminated from the body of the standard. Method A applies only to materials tested in the past.
4. The text also clarifies that testing to NFPA 286 needs to use the correct product mounting system, including adhesive.

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

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

ICCFILENAME: HIRSCHLER-F1-803.6.1.DOC

F51–09/10
804.3 (New), Chapter 47

Proponent: Marcelo M. Hirschler, GBH International, representing American Fire Safety Council

1. Add new text as follows:

804.3 Interior floor finish Newly introduced interior floor finish and floor covering materials shall comply with Sections 804.3.1 through 804.3.3.

Exception: Floor finishes and coverings of a traditional type, such as wood, vinyl, linoleum or terrazzo, and resilient floor covering materials that are not comprised of fibers.

804.3.1 Classification. Interior floor finish and floor covering materials required by Section 804.3.3 to be of Class I or II materials shall be classified in accordance with NFPA 253. The classification referred to herein corresponds to the classifications determined by NFPA 253 as follows: Class I, 0.45 watts/cm^2 or greater; Class II, 0.22 watts/cm^2 or greater.

804.3.2 Testing and identification. Interior floor finish and floor covering materials shall be tested by an approved agency in accordance with NFPA 253 and identified by a hang tag or other suitable method so as to identify the manufacturer or supplier and style, and shall indicate the interior floor finish or floor covering classification according to Section 804.3.1. Carpet-type floor coverings shall be tested as proposed for use, including underlayment. Test reports confirming the information provided in the manufacturer's product identification shall be furnished to the building official upon request.

804.3.3 Interior floor finish requirements. Interior floor covering materials shall comply with Sections 804.3.3.1 and 804.3.3.2 and interior floor finish materials shall comply with Section 804.3.4.2.

804.3.3.1 Pill test. In all occupancies, interior floor covering materials shall comply with the requirements of the DOC FF-1 Apill test@ (CPSC 16 CFR, Part 1630) or of ASTM D 2859.

804.3.3.2 Minimum critical radiant flux. In all occupancies, interior floor finish and floor covering materials in exit enclosures, exit passageways, corridors and rooms or spaces not separated from corridors by full-height partitions extending from the floor to the underside of the ceiling shall withstand a minimum critical radiant flux. The minimum critical radiant flux shall not be less than Class I in Groups I-1, I-2 and I-3 and not less than Class II in Groups A, B, E, H, I- 4, M, R-1, R-2 and S.

> **Exception:** Where a building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2, Class II materials are permitted in any area where Class I materials are required and materials complying with DOC FF-1 A pill test@ (CPSC 16 CFR, Part 1630) or with ASTM D 2859 are permitted in any area where Class II materials are required.

(Renumber subsequent section)

2. Add new standard to Chapter 47 as follows:

ASTM D 2859 (2006) Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials

Reason: Somehow, requirements for interior floor finish are missing in the IFC, while such requirements exist in the IBC as well as in the Life Safety Code and the Uniform Fire Code. In this proposal the wording has been taken from the IBC, with four changes. The key change is that this section applies only to "newly introduced" interior floor finish materials, in view of the fact that the IFC is for existing buildings. The other changes are as shown below:

1. The "pill test" is applied to all newly introduced carpets and carpet-like floor finish materials, in view of the fact that the federal government, through CPSC, regulates all carpets and rugs based on 16 CFR 1630 since the 1970s.
2. In the IBC there is confusion because section 804.4 states that "interior floor finish and floor covering materials in exit enclosures, exit passageways, corridors and rooms or spaces not separated from corridors by full-height partitions extending from the floor to the underside of the ceiling shall withstand a minimum critical radiant flux" and then section 804.4.1 states that "interior floor finish and floor covering materials in exit enclosures, exit passageways and corridors shall not be ...". This leaves undefined what minimum critical radiant flux is required for "interior floor finish and floor covering materials in rooms or spaces not separated from corridors by full-height partitions extending from the floor to the underside of the ceiling". Since section 804.2 only distinguishes two classes for NFPA 253, the logical conclusion is that the words are missing and that these rooms or spaces have to meet the same requirements as the corridors from which they are not separated. A proposal has been submitted to the IBC to make this correction.
3. ASTM D 2859, which is equivalent to 16 CFR 1630 and is used extensively outside of the US, while 16 CFR 1630 is only a federal mandate, is added as an alternate. In fact, ASTM D 2859 is the standard that complies with the ICC policy on referenced standards. A proposal has been submitted to the IBC to allow ASTM D 2859 as an alternate test method to 16 CFR 1630.

The fire hazard of newly introduced floor coverings (which basically means carpets only) is the same in new buildings and in existing buildings. Therefore the IFC should be consistent with the IBC.

An alternate approach: If the addition of ASTM D 2859 is not desired by the committee, please use the following text:

804.3 Interior floor finish.

804.3.1 General. Newly introduced interior floor finish and floor covering materials shall comply with Sections 804.3.2 through 804.3.4.

> **Exception:** Floor finishes and coverings of a traditional type, such as wood, vinyl, linoleum or terrazzo, and resilient floor covering materials that are not comprised of fibers.

804.3.2 Classification. Interior floor finish and floor covering materials required by Section 804.3.4 to be of Class I or II materials shall be classified in accordance with NFPA 253. The classification referred to herein corresponds to the classifications determined by NFPA 253 as follows: Class I, 0.45 watts/cm^2 or greater; Class II, 0.22 watts/cm^2 or greater.

804.3.3 Testing and identification. Interior floor finish and floor covering materials shall be tested by an approved agency in accordance with NFPA 253 and identified by a hang tag or other suitable method so as to identify the manufacturer or supplier and style, and shall indicate the interior floor finish or floor covering classification according to Section 804.3.2. Carpet-type floor coverings shall be tested as proposed for use, including underlayment. Test reports confirming the information provided in the manufacturer=s product identification shall be furnished to the building official upon request.

804.3.4 Interior Floor Finish Requirements.

804.3.4.1 Pill test. In all occupancies, newly introduced floor covering materials shall comply with the requirements of the DOC FF-1 Apill test@ (CPSC 16 CFR, Part 1630).

804.3.4.2 Minimum critical radiant flux. In all occupancies, newly introduced interior floor finish and floor covering materials in exit enclosures, exit passageways, corridors and rooms or spaces not separated from corridors by full-height partitions extending from the floor to the underside of the ceiling shall withstand a minimum critical radiant flux. The minimum critical radiant flux shall not be less than Class I in Groups I-1, I-2 and I-3 and not less than Class II in Groups A, B, E, H, I- 4, M, R-1, R-2 and S.

Exception: Where a building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2, Class II materials are permitted in any area where Class I materials are required and materials complying with DOC FF-1 "pill test" (CPSC 16 CFR, Part 1630) are permitted in any area where Class II materials are required.

(Renumber subsequent section)

Cost Impact: The cost of carpets that meet Class I or Class II in accordance with NFPA 253 is higher than the cost of carpets that are not classified.

Analysis: A review of the standard(s) proposed for inclusion in the code, ASTM D 2859-2006, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009.

CPSC 16 CFR, Part 1630 is already referenced in the IBC and NFPA 253 is already referenced in the IFC.

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

ICCFILENAME: HIRSCHLER-F10-804.3.DOC

F52–09/10
805.1 (New)

Proponent: Marcelo M. Hirschler, GBH International

Add new text as follows:

805.1 Ignition by cigarettes. Upholstered furniture newly introduced into occupancies regulated by this code shall comply with 805.1.1. Mattresses newly introduced into occupancies regulated by this code shall comply with 805.1.2.

805.1.1 Upholstered furniture. Newly introduced upholstered furniture shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with one of the following:

1. Mocked-up composites of the upholstered furniture shall have a char length not exceeding 1.5 inches (38 mm) when tested in accordance with NFPA 261.
2. The components of the upholstered furniture shall meet the requirements for Class I when tested in accordance with NFPA 260.

805.1.2 Mattresses. Newly introduced mattresses shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with DOC 16 CFR Part 1632 and shall have a char length not exceeding 2 inches (51 mm).

(Renumber subsequent sections)

Reason: Mattresses in the United States have been required to meet 16 CFR 1632 by the Consumer Product Safety Commission since the 1970s. There are no new mattresses sold legally in the US that are not compliant with 16 CFR 1632. As an example, the web site by ISPA (International Sleep Products Association)

(http://www.sleepproducts.org/Content/NavigationMenu/Advocacy_Issues/ISPA_Position_Papers/Flammability_Position_Paper.htm) states as follows: "ISPA Position: ISPA supports the national flammability standards for mattresses codified at 16 C.F.R. Parts 1632 and 1633 promulgated by the U.S. Consumer Product Safety Commission (CPSC) [linked text]. Part 1632 requires that mattresses resist a smoldering cigarette ignition, which has been in place since the mid-1970s. Part 1633, which will become effective July 1, 2007, requires that mattresses resist an open-flame ignition. ISPA also seeks a national standard that addresses the flammability of bedclothes (top-of-the-bed products such as pillows, comforters and mattress pads), given that these are usually the first items ignited in a bedroom fire. Background: The mattress industry takes its product stewardship responsibilities seriously. For over 30 years, the mattress industry has actively supported regulatory efforts to develop flammability standards, public education initiatives and basic scientific research targeted at reducing residential fire casualties and property loss. In the early 1970s, we participated in the development of 16 C.F.R. Part 1632."

There is no mandatory federal flammability regulation for upholstered furniture in the US. However basically, manufacturers of both residential and contract upholstered furniture support the need for their products to meet cigarette ignition resistance requirements.

Residential upholstered furniture: the UFAC (Upholstered Furniture Action Council) web site (www.ufac.org) states: "The Upholstered Furniture Action Council was founded in 1978 to make upholstered furniture more resistant to ignition from smoldering cigarettes which are the leading cause of upholstery fires in the home. Household fires from smoldering ignition have been reduced substantially since its inception. According to the latest figures there has been a 79.3% decline in the number of upholstered furniture fires from cigarette ignition." The web site also states: "Background: In 1970, federal government agencies proposed mandatory safety standards to reduce the potential fire hazards posed by the cigarette ignition of mattresses, carpeting and upholstered furniture. Mandatory standards were imposed for mattresses and carpeting. When the Consumer Product Safety Commission, (CPSC) began looking at upholstered furniture, UFAC was formed to allow upholstered furniture manufacturers the opportunity to work with CPSC in a meaningful way to design safety standards which are effective, cost effective and workable from a manufacturing standpoint. The only logical course of action for the furniture industry was to create a voluntary program that would develop a better safety record for the industry, at a lower cost, than the proposed government regulations." UFAC administers the program that is responsible for the golden hangtags that are found on residential upholstered furniture and indicate that the furniture has passed the UFAC test. The UFAC web site lists the manufacturers (http://www.ufac.org/mfglist.htm) and the retailers (http://www.ufac.org/retailerslist.htm) that comply with their test. UFAC represents the major manufacturers of residential upholstered furniture. Their web site indicates that the UFAC test is identical to NFPA 260 (http://www.ufac.org/method11.htm).

Institutional upholstered furniture: The Business & Institutional Home Furnishings Alliance (BIFMA) was the developer of the standard test that became NFPA 261 (originally known as the BIFMA test). Contract or institutional upholstered furniture now meets either NFPA 260 (UFAC test) or NFPA 261 and is resistant to cigarette ignition resistance. BIFMA is listed in the UFAC web site as a UFAC supporting organization.

Therefore, all newly introduced mattresses and upholstered furniture should be required to meet the appropriate smoldering ignition resistance tests.

Cost Impact: The code change proposal will not increase the cost of construction, as this is normal use.

Analysis: Standards NFPA 260 and 261 and DOC 16 CFR Part 1632 are currently referenced in the IFC.

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

ICCFILENAME: HIRSCHLER-F17-805.1.DOC

F53–09/10
805.4

Proponent: William Freer, Fire Protection Specialist, NYS Office of Fire Prevention and Control

Revise as follows:

805.4 Group R-2 college and university dormitories. The requirements of Sections 805.4.1 through 805.4.2.3 shall apply to college and university dormitories classified in Group R-2 including decks, porches and balconies.

Reason: The purpose of this code addition is to clarify that the requirements for upholstered furniture in R-2 college and university also applies to decks, porches and balconies. The current code does not specifically state that the code is applicable to decks, porches and balconies. In March of 2009 the city of Pittsburgh, PA banned couches from porches citing them as a fire hazard. Similar laws and ordinances have been enacted in Lincoln NE, Ames IA, Boulder CO, and East Lansing MI. The Village of Brockport in New York experienced a fire about 10 years ago where a cigarette was dropped on an old sofa that sat on an open wooden porch, and several hours later the whole front of the house was ablaze trapping several persons on the second floor. Since their local law banning couches from porches was instituted in 1999 there have been no such fires in the Village of Brockport. This code change will not be as restrictive as the laws and ordinances that have banned couches from porches but will require the same level of protection as afforded inside the structure.

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

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

ICCFILENAME: FREER-F1-805.4.DOC

F54–09/10
805.5 (New)

Proponent: Carl Ogburn, Chestnut Ridge Foam

Add new text as follows:

805.5 Group A-2 occupancies intended for food or drink consumption. The requirements of Sections 805.5.1 through 805.5.1.3 shall apply to Group A-2 occupancies intended for food or drink consumption.

805.5.1 Upholstered furniture. Newly introduced upholstered furniture shall meet the requirements of Sections 805.5.1.1 through 805.5.1.3

805.5.1.1 Ignition by cigarettes. Newly introduced upholstered furniture shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with one of the following:

1. Mocked-up composites of the upholstered furniture shall have a char length not exceeding $1^1/_2$ inches (38 mm) when tested in accordance with NFPA 261, or
2. The components of the upholstered furniture shall meet the requirements for Class I when tested in accordance with NFPA 260.

805.5.1.2 Heat release rate. Newly introduced upholstered furniture shall have limited rates of heat release when tested in accordance with ASTM E 1537 or California Technical Bulletin 133, as follows:

1. The peak rate of heat release for the single upholstered furniture item shall not exceed 80 kW.

   Exception: Upholstered furniture in rooms or spaces protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.

2. The total energy released by the single upholstered furniture item during the first 10 minutes of the test shall not exceed 25 MJ.

   Exception: Upholstered furniture in rooms or spaces protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.

805.5.1.3 Identification. Upholstered furniture shall bear the label of an approved agency, confirming compliance with the requirements of Sections 805.5.1.1 and 805.5.1.2.

Reason: CA TB 133, which is referenced in the IFC, is a standard issued by the California Bureau of Home Furnishings and Thermal Insulation (CBHF) and is equivalent to ASTM E 1537, with the pass/fail criteria contained in the proposal. This proposal would make the same requirements for bars and night clubs than is now used for some other occupancies, such as Groups I-1, I-2, I-3 and R-2. Experience shows that if a bar or night club is not sprinklered the potential for big fires is large. Approval of this proposal would ensure that furniture is not the cause of a big fire with many fatalities.

Cost Impact: CA TB 133 furniture is more expensive than standard furniture.

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

ICCFILENAME: OGBURN-F2-805.5-2.DOC

F55–09/10
805.5 (New)

Proponent: Carl Ogburn, Chestnut Ridge Foam

Add new text as follows:

805.5 Group E Occupancies other than day care facilities. The requirements of Sections 805.5.1 through 805.5.1.3 shall apply to Group E occupancies other than Group E day care facilities.

805.5.1 Upholstered furniture. Newly introduced upholstered furniture shall meet the requirements of Sections 805.5.1.1 through 805.5.1.3

805.5.1.1 Ignition by cigarettes. Newly introduced upholstered furniture shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with one of the following:

1. Mocked-up composites of the upholstered furniture shall have a char length not exceeding $1^1/_2$ inches (38 mm) when tested in accordance with NFPA 261; or
2. The components of the upholstered furniture shall meet the requirements for Class I when tested in accordance with NFPA 260.

805.5.1.2 Heat release rate. Newly introduced upholstered furniture shall have limited rates of heat release when tested in accordance with ASTM E 1537 or California Technical Bulletin 133, as follows:

1. The peak rate of heat release for the single upholstered furniture item shall not exceed 80 kW.

   Exception: Upholstered furniture in rooms or spaces protected by an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1.

2. The total energy released by the single upholstered furniture item during the first 10 minutes of the test shall not exceed 25 MJ.

   Exception: Upholstered furniture in rooms or spaces protected by an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1.

805.5.1.3 Identification. Upholstered furniture shall bear the label of an *approved* agency, confirming compliance with the requirements of Sections 805.5.1.1 and 805.5.1.2.

Reason: CA TB 133, which is referenced in the IFC, is a standard issued by the California Bureau of Home Furnishings and Thermal Insulation (CBHF) and is equivalent to ASTM E 1537, with the pass/fail criteria contained in the proposal. This proposal would make the same requirements for educational establishments (other than day care occupancies) than is now used for some other occupancies, such as Groups I-1, I-2, I-3 and R-2. Educational facilities are ones where so many young people are potentially exposed and vulnerable. Approval of this proposal would ensure that furniture is not the cause of a big fire with many fatalities.

Cost Impact: CA TB 133 furniture is more expensive than standard furniture.

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

ICCFILENAME: OGBURN-F1-805.5.DOC

F56–09/10
806.2, Chapter 47

Proponent: Marcelo M. Hirschler, GBH International, representing American Fire Safety Council

1. Revise as follows:

806.2 Artificial vegetation. Artificial decorative vegetation shall meet the flame propagation performance criteria of NFPA 701. Meeting the flame propagation performance criteria of NFPA 701 shall be documented and certified by the manufacturer in an approved manner. Alternately, the artificial decorative vegetation item shall be tested in accordance with NFPA 289, using the 20 kW ignition source, and shall have a maximum heat release rate of 100 kW.

2. Add new standard to Chapter 47 as follows:

NFPA

289-2009 Standard Method of Fire Test for Individual Fuel Packages

Reason: The NFPA Technical Committee on Fire Tests recently developed a furniture calorimeter heat release fire test specifically for this type of product. NFPA 289 is a very versatile fire test and uses a propane gas burner as the ignition source. The 20 kW gas burner ignition source in NFPA 289 was specifically designed with the intent of being a substitute for UL 1975 and would be suitable as an ignition source for Christmas trees.
The National Institute of Standards and Technology website has the following statements: The National Fire Protection Association (NFPA) reports that there is an estimated annual average of 210 home structure fires that begin with Christmas trees. Based on data from 2002 through 2005, these fires caused an average of 24 civilian deaths, 27 civilian injuries, and $13.3 million in direct property damage per year. The NFPA analysis also shows that although the number of Christmas tree fires is low, these fires represent a higher level of hazard. On average, 1 of every 9 Christmas tree fires resulted in a fatality compared to an average of one death per 75 non-confined home structure fires overall. Further, 49 % of Christmas tree fires spread beyond the room of origin. The fires that spread beyond the room of origin caused 94 % of the associated fatalities. The percentage of trees involved in structure fires represent an extremely small portion of the total number of natural Christmas trees sold, which is estimated at 30 million trees, in the United States each year. The moisture content of each tree can play a dominant role in determining the fire hazard each tree represents. Properly maintaining a cut Christmas tree is important to retaining a high moisture content in the needles of the tree to limit accidental ignition and prevent rapid flame spread. A tree which has dry needles can readily ignite with a flaming source and generate heat release rates that are capable of causing flashover in residential scale rooms. See more information and videos at http://fire.nist.gov/tree_fire.htm .

The above statistics addressed home structure fires and natural Christmas trees, which are required by the IFC to be kept moist and fresh at all times. However, the IFC fire safety requirements for artificial vegetation, including Christmas trees, are based on testing to NFPA 701 only.
At one time UL had developed UL Subject 411, *Outline of Investigation for Artificial Christmas Trees*, now withdrawn, which used 1 lb of shredded newspaper distributed around the Christmas tree, and required the ensuing fire to meet the following three criteria: (1) To have flames that do not extend more than 3 ft (0.9 m) above the tree, (2) To have no significant lateral flame spread away from the area affected by the ignition source and (3) To have no flaming droplets that continue flaming after reaching the floor. UL 411 was withdrawn because no jurisdiction adopted it and no manufacturer was willing to have their product listed to that UL requirement.
When a natural Christmas tree is allowed to dry out it will typically generate more than 1 MW heat release. Similarly, some artificial trees have been shown to reach similar values. The Uniform Fire Code, contains recommendations (in the non mandatory Annex) for this type of fire performance by artificial vegetation and Christmas trees.

This proposal does not recommend the deletion of the use of NFPA 701 but simply offers an alternate option.

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

Analysis: A review of the standard proposed for inclusion in the code, NFPA 289-2009, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP28 will be posted on the ICC website on or before September 24, 2009.

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

ICCFILENAME: HIRSCHLER-F5-806.2.DOC

F57–09/10
807.1 (IBC [F] 806.1)

Proponent: Douglas H. Evans, PE, FSFPE, Clark County, NV, representing the Department of Development Services – Building Division

Revise as follows:

807.1 (IBC [F] 806.1) General requirements. In occupancies in Groups A, E, I and R-1 and dormitories in Group R-2, curtains, draperies, hangings and other decorative materials suspended from walls or ceilings shall meet the flame propagation performance criteria of NFPA 701 in accordance with Section 806.2 or be noncombustible.

Exceptions:

1. Curtains, draperies, hangings and other decorative materials suspended from walls of *sleeping units* and *dwelling units* in dormitories in Group R-2 protected by an *approved automatic sprinkler system* installed in accordance with Section 903.3.1 and such materials are limited to not more than 50 percent of the aggregate area of walls.
2. Decorative materials, including, but not limited to, photographs and paintings in dormitories in Group R-2 where such materials are of limited quantities such that a hazard of fire development or spread is not present.

In Groups I-1 and I-2, combustible decorative materials shall meet the flame propagation criteria of NFPA 701 unless the decorative materials, including, but not limited to, photographs and paintings, are of such limited quantities that a hazard of fire development or spread is not present. In Group I-3, combustible decorative materials are prohibited.

Fixed or movable walls and partitions, paneling, wall pads and crash pads, applied structurally or for decoration, acoustical correction, surface insulation or other purposes, shall be considered interior finish if they cover 10 percent or more of the wall or of the ceiling area, and shall not be considered decorative materials or furnishings.

In Group B and M occupancies, fabric partitions suspended from the ceiling and not supported by the floor shall meet the flame propagation performance criteria in accordance with Section 807.2 and NFPA 701 or shall be noncombustible. <u>In other than Group B and M occupancies, fabric partitions shall be in accordance with the type of construction required for the building.</u>

Reason: The purpose of this revision is to clarify intent. Designers frequently want to use draperies as room dividers. Cp 6 intends room dividers to be considered interior non-bearing partitions. There are also two instances in 806 where fabric partitions are specifically allowed in Group B and M occupancies, which indicate that fabric partitions are not intended for all occupancy uses. As a partition, there is rarely any disagreement on the type of construction required by code. In addition, NFPA 701 uses a Bunsen burner as the ignition source and if a larger ignition source can be expected, the hazard may be far in excess of what Section 807 expects.

Cost Impact: As clarification of intent, this code change proposal will not increase the cost of construction.

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

ICCFILENAME: EVANS-F3-807.1.DOC

F58–09/10
807.4.2.1, 808.2, Chapter 47; IBC 402.11, 402.12.1, 402.16.5, Chapter 35

Proponent: Marcelo M. Hirschler, GBH International

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 – IFC

1. Revise as follows:

807.4.2 Group A. The requirements in Sections 807.4.2.1 through 807.4.2.3 shall apply to occupancies in Group A.

807.4.2.1 Foam plastics. Exposed foam plastic materials and unprotected materials containing foam plastic used for decorative purposes, or stage scenery or exhibit booths shall have a maximum heat release rate of 100kW when tested in accordance with UL 1975, or when tested in accordance with NFPA 289 using the 20 kW ignition source.

Exceptions:

1. Individual foam plastic items or items containing foam plastic where the foam plastic does not exceed 1 pound (0.45 kg) in weight.
2. Cellular or foam plastic shall be allowed for trim in accordance with Section 804.2.

808.2 Signs. Foam plastic signs that are not affixed to interior building surfaces shall have a maximum heat release rate of 150 kW when tested in accordance with UL 1975, or when tested in accordance with NFPA 289 using the 20 kW ignition source.

Exception: Where the aggregate area of foam plastic signs is less than 10 percent of the floor area or wall area of the room or space in which the signs are located, whichever is less, subject to the approval of the fire code official.

2. Add new standard to Chapter 47 as follows:

NFPA

289–2009	Fire Test for Individual Fuel Packages

PART II – IBC GENERAL

1. Revise as follows:

402.11 Kiosks. Kiosks and similar structures (temporary or permanent) shall meet the following requirements:

1. Combustible kiosks or other structures shall not be located within the mall unless constructed of any of the following materials:
   1.1. Fire-retardant-treated wood complying with Section 2303.2.
   1.2. Foam plastics having a maximum heat release rate not greater than 100kW (105 Btu/h) when tested in accordance with the exhibit booth protocol in UL 1975 or when tested in accordance with NFPA 289 using the 20 kW ignition source.
   1.3. Aluminum composite material (ACM) having a flame spread index of not more than 25 and a smoke-developed index of not more than 450 when tested as an assembly in the maximum thickness intended for use in accordance with ASTM E 84 or UL 723.
2. Kiosks or similar structures located within the mall shall be provided with *approved* fire suppression detection devices.
3. The minimum horizontal separation between kiosks or groupings thereof and other structures within the mall shall be 20 feet (6096 mm).
4. Each kiosk or similar structure or groupings thereof shall have a maximum area of 300 square feet (28 m^2).

402.12.1 Materials. Children's playground structures shall be constructed of noncombustible materials or of combustible materials that comply with the following:

1. Fire-retardant-treated wood.
2. Light-transmitting plastics complying with Section 2606.
3. Foam plastics (including the pipe foam used in soft-contained play equipment structures) having a maximum heat-release rate not greater than 100 kW when tested in accordance with UL 1975 or when tested in accordance with NFPA 289 using the 20 kW ignition source.
4. Aluminum composite material (ACM) meeting the requirements of Class A interior finish in accordance with Chapter 8 when tested as an assembly in the maximum thickness intended for use.
5. Textiles and films complying with the flame propagation performance criteria contained in NFPA 701.
6. Plastic materials used to construct rigid components of soft-contained play equipment structures (such as tubes, windows, panels, junction boxes, pipes, slides and decks) exhibiting a peak rate of heat release not exceeding 400 kW/m^2 when tested in accordance with ASTM E 1354 at an incident heat flux of 50 kW/m^2 in the horizontal orientation at a thickness of 6 mm.
7. Ball pool balls, used in soft-contained play equipment structures, having a maximum heat release rate not greater than 100 kW when tested in accordance with UL 1975 or when tested in accordance with NFPA 289 using the 20 kW ignition source. The minimum specimen test size shall be 36 inches by 36 inches (914 mm by 914 mm) by an average of 21 inches (533 mm) deep, and the balls shall be held in a box constructed of galvanized steel poultry netting wire mesh.

8. Foam plastics shall be covered by a fabric, coating or film meeting the flame propagation performance criteria of NFPA 701.
9. The floor covering placed under the children's playground structure shall exhibit a Class I interior floor finish classification, as described in Section 804, when tested in accordance with NFPA 253.

402.16.5 Foam plastics. Foam plastics used in signs shall have flame-retardant characteristics such that the sign has a maximum heat-release rate of 150 kilowatts when tested in accordance with UL 1975 or when tested in accordance with NFPA 289 using the 20 kW ignition source, and the foam plastics shall have the physical characteristics specified in this section. Foam plastics used in signs installed in accordance with Section 402.14 shall not be required to comply with the flame spread and smoke-developed indexes specified in Section 2603.3.

2. Add new standard to Chapter 35 as follows:

NFPA

289 – 2009	Fire Test for Individual Fuel Packages

Reason: UL 1975 was developed in the 1970s and uses a 340 g wood crib as the ignition source. More modern technology, using a propane gas burner, has recently been developed by the NFPA Technical Committee on Fire Tests, specifically for this type of product. NFPA 289 is more versatile than UL 1975 and is also likely to offer lower variability. The 20 kW gas burner ignition source in NFPA 289 was specifically designed with the intent of being a substitute for UL 1975. This proposal does not recommend the deletion of the use of UL 1975 but simply offers a more modern alternate option.

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

Analysis: A review of the standard(s) proposed for inclusion in the code, NFPA 289-2009, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009.

PART I – IFC

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: HIRSCHLER-F15-807.4.2.1-COMBINED WITH F6.DOC

F59–09/10
808.1

Proponent: Marcelo M. Hirschler, GBH International, representing American Fire Safety Council

Revise as follows:

808.1 Wastebaskets and linen containers in Group I-1, I-2 and I-3 occupancies. Wastebaskets, linen containers and other waste containers, including their lids, located in Group I-1, I-2 and I-3 occupancies shall be constructed of noncombustible materials or of materials that meet a peak rate of heat release not exceeding 300 kW/m^2 when tested in accordance with ASTM E 1354 at an incident heat flux of 50 kW/m^2 in the horizontal orientation. Metal wastebaskets and other metal waste containers with a capacity of 20 gallons (75.7 L) or more shall be *listed* in accordance with UL 1315 and shall be provided with a noncombustible lid. Portable containers exceeding 32 gallons (121 L) shall be stored in an area classified as a waste and linen collection room and constructed in accordance with Table 508.2 of the *International Building Code*.

Reason: The wastebaskets and linen containers in I-1 occupancies should meet the same requirements as those for I-2 and I-3. Most residents in these facilities have little mobility or capability of escaping a large fire. As explained in earlier cycles, most nonmetallic waste containers are manufactured from polyethylene which has a fuel value over double that of newsprint and a very high heat release in a fire. These wastebaskets and linen containers hold combustible waste (much of which is paper) and linen while having very combustible walls. This change will extend the use of more fire safe material to the I-1 occupancies. Most manufacturers of such containers can use alternate materials.

Cost Impact: The code change proposal will increase the cost of the wastebaskets and linen containers used in I-1 occupancies.

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

ICCFILENAME: HIRSCHLER-F12-808.1.DOC

F60–09/10
808.2 (New)

Proponent: Marcelo M. Hirschler, GBH International, representing American Fire Safety Council

Add new text as follows:

808.2 Waste containers with a capacity of 20 gallons or more in Group R-2 college and university dormitories. Waste containers, including their lids, located in Group R-2 college and university dormitories and with a capacity of 20 gallons (75.7 L) or more shall be constructed of noncombustible materials or of materials that meet a peak rate of heat release not exceeding 300 kW/m^2 when tested in accordance with ASTM E 1354 at an incident heat flux of 50 kW/m^2 in the horizontal orientation. Metal wastebaskets and other metal waste containers with a capacity of 20 gallons (75.7 L) or more shall be *listed* in accordance with UL 1315 and shall be provided with a noncombustible lid. Portable containers exceeding 32 gallons (121 L) shall be stored in an area classified as a waste and linen collection room and constructed in accordance with Table 508.2 of the *International Building Code*.

(Renumber subsequent sections)

Reason: The large waste containers in college and university dormitories should comply with the same requirements as any waste container in Group I-2 and I-3 occupancies. As explained in earlier cycles, most nonmetallic waste containers are manufactured from polyethylene which has a fuel value over double that of newsprint and a very high heat release in a fire. These waste containers hold combustible waste (much of which is paper) while having very combustible walls. This change will extend the use of more fire safe material to the larger waste containers in dormitories. Most manufacturers of such containers can use alternate materials.

Cost Impact: The code change proposal will increase the cost of the waste containers used in dormitories.

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

ICCFILENAME: HIRSCHLER-F13-808.2.DOC

F61–09/10
808.3 (New)

Proponent: Marcelo M. Hirschler, GBH International, representing American Fire Safety Council

Add new text as follows:

808.3 Combustible lockers. Where lockers constructed of combustible materials are used, the lockers shall be considered interior finish and shall comply with Section 803.

> **Exception:** Lockers constructed entirely of wood and noncombustible materials shall be permitted to be used wherever interior finish materials are required to meet a Class C classification in accordance with 803.1.1.

Reason: Traditionally lockers, in schools (high schools, middle schools, universities), clubs, swimming pools and gymnasiums, were constructed of steel. In recent years, the use of lockers constructed of combustible materials has become prevalent. These lockers typically line an entire wall (for example a corridor in a school) and are not regulated by the fire code. Lockers are not usually considered interior finish. The only other materials regulated by the IFC at present are: interior trim, upholstered furniture, decorations, decorative vegetation, wastebaskets, linen containers and signs. Lockers do not fall into any of those categories.

Combustible lockers can present a significant fire load and, if ignited, are likely to spread fire the same way that interior finish materials spread fire. They should be considered interior finish materials and regulated like all other interior finish materials for any occupancy.

The following wording comes from an advertisement for “Rust Free Plastic Lockers”. “Our waterproof plastic lockers are convenient for many types of locations, from boat decks to pool areas. Along with their rustproof quality, they are durable for many years of use. Available as single or multiple tiered units, our plastic lockers are ideal for any area near water or humidity whether a spa, pool, shower or beach area. Plastic lockers withstand the humidity and corrosiveness of water and pool areas and last much longer than traditional metal lockers. Wet swimsuits and towels, or even sweaty clothing will never rust, corrode delaminate or crack our 100% plastic foot lockers or stand-up plastic locker solutions!” The lockers by this particular manufacturer are constructed of 3/8 inch thick solid plastic bodies and heavy duty ½ inch thick doors. Typically the “solid plastic” used is either high density polyethylene or polypropylene.

In some “high-end” environments, such as country clubs, plastic lockers are not found. Instead, lockers are made with “the highest quality materials and meticulous attention to detail. Locker sides, top and bottom are made of ¾ inch industrial grade particleboard with stain and impact resistant white melamine finish inside and out. Locker back is the same particleboard in a ½ inch thickness. All exposed edges are finished with matching edge banding. These club lockers include number plates and heavy duty keyed cam locks for security. Wooden Lockers feature highly durable ¾ inch solid wood raised panels. Wood locker surfaces are finished with 1 coat of sealer and 2 coats of lacquer for maximum durability. Laminate Lockers feature high pressure laminate doors.”

One manufacturer advertises 100% polypropylene lockers, which “will not rust, corrode, fade, or require repainting, Our plastic lockers will save you money from having to replace rusty metal lockers or warped wood and wood laminated lockers in a few short years.” This manufacturer also states that the 100% polypropylene lockers last “ten times longer than metal lockers” and last “longer than wood lockers, or plastic laminated lockers in humid environments such as in tropical climates, and where there are locker rooms near showers, saunas, pools or in facilities which require frequent sanitation. Wood lockers, in a humid environment will warp. Plastic-laminated lockers are simply particle board covered with a laminate sheet. Moisture will seep into connector and hinge screw holes in the locker and eventually will soften the particle board.” This manufacturer states that plastic lockers are impervious to moisture and will not fade, warp, or delaminate.

In other proposals I have already discussed the fire performance of polyethylene and polypropylene.

Wood interior finish corresponds typically to Class C interior finish, which is usually allowed other than in corridors and exits. Therefore, lockers made exclusively out of wood should be allowed anywhere that Class C interior finish is allowed without additional testing. If there is some doubt as to whether the material is wood or a plastic resembling wood, it would be up to the manufacturer to demonstrate that the lockers are made of wood in order to use the exception.

Cost Impact: The code change proposal will increase costs, since the fire performance of combustible lockers is not regulated at present.

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

ICCFILENAME: HIRSCHLER-F9-808.3.DOC

F62–09/10
901.4.5 (New) [IBC [F] 901.2.1 (New)]

Proponent: Jeff Hugo, CBO, National Fire Sprinkler Association

Add new text as follows:

901.4.5 (IBC [F] 901.2.1) Pump and riser room size. Fire pump and/or fire sprinkler system riser rooms shall be designed with adequate space for all equipment necessary for the installation as defined by the manufacturer with sufficient working room around the stationary equipment. Clearances around equipment to elements of permanent construction, including other installed equipment and appliances, shall be sufficient to allow inspection, service, repair or replacement without removing such elements of permanent construction or disabling the function of a required fire-resistance-rated assembly. Fire pump and fire sprinkler riser rooms shall be provided with a door(s) and unobstructed passageway large enough to allow removal of the largest piece of equipment.

Reason: Fire pump and fire sprinkler riser rooms require routine maintenance, repairs, and possible replacement, adequate working clearances is needed. Typically one could assume that a 36" work space in front of the piece of equipment would be adequate, but the design sizes and layout of these rooms is limitless, and thus should rely on the manufacturer to lay out specific guidelines for their equipment. This new section will relieve the workforce responsible for maintaining such equipment, provide adequate room for fire fighters, and finally giving designers and building officials some direction in this area.

The NFSA as an industry representative is constantly hearing this plea from its members throughout the country. Rooms designed or built too small, have no or little space to maneuver equipment and other unnecessary impairments to the flow of normal repair are the most common complaints. Such delays can cause more expense and in some cases personal injury, causing more expense to the building owner. OS&Y valves and backflow preventers can weigh several hundred pounds and could be several feet long, fire pump control cabinets fall into the same category. Insight to the size, weight, layout, along with the manufacturer's recommended working space can aid the designer in accomplishing this task on paper prior to the construction of the room.

This new section will also mandate such equipment to fit through the doors along with an adequate path out of the structure so that interior walls and finishes do not need to be removed and replaced after several years. Similar language can be found in the IMC, IPC, and the National Electrical Code for installed equipment and appliances.

The 07/08 IFC Code Change Committee supported this change but requested that the change be inserted in the general section of 901 Combination standpipes/sprinkler risers are common in many structures.

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

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

ICCFILENAME: HUGO-F2-901.2.1.DOC

F63–09/10
901.6, Table 901.6.1, Chapter 47

Proponent: Amber Anderson/Stuart Tom, Cosumnes CSD Fire Department, representing California Fire Chief's Association

1. Revise as follows:

901.6 Inspection, testing and maintenance. Fire detection, alarm, and extinguishing systems, mechanical smoke exhaust systems and smoke and heat vents shall be maintained in an operative condition at all times, and shall be replaced or repaired where defective. Nonrequired *fire protection systems* and equipment shall be inspected, tested and maintained or removed.

TABLE 901.6.1
FIRE PROTECTION SYSTEM MAINTENANCE STANDARDS

SYSTEM	STANDARD
Portable fire extinguishers	NFPA 10
Carbon Dioxide fire-extinguishing systems	NFPA 12
Halon 1301 fire-extinguishing systems	NFPA 12A
Dry-chemical extinguishing systems	NFPA 17
Wet-chemical extinguishing systems	NFPA 17A
Water based fire protection systems	NFPA 25
Fire alarm systems	NFPA 72
Mechanical smoke exhaust systems	NFPA 204
Smoke and heat vents	NFPA 204
Water-mist systems	NFPA 750
Clean-agent extinguishing systems	NFPA 2001

2. Add new standard to Chapter 47 as follows:

NFPA

204-2007 Standard for Smoke and Heat Venting

Reason: The purpose of the revision is to clarify to which standard smoke and heat vents and mechanical smoke exhaust systems should be maintained. NFPA 204 would be a new referenced standard in the IFC.

Smoke and heat vents and mechanical smoke exhaust systems are fire protection systems often required by the IFC. Fire protection systems must be maintained as indicated in IFC Section 901.4, IFC 901.4.1, 902.1 (definition of fire protection systems), and 901.6.1. However what is not clear is the standard to which to maintain such systems. IFC Section 901.4 requires maintenance to be in accordance with the original installation standard for that system. The original installation standard for smoke and heat vents would be found in IFC Section 910.3.1, UL 793 titled *Automatically Operated Roof Vents for Smoke and Heat*. UL 793, Section 18.1 indicates that the installation of the system must be in accordance with NFPA 204. However, UL 793 does not address maintenance of the system.

The next requirement for maintenance is found in IFC Section 901.4.1 which states maintenance as required by the IFC. Since the installation standard is NFPA 204 it makes sense that the maintenance standard should also be NFPA 204 as the IFC does not provide maintenance provisions for such systems.

Although NFPA 204 would be a new referenced standard in the IFC it is not a new referenced standard in practice. By modifying the table the user is provided clarity and easy reference for enforcement provision system maintenance.

A companion proposal (submitted separately by Justin Beal representing City of Fresno Fire Department) has also been submitted to include new language within IFC Section 910:

> **910.5 Maintenance.** Smoke and heat vents and mechanical smoke exhaust systems shall be maintained in an operative condition in accordance with NFPA 204. Fusible links shall be promptly replaced whenever fused, damaged or painted. Smoke and heat vents and mechanical smoke exhaust systems shall not be modified, unless approved by the fire code official.

This new section would maintain consistent formatting in the IFC as already established for the other systems listed in IFC Table 901.6.1. For example, companion code sections already in the IFC for portable fire extinguishers is 906.2; for carbon dioxide fire extinguishing systems is 904.8; for Halon 1301 fire extinguishing systems is 904.9; dry-chemical extinguishing systems 904.6; wet-chemical extinguishing systems 904.5; water based fire protection 903.5; fire alarm systems 907.9; and clean agent extinguishing systems 904.10.

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

Analysis: Review of proposed new standard NFPA 204-2007 indicated that, in the opinion of ICC Staff, the standard did comply with ICC standards criteria. The companion code change proposal mentioned in the proponent's reason statement is F146-09/10.

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

ICCFILENAME: ANDERSON-TOM-F5- 901.6.DOC

F64–09/10

901.9 (New)

Proponent: Rick Sheets, Fire Committee Chair, Brinks Home Security, representing National Burglar and Fire Alarm Association

Add new text as follows:

901.9 Discontinuation or change of service. Notice shall be made to the fire code official whenever contracted alarm services for monitoring or testing or inspection of an existing fire alarm system are terminated for any reason, or a change in alarm monitoring provider or other service provider is made. Notice shall be made in writing, to the fire code official by the building owner and where required, by the alarm service provider being terminated.

Reason: It is, and should always remain, the responsibility of the commercial property owner to maintain their building(s) to code. The code prohibits the "removal of or tampering with equipment" and "appurtenances", and in 901.4 of this code states that "fire protection systems shall be maintained in accordance with the original installation standards for that system", yet no such language is provided for non-tangible services. Any contracted services for remote station monitoring and the required testing of equipment in place at the time of acceptance, could be cancelled after the Acceptance Test without notifying the code official. This is of concern for many reasons:

1. The alarm service provider of record may be replaced with non-licensed, non-registered, non-qualified and non-approved personnel or methods.
2. Due to non-payment of fees by the property owner, the alarm service provider may have stopped (or will soon stop) monitoring, repairing and testing of the fire alarm system.
3. If an alarm service provider no longer provides monitoring, repairing or testing services due to non-payment they cannot be seen by the code official as being at fault.

Since by code, the building owner is responsible for keeping their building and fire alarm system in proper working condition, part of that responsibility lies in the fact that they are paying their bills to their alarm service provider. In any other circumstance nonpayment is merely a contract dispute between customer and provider. However, since the service being provided is mandated by code (monitoring and testing) the service provider gets caught in the middle of a complex situation. The addition of this rule will provide the proper notifications to be made before discontinuance of required services.

While the impairment coordinator should be the one to inform the fire official of these types of changes, they may be reluctant to do so because they'd be admitting that these services have been stopped as a cost cutting measure. Allowing the alarm service provider to also notify the fire code official of imminent cessation of service provides a cross-check to ensure the proper continuation of services present at the time of acceptance remain in effect. If another service provider has been procured by the building owner this notification allows the fire code official an opportunity to make sure any required licenses and permits are in place.

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

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

ICCFILENAME: SHEETS-F6-901.8.2.DOC

F65–09/10
903.1.2 (New) [IBC [F] 903.1.2 (New)]

Proponent: Lee Kranz, City of Bellevue, WA, representing The Washington Association of Building Officials (WABO), Technical Code Development Committee

Add new text as follows:

903.1.2 (IBC [F] 903.1.2) Fire walls. For the purposes of this section, each portion of a building separated by one or more fire walls complying with Section 706 of the *International Building Code* shall be considered to be a separate building.

Reason: This code change clarifies that fire walls may be used to create separate buildings for sprinkler protection requirements found in IBC, Section 903. This change is necessary to remind readers of the basic code principle that fire walls create separate buildings, even for sprinkler purposes, and ensures that the code is applied consistently throughout. The definition of "Fire Area", found in IBC Section 702 includes fire walls as an element to define the boundaries of the fire area.

IBC Sections 503.1 and 706.1 clearly indicate that portions of buildings separated by one or more fire walls shall be considered separate buildings. Section 903 contains language that appears to conflict with the fire wall provisions because there is no specific reference to fire walls creating separate buildings for sprinkler protection requirements. One example of an ambiguity may be found in Section 903.2.7 where currently, it is not clear if a fire wall creates separate buildings for sprinkler system scoping requirements. This issue is resolved by adding the proposed language.

In a mixed-use building containing an occupancy required to be provided with an approved automatic sprinkler system, a fire wall, installed per Section 706, is permitted to eliminate the need to provide sprinkler protection throughout the entire building, thereby limiting the installation to the applicable occupancy.

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

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

ICCFILENAME: KRANZ-F2-903.1.2.DOC

F66–09/10
903.2 (IBC [F] 903.2)

Proponent: David S. Collins, FAIA, The Preview Group, Inc., representing The American Institute of Architects

Revise as follows:

903.2 (IBC [F] 903.2) Where required. *Approved automatic sprinkler systems* in new buildings and structures shall be provided in the locations described in Sections 903.2.1 through 903.2.12.

Exceptions:

1. Spaces or areas in telecommunications buildings used exclusively for telecommunications equipment, associated electrical power distribution equipment, batteries and standby engines, provided those spaces or areas are equipped throughout with an automatic smoke detection system in accordance with Section 907.2 and are separated from the remainder of the building by not less than 1-hour *fire barriers* constructed in accordance with Section 707 of the *International Building Code* or not less than 2-hour *horizontal assemblies* constructed in accordance with Section 712 of the *International Building Code*, or both
2. Where fire areas exceed the limits in Sections 903.2.1 through 903.2.9, fire barriers constructed in accordance with Section 707 of the *International Building Code* or horizontal assemblies constructed in accordance with Section 712, or both, shall be permitted to create smaller fire areas, in accordance with

Section 706.3.9 of the *International Building Code*, that would not be required to be protected by an approved automatic sprinkler system. This exception shall not apply where other provisions of this code would otherwise require the installation of an approved automatic sprinkler system.

Reason: There is a lack of clear direction as to how the thresholds in 903.2 are to be applied where a fire area is created by construction of fire barriers as allowed in Assembly and other occupancies.

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

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

ICCFILENAME: COLLINS-F1-903.2.DOC

F67–09/10
903.2.1.2 (IBC [F] 903.2.1.2)

Proponent: Kelly P. Reynolds representing Chick-Fila-A and McDonald's Corporation

Revise as follows:

903.2.1.2 (IBC [F] 903.2.1.2) Group A-2. An automatic sprinkler system shall be provided for Group A-2 occupancies where one of the following conditions exists:

1. The fire area exceeds 5,000 square feet (464 m^2);
2. The fire area has an occupant load of ~~100~~ 150 or more;
3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.

Reason: The three legacy codes (BOCA, ICBO & SBCCI) did not classify restaurants as A-2 (assembly) use groups, until the 2000 edition of the IBC (International Building Code). Even then, fire sprinklers were not required until the building was more than 5,000 sq. ft. or had an occupancy load of more than 300 persons. This same requirement appeared in the Life Safely Code **(**NFPA No. 101).
The sprinkler threshold dramatically changed to more than I00 persons in the 2006 IBC and 2006 IFC (International Fire Code).

Historically, the 300 person fire sprinkler threshold was based on tragic night club fires such as the Cocoanut Grove in Boston in 1942 that killed 492 persons and the Beverly fire in Kentucky in 1977 claimed 150 lives that were both over crowded beyond their legal capacity.

In 2003, The Station Nightclub fire in Rhode Island took 100 lives. It was over crowded by more than 200 persons. Through an apparent over-reaction, the code made a dramatic change of the fire sprinkler threshold for A-2 Use Groups from 300 persons down to 100 persons.

The intent of this code change proposal is to change that threshold to a more reasonable 150 persons to accommodate quick-serve restaurants. A quick-serve restaurant is "defended in place" and does not have the same conditions that these three infamous fire tragedies had. They do not have overcrowding, loud noise (music), and low lighting levels.

No alcohol or potential reaction/judgment impairing consumption's occur in quick-service restaurants, unlike nightclubs or full-service restaurants. Furthermore, they are "easy to navigate" and "well lit". The grease-laden cooking equipment is the only area of real concern and that is protected throughout by pre-engineered, self contained, approved fire suppression systems.

The 150 person threshold for fire sprinklers is more reasonable than the current 100 persons for these types of operations. Furthermore, there are no recorded fire deaths in any such type of quick-serve operations based on N FPA Fire Statistics .

Cost Impact: The code change proposal will reduce cost for A-2 uses under 150 people.

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

ICCFILENAME: REYNOLDS-F1-903.2.1.2

F68–09/10
903.2.2 (IBC [F] 903.2.2)

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

Revise as follows:

903.2.2 (IBC [F] 903.2.2) Group B Ambulatory health care facilities. An *automatic sprinkler system* shall be installed throughout ~~all *fire areas*~~ the entire floor containing a Group B ambulatory health care facility ~~occupancy~~ and all floors between the ambulatory health care facility and the *level of exit discharge* serving such a facility, including the *level of exit discharge* serving such a facility when either of the following conditions exist at any time:

1. Four or more care recipients are incapable of self preservation.
2. One or more care recipients that are incapable of self preservation are located at other than the *level of exit discharge* serving such a~~n~~ facility ~~occupancy~~.

Reason: The current language would allow Ambulatory Surgical Centers to be placed in a high-rise structure, but would only require that the surgical center is to be sprinklered. In a fire, occupants would have to exit through spaces that lack sprinkler protection. If sprinklers are required to protect occupants in ambulatory surgical centers, it is illogical to expect them to evacuate through unprotected spaces.

Automatic sprinkler systems are required in Ambulatory Health Care Facilities because the patients could be incapable of self-preservation. When assistance is necessary for evacuation, the evacuation time increases. The current code will require sprinklers within the Ambulatory Health Care Facility, so when the employees start to evacuate the patients they are in a protected, sprinklered, environment. But as they leave the Ambulatory Health Care Facility and continue to the exit, they would be leaving the sprinklered area. This is contrary to the reasoning to provide fire sprinklers in the first place. The patients in these facilities will take longer to evacuate, and will need assistance to evacuate.

Therefore, this proposal will require that when an Ambulatory Health Care Facility is located in a multi-story building, that the entire floor is protected with fire sprinklers and every floor between that level and the level of exit discharge will also be protected with fire sprinklers. This will provide a safe route for evacuation of patients to the exterior of the building.

The term "occupancy" is deleted after "ambulatory health care facility" because it is not needed and becomes redundant when it is referred to as a "facility occupancy."

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

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

ICCFILENAME: LARIVIERE-F8-903.2.2.DOC

F69–09/10

903.2.4 (IBC [F] 903.2.4), 903.2.7 (IBC [F] 903.2.7), 903.2.9 (IBC [F] 903.2.9)

Proponent: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Revise as follows:

903.2.4 (IBC [F] 903.2.4) Group F-1. An automatic sprinkler system shall be provided throughout all buildings containing a Group F-1 occupancy where one of the following conditions exists:

1. Where a Group F-1 fire area exceeds 12,000 square feet (1115 m^2);
2. Where a Group F-1 fire area is located more than three stories above grade plane; or
3. Where the combined area of all Group F-1 fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m^2).
4. Where a Group F-1 occupancy is used for the manufacture of upholstered furniture or mattresses.

903.2.7 (IBC [F] 903.2.7) **Group M.** An automatic sprinkler system shall be provided throughout buildings containing a Group M occupancy where one of the following conditions exists:

1. Where a Group M fire area exceeds 12,000 square feet (1115 m^2);
2. Where a Group M fire area is located more than three stories above grade plane; or
3. Where the combined area of all Group M fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m^2). ; or
4. Where a Group M occupancy is used for the display and sale of upholstered furniture or mattresses.

903.2.9 (IBC [F] 903.2.9) Group S-1. An automatic sprinkler system shall be provided throughout all buildings containing a Group S-1 occupancy where one of the following conditions exists:

1. A Group S-1 fire area exceeds 12,000 square feet (1115 m^2);
2. A Group S-1 fire area is located more than three stories above grade plane; or
3. The combined area of all Group S-1 fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m^2).
4. A Group S-1 fire area used for the storage of commercial trucks or buses where the fire area exceeds 5,000 square feet (464 m^2).
5. A Group S-1 occupancy is used for the storage of upholstered furniture or mattresses.

Reason: Last cycle the upholster furniture industry submitted a proposal to require the installation of automatic sprinkler systems in mercantile occupancies that contain upholstered furniture regardless of the size of the occupancy. The committee agreed and accepted the proposal. The hazard presented by the upholstered furniture in the mercantile occupancy is greater in an F-1 occupancy where the furniture is being manufactured and in an S-1 occupancy where the fuel load contribution of the upholstered furniture is greater than in the mercantile group. For this reason both the F-1 and S-1 involving upholstered furniture should be protected with an automatic sprinkler system regardless of the size of the occupancy.

Mattresses has been added to the F-1, M and S-1 Groups requiring the automatic sprinkler systems because the polyfoam that presents the hazard in the upholstered furniture presents the same hazard in the mattresses and should have similar protection levels.

Cost Impact: The code change proposal will increase the cost of construction for occupancies containing this hazard.

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

ICCFILENAME: DAVIDSON-SHUMAN-F17-903.2.4.DOC

F70–09/10
903.2.6 (IBC [F] 903.2.6)

Proponent: Roland J. Huggins, PE, American Fire Sprinkler Association, representing self

Revise as follows:

903.2.6 Group I. An *automatic sprinkler system* shall be provided throughout buildings with a Group I *fire area*.

Exception: An *automatic sprinkler system* installed in accordance with Section 903.3.1.2 or 903.3.1.3 shall be allowed in Group I-1 facilities <u>provided that:</u>

1. <u>A hydraulic design information sign is located on the system riser</u>
2. <u>Exception 1 of Section 903.4 is not applied</u>
3. <u>Systems installed in accordance with Section 903.3.1.3 shall be maintained in accordance with the requirements of Section 903.3.1.2</u>.

Reason: This exception provides a very cost efficient system but an institutional facility is still a commercial facility and warrants a higher level of assurance that the system will work. An NFPA 13D system does not require any identification for the design basis of the system so others working on the system after installation need this information. Granted, building plans are supposed to be maintained, but often aren't and a system riser sign is often the only guidance available. Section 903.4 requires the system to be monitored so in case of fire the fire department is automatically notified. Exception #1 excludes systems in one-and two-family dwellings. Since Section 903.3.1.3 explicitly links NFPA 13D systems and one- and two-family dwellings, it is interpreted that Exception #1 applies to all 13D systems. Clarification is needed. As a final item, if the intent of the ICC is that these facilities be maintained to ensure adequate operation, guidance must be provided. Simply referencing Section 903.5 will not work since it references IFC which references NFPA 25. NFPA 13D systems are outside the scope of NFPA 25. The only maintenance and testing performed on an NFPA 13D system is provided by the homeowner.

Cost Impact: The code change proposal will have minimal impact on the cost of construction.

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

ICCFILENAME: HUGGINS-F1-903.2.5.DOC

F71–09/10
903.2.7 (IBC [F] 903.2.7)

Proponent: Michael E. Dell'Orfano, South Metro Fire Rescue Authority, representing Fire Marshal's Association of Colorado

Revise as follows:

903.2.7 (IBC [F] 903.2.7) Group M. An *automatic sprinkler system* shall be provided throughout buildings containing a Group M occupancy where one of the following conditions exists:

1. A Group M *fire area* exceeds 12,000 square feet (1115 m^2).
2. A Group M *fire area* is located more than three stories above grade plane.
3. The combined area of all Group M *fire areas* on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m^2).
4. A Group M ~~occupancy is~~ <u>fire area</u> used for the display and sale of upholstered furniture <u>where the fire area exceeds 7,250 square feet (673 m^2)</u>.

Reason: When F135-07/08 was approved, a zero-square-foot sprinkler threshold was established for Group M's displaying and selling upholstered furniture. However, the code development committee recommended that a more reasonable threshold be established for the sprinkler requirement. In order to create that higher threshold, we have considered other upholstered furniture sprinkler requirements found in the IFC and recommend that the new threshold should be:

1. Greater than 0 square feet: Under the 2009 IFC, very small "boutique" stores will have to protect their buildings with sprinklers when they are only displaying a few loveseats, children's bedroom sets, etc. Most occupancies other than merchantile don't have to be sprinklered even though they may contain more upholstered furniture than these small stores.

2. Greater than 2,500 square feet: Even buildings with high-piled storage of upholstered furniture usually don't have to be protected with sprinklers until they reach this threshold.
3. Less than 12,000 square feet: All Group M fire areas already have to be sprinklered at this threshold.

The proposed threshold of 7,250 square feet was chosen through a simple method of selecting the half-way point between 2,500 and 12,000 square feet while considering the above criteria. Also, changing "occupancy" to "fire area" follows the existing format for Group M sprinkler requirements and avoids having to measure the actual area of furniture displays (which may change over time).

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

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

ICCFILENAME: DELL'ORFANO-F1-903.2.7.DOC

F72–09/10
903.2.7 (IBC [F] 903.2.7)

Proponent: Ken Brouillette, City of Puyallup, Washington

Revise as follows:

903.2.7 (IBC [F] 903.2.7) Group M. An automatic sprinkler system shall be provided throughout buildings containing a Group M occupancy where one of the following conditions exists:

1. A Group M fire area exceeds 12,000 square feet (1115 m^2).
2. A Group M fire area is located more than three stories above grade plane.
3. The combined area of all Group M fire areas on all floors, including mezzanines, exceeds 24,000 square feet (2230 m^2).
4. ~~A Group M occupancy is used for the display and sale of upholstered furniture.~~

Reason: This addition to the 2009 code has caused an extreme hardship for business owners and an enforcement nightmare for AHJ's. One piece of furniture would create the requirement to retrofit an existing building. High hazard commodities in Chapter 23 of the IFC do not require an automatic fire sprinkler system until 501 feet of storage is required. A clear threshold is necessary for enforcement of this section.

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

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

ICCFILENAME: BROUILLETTE-F1-903.2.7.DOC

F73–09/10
903.2.11 (IBC [F] 903.2.11)

Proponent: Donald R. Monahan, PE, Walker Parking Consultants, representing the National Parking Association and the Automated & Mechanical Parking Association

Revise as follows:

903.2.11 (IBC [F] 903.2.11) Specific building areas and hazards. In all occupancies an *automatic sprinkler system* shall be installed for building design or hazards in the locations set forth in Sections 903.2.11.1 through 903.2.11.6.

Exceptions:

1. Groups R-3 and U.
2. Open parking garages

Reason: This section requires fire sprinklers in stories and basements of all occupancies without exterior wall openings meeting a minimum dimension of 30 inches totaling 20 square feet in each 50 linear feet on at least one side for fire department access. Open parking garages typically meet the opening requirements, however, there are many open parking garages that have been constructed with architectural mesh covering the exterior of the garage. The mesh has adequate openness to meet the definition of an open parking garage in 406.3 with natural ventilation, however, the mesh does not provide the openings required in this section for fire department access. Because of the many open parking garage projects that have been constructed with architectural mesh and without fire sprinklers, it appears fire departments are satisfied with firefighter access via the stairways. Further, there are not interior partitions, as with most other building types, that would restrict access to any area within the garage. Fire sprinklers should not be required in open parking structures because of their non-combustible structure design, the nature and limited amount of combustible content, alternate open egress routes, easy access via stairways for firefighting, and ample openings to allow dissipation of smoke and combustion gases. Open parking structures are recognized as a low hazard to life and property from fire. The risk of fire spread and personal injury in an open parking structure fire is extremely low.

Representative Projects:

Wynn Hotel/Casino Parking Structure Las Vegas, NV	Arizona State University PS Tempe, AZ	Reservoir Woods PS Waltham, MA	High/Alma South PS Palo Alto, CA
Bellagio Parking Structure Las Vegas, NV	Harrisburg International Airport PS Harrisburg, PA	GTECH Center PS Providence, RI	Community Hospital North Indianapolis, IN
Convention Center PS Austin, TX			

Sources: http://www.bankerwire.com/portfolio_detail.php?portID=21
http://www.cambridgeparkade.com/case_study.asp?id=0

References:
Analysis of Garage Fires, Publication 2006-01-0791, SAE International, Warrendale, PA, April 2006.
Structure and Vehicle Fires in General Vehicle Parking Garages, National Fire Protection Association, Quincy, MA, January 2006.

Cost Impact: Significant cost savings not to install automatic fire sprinklers in open parking garages.

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

ICCFILENAME: MONAHAN-F1-903.2.11.DOC

F74–09/10
903.2.11 (IBC [F] 903.2.11)

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

Revise as follows:

903.2.11 (IBC [F] 903.2.11) Specific buildings areas and hazards. In all occupancies other than Group U, an *automatic sprinkler system* shall be installed for building design or hazards in the locations set forth in Sections 903.2.11.1 through 903.2.11.6.

~~Exception:~~ ~~Group R-3 and Group U.~~

Reason: This proposal provides correlation with IFC Section 903.2.8 which requires that all Group R occupancies be equipped with fire sprinklers. Currently, Section 903.2.8 requires fire sprinklers in all Group R occupancies, but then Section 903.2.11 lists R-3 as an exception. This creates confusion and misapplication.

This proposal will provide consistency between the two sections.

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

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

ICCFILENAME: LARIVIERE-F9-903.2.11.DOC

F75–09/10
903.2.11.1 (IBC [F] 903.2.11.1)

Proponents: Tom Lariviere, Chairman, Joint Fire Service Review Committee; Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Revise as follows:

903.2.11.1 (IBC [F] 903.2.11.1) Stories without openings. An *automatic sprinkler system* shall be installed throughout all stories, including *basements*, of all buildings where the floor area exceeds 1,500 square feet (139.4 m^2) and where there is not provided at least one of the following types of *exterior wall* openings:

1. Openings below grade that lead directly to ground level by an exterior stairway complying with Section 1009 or an outside ramp complying with Section 1010. Openings shall be located in each 50 linear feet (15 240 mm), or fraction thereof, of *exterior wall* in the story on at least one side. The required openings shall be distributed such that the lineal distance between adjacent openings does not exceed 50 feet (15 240 mm).

2. Openings entirely above the adjoining ground level totaling at least 20 square feet (1.86 m^2) in each 50 linear feet (15 240 mm), or fraction thereof, of *exterior wall* in the story on at least one side. The required openings shall be distributed such that the lineal distance between adjacent openings does not exceed 50 feet (15 240 mm). The height of the bottom of the clear opening shall not exceed 44 inches (1118 mm) measured from the floor.

Reason: The purpose of the openings under Section 903.2.11.1 are for firefighting operations. To effectuate firefighting operations the openings need to be accessible and usable. Therefore this proposal specifies that the maximum sill height of 44" above the floor must be provided. This height is consistent with the height provided for Emergency Escape and Rescue windows in Section 1029.3.

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

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

ICCFILENAME: LARIVIERE-F10-SHUMAN-F2-903.2.11.1.DOC

F76–09/10
903.2.11.1.3 (IBC [F] 903.2.11.1.3)

Proponents: Tom Lariviere, Chairman, Joint Fire Service Review Committee; Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Revise as follows:

903.2.11.1.3 (IBC [F] 903.2.11.1.3) Basements. Where any portion of a *basement* is located more than 75 feet (22 860 mm) from openings required by Section 903.2.11.1, or where walls, partitions or other obstructions are installed that restrict the application of water from hose streams, the *basement* shall be equipped throughout with an *approved automatic sprinkler system*.

Reason: The purpose of the openings under Section 903.2.11.1 are for firefighting operations.

The firefighting purpose of these openings is to provide the ability to confine the fire in the basement from the exterior of the building. A basement fire can be especially dangerous to enter under fire conditions. Firefighters must be able to apply hose stream water from the exterior of the structure through these openings provided. This is particularly important in basements (below grade floors) since entry through a stairway would require firefighters to travel down into the heat and smoke that is trying to escape up and out the stairway.

When obstructions such as walls or partitions are installed in the basement, the ability to apply hose streams through these openings and reach the basement area is reduced or eliminated. The configuration and clear-opening requirements become useless when an interior wall or other obstruction is placed inside the basement. In that case, it is reasonable to require automatic fire sprinklers to provide adequate protection in the basement. This proposal requires that in the case of obstructions, the basement shall be provided with an approved automatic sprinkler system.

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

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

ICCFILENAME: LARIVIERE-F11-SHUMAN-F3-903.2.11.1.3.DOC

F77–09/10
903.2.11.2 (IBC [F] 903.2.11.2)

Proponent: Edward L. Repic, Architectural Refuse Solutions, LLC, representing self

Revise as follows:

903.2.11.2 Rubbish and linen chutes. An *automatic sprinkler system* shall be installed at the top of rubbish and linen chutes and in their terminal rooms. Chutes ~~extending through three or more floors~~ shall have additional sprinkler heads installed ~~within such chutes~~ at alternate floors and at the lowest intake. When a rubbish chute extends through a building more than one floor below the lowest intake the extension shall have sprinklers installed on the exterior of the chute at alternate floors beginning with the second level below the last intake and ending with the floor above the discharge. Chute sprinklers shall be accessible for servicing. A dry–pipe automatic sprinkler system shall be required for exterior chute extensions unless otherwise approved.

Note Regarding Reason: This submittal is part of four such proposals submitted as independent documents with the intent of adequately addressing Rubbish Chutes (which can include "recycling" chutes that simply redirect parts of the rubbish waste stream to locations other than a landfill) and Linen (or Laundry) Chutes. These proposals individually address Life Safety, Sprinkler Placement, Accessibility in new and existing facilities, and actual Chute Construction and a related component to Rubbish Chutes: Compactors (codes generally address the shaft enclosure but ignore the actual chute being enclosed or the compactor it is feeding).

Reason: Rubbish and linen chutes, typically 24" in diameter can convey a fire up a building through smoke compartments at every level due to the chimney effect generated by this large diameter feature extending from the lowest floors of the building to a point 3' to 6' above the roof, depending upon local requirements. A rubbish chute shaft enclosure usually terminates at the floor level above the discharge level. The rubbish room at the base of the chute is required to be rated the same as the chute enclosure shaft. That means, for all practical purposes, that a chute enclosure shaft, unlike any other shaft in construction, contains combustibles within the shaft enclosure: In this case, the rubbish that is collected at the base of the chute. We believe that a fire should be given the least possible opportunity to spread. The additionally recommended sprinkler heads allow one less floor to be exposed to fire when the alternate count leaves the bottom intake unprotected by a sprinkler head.

It is important to note, too, that the odorous muck and mung that builds up on the inside of a rubbish chute ... which includes cooking fats and oils ... is flammable. We have literally scraped this buildup off the inside of a chute, ignited it with a lighter, and watched it burn like a candle.

The addition of sprinkler heads on chutes that extend several stories below the lowest intake protects against the buildup igniting several floors below the lowest chute sprinkler level without control. This is particularly important when you consider that the buildup of steam pressure can be significant once the first sprinkler head is activated. That pressure can contribute to spreading the fire beyond the chute in the event that the pressure is sufficient to blow a poorly maintained intake door open, thereby exposing theretofore uninvolved floor(s) to the spread of fire

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

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

ICCFILENAME: REPIC-F1-903.2.11.2.DOC

F78–09/10
903.3.1 (IBC [F] 903.3.1)

Proponent: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Revise as follows:

903.3.1 (IBC [F] 903.3.1) Standards. Sprinkler systems shall be designed and installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3 and Chapters 23 and 34 of this code, as applicable.

Reason: Both chapters 23 and 34 of the *International Fire Code* have extensive design requirements for automatic sprinklers systems that need to be applied. This added language is to serve as a pointer to those two chapters to provide needed direction to designers and code officials.

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

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

ICCFILENAME: DAVIDSON-SHUMAN-F16-903.3.1.DOC

F79–09/10
903.3.1.1, 903.3.1.2 (New) [IBC [F] 903.3.1.1, [F] 903.3.1.2 (New)]

Proponent: Marshall Klein, PE, Marshall A. Klein & Associates Inc., representing National Multi Housing Council (NMHC)

1. Revise as follows:

[F] 903.3.1.1 (IBC [F] 903.3.1.1) NFPA 13 sprinkler systems. Where the provisions of this code require that a building or portion thereof be equipped throughout with an automatic sprinkler system in accordance with this section, sprinklers shall be installed throughout in accordance with NFPA 13 except as provided in Sections 903.3.1.1 and 903.3.1.2.

2. Add new text as follows:

903.3.1.2 (IBC [F] 903.3.1.2) Bathrooms. In Group R occupancies, other than Group R residential care facilities, sprinklers shall not be required in bathrooms that do not exceed 55 square feet in area and are located within individual dwelling units or sleeping units.

Reason: In the 1976 edition of the Life Safety Code, to encourage sprinklers in apartment buildings, NFPA 101 Section 11-3.8.3.4.1 Exception permitted bathrooms that did not exceed 55 sq. ft within individual dwelling units to omit sprinklers when the apartment building was sprinklered in accordance with NFPA 13. In the 1991 edition of NFPA 13, this exception was added to that Code (Section 4-4.1.7.7.1) with the understanding that the NFPA 101 codes's next edition in 1994 could then delete the exception since it was placed in the sprinkler code. In the 1994 edition of NFPA 101, the sprinkler exception was removed from Section 18-3.5 Exception because NFPA 13 picked it up.

The history of apartment unit bathroom fires is minuscule. Even according to the latest NFPA Home Structure Fire Report, January 2009, Table 9B, "Reported Apartment Structure Fires by Area of Origin 2003-2006 Annual Averages", out of 113,000 fires/year, only 1600 (1%) are in bathrooms. In comparison, according to the NFPA US Hotel & Motel Structure Fire Report, March 2008, Table 8, "Structure Fires in Hotels & Motels by Area of Origin 2002-2005 Annual Averages", out of 3900 fires/year, only 130 (3%) are in "Lavatory, bathroom, locker room or check room". The upshot is that bathroom fires in apartments, hotels or motels are not a major fire problem in sprinklered or non-sprinklered buildings and that is why the past NFPA Codes and the Model Building Codes (including the I Codes) have exempted small bathrooms from sprinklers in order to encourage these residential occupancies to be sprinklered for life safety/fire protection.

However, now in the 2009 edition of NFPA 13, that will be referenced in the 2012 I Codes, Section 8.15.8.1.1 has been revised to permit omission of sprinklers ***only*** in bathrooms in hotel/motel dwelling units. The code proposal to the 2009 NFPA 13 was first rejected by the NFPA 13 Committee during its ROP period (Code Proposal 13-202 Log #79) with the Committee Statement for rejection as "No technical data was provided supporting this change". But during the ROC period, a public comment (Comment 13-141 Log #235) was submitted by the National Fire Sprinkler Association (NFSA), and the NFPA 13 Committee accepted the Comment based not on any technical data supporting the change, but on the following substantiation:

"Substantiation for NFPA 13 Public Comment 13-141: As a rule, the traditional bathroom has changed in fire loading. Storage of combustibles in these rooms is now very common and the use of high wattage electrical devices has gained widespread acceptance. From unattended curling irons and candles to exhaust fans with exposed heating elements, there are many new sources for potential fires in today's bathrooms. The exception to this new trend would generally be the bathroom in a hotel or motel room that maintains a minimal combustible loading due to the transient nature of the occupancy. As the original submitter pointed out, the Committee has recognized this when discussing closets in these occupancies. Therefore, the sprinklers in smaller bathrooms in hotels and motels should still be permitted to be omitted. This comment created by the NFSA Engineering and Standards Committee."

Out of the 25 voting members of the NFPA 13 Committee, the 2 members that voted to reject the change and their comments were:
BAHADORI, H. (representing Hughes Associates): "This will remove the exception for all apartments and condominium buildings. No substantiation has been provided to justify this."
KEEPING, L.(representing Canadian Automatic Sprinkler Association): "I do not believe that this material should have been accepted. Prior to the 1991 edition of NFPA 13, sprinklers were only allowed to be omitted from the washrooms in hotels, but for that edition, the allowance was opened up to all dwelling units as long as they were no larger than 55 sq. ft. and enclosed within a 15 minute thermal barrier. At that time adequate technical substantiation was offered to validate the change. Since that time, no adverse fire losses have been brought to the Committee's attention that would support this backward step. Further the conditions inside the bathrooms of today are no different from those that were found in 1991, so the current submitter's substantiation is not convincing."

If apartment bathrooms are so hazardous to the occupants' safety, wouldn't one think that in the past 33 years the fire data would have reflected this major deficiency created by the NFPA 101 Subcommittee on Residential Occupancies back in 1976? Why is the multi-family industry, that has been one of the biggest supporters of residential sprinkler systems for the past 20 years, and has the ***best*** sprinkler performance records of **all** occupancy groups (From 2005 NFPA Fire Data On Sprinkler Reliability: 98% operational reliability x 98% effectiveness of sprinklers = 96% performance reliability for apartments) being singled out to provide additional sprinklers where there is no fire problem?

In summary, since the NFPA 13 Committee removed this apartment bathroom sprinkler exception from its sprinkler standard without any adequate reason that such an exception has been, or will be, a life safety/fire protection problem, it is only reasonable for the I Codes to place the exception back into its Codes to continue to encourage sprinkler installations in new, as well as existing, buildings.

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

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

ICCFILENAME: KLEIN-F2-903.1.1.1

F80–09/10
903.3.1.1.1 (IBC [F] 903.3.1.1.1)

Proponent: Dave Frable, U.S. General Services Administration

Revise as follows:

903.3.1.1.1 (IBC [F] 903.3.1.1.1) Exempt locations. Automatic sprinklers shall not be required in the following rooms or areas where such rooms or areas are protected with an approved automatic fire detection system in accordance with Section 907.2 that will respond to visible or invisible particles of combustion. Sprinklers shall not be omitted from any room merely because it is damp, of fire-resistance rated construction or contains electrical equipment.

1. Any room where the application of water, or flame and water, constitutes a serious life or fire hazard.
2. Any room or space where sprinklers are considered undesirable because of the nature of the contents, when approved by the fire code official.
3. Generator and transformer rooms separated from the remainder of the building by walls and floor/ceiling or roof/ceiling assemblies having a fire-resistance rating of not less than 2 hours.
4. Rooms or areas that are of noncombustible construction with wholly noncombustible contents.
5. Fire service access elevators machine rooms and machinery spaces.
6. Machine rooms and machinery spaces associated with occupant evacuation elevators designed in accordance with Section 3008 of the *International Building Code*.

Reason: The intent of this code change is to permit automatic sprinkler protection to be exempt in machine rooms and machinery spaces for occupant evacuation elevators. The proposal also provides consistency with the current requirements in Section 3008.6.1 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: FRABLE-F3-903.3.1.1.1.DOC

F81–09/10
903.3.1.1.2 (New) [IBC [F] 903.3.1.1.2 (New)]

Proponent: Jeff Hugo, CBO, National Fire Sprinkler Association

Add new text as follows:

903.3.1.1.2 (IBC [F] 903.3.1.1.2) Sprinkler omissions Automatic sprinklers shall not be required to be installed in locations where NFPA 13 permits sprinklers to be omitted. The building shall still be considered equipped throughout.

Reason: The IBC requires that buildings using sprinklers for height/area increases and trade-offs (exceptions) to be sprinklered throughout. NFPA 13 also requires that the structure be sprinklered throughout (Section 8.1.1), unless specifically exempted by the standard. These areas that do not require sprinklers are commonly found in Chapter 8 of NFPA 13, and with these excepted areas, the building is still considered by the standard to be sprinklered throughout, which would comply with the requirements of the IBC.

One of the most common misinterpretations seen are canopies, exterior roofs and porte-cocheres being considered as a part of the main portion of the structure and therefore are being required to be sprinklered. The 2007 NFPA 13 clearly defines when sprinklers are required under the exterior roofs, canopies and porte-cocheres.

NFPA 13 (Section 8.15.7) is very specific on the sprinklering requirements in these appendages. All canopies, exterior roofs and porte-cocheres over 4' in width are required to be sprinklered unless:

- The canopy, roof, or porte-cochere is constructed with non-combustible, limited combustible, or fire retardant treated wood. (all fire retardant treated wood shall comply with NFPA 703)
- The underside (ceiling/eaves) of the canopy, roof, and porte-cochere of combustible construction provided the exposed finish material on the roof, canopy, or porte-cochere is non-combustible, limited combustible, or fire retardant treated wood, and the combustible concealed spaces (attic) is sprinklered, unless:
- The combustible concealed space is filled entirely with noncombustible insulation, or
- Ceilings that are noncombustible or limited combustible connected directly to joists with joist spaces not - exceeding 160 cubic feet, or
- If concealed spaces do not exceed 55 square feet in area.

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

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

ICCFILENAME: HUGO-F3-903.3.1.1.2.DOC

F82–09/10
903.3.1.2.1 (New) [IBC [F] 903.3.1.2.1 (New)]

Proponent: Jeff Hugo, CBO, National Fire Sprinkler Association

Add new text as follows:

903.3.1.2.1 (IBC [F] 903.3.1.2.1) Sprinkler omissions Automatic sprinklers shall not be required to be installed in locations where NFPA 13R permits sprinklers to be omitted, except as specified by Section 903.3.1.2.2. The building shall still be considered equipped throughout.

(Renumber subsequent section)

Reason: The IBC requires that buildings using sprinklers for height increases and trade-offs (exceptions) to be sprinklered throughout. NFPA 13R also requires that the structure be sprinklered throughout, unless specifically exempted or not mentioned by the standard.

One of the most common misinterpretations seen are canopies, exterior roofs and porte-cocheres being considered as a part of the main portion of the structure and therefore are being required to be sprinklered. The 2007 NFPA 13 clearly defines when sprinklers are required under the exterior roofs, canopies and porte-cocheres.

This change would not affect balcony and deck requirement already in place in 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: HUGO-F4-903.3.1.2.1.DOC

F83–09/10
903.3.5.2 (IBC [F] 903.3.5.2)

Proponent: Phillip A. Brown, American Fire Sprinkler Association

Revise as follows:

903.3.5.2 (IBC [F] 903.3.5.2) Secondary water supply. ~~A~~ An automatic secondary on-site water supply equal to the hydraulically calculated sprinkler demand, including the hose stream requirement, shall be provided for high-rise buildings in Seismic Design Category C, D, E or F as determined by the *International Building Code*. An additional fire pump is not required. The secondary water supply shall have a duration of not less than 30 minutes as determined by the occupancy hazard classification in accordance with NFPA 13.

Exception: Existing buildings.

Reason: A statement needs to be added to this section clarifying that the secondary water supply must be automatic and cannot be from a source that has to be manually activated. The Commentary clarification that an additional fire pump is not required should also be brought forward into this section.

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

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

ICCFILENAME: BROWNP-F1-903.3.5.2.DOC

F84–09/10
903.4 (IBC [F] 903.4)

Proponent: Roland J. Huggins, PE, American Fire Sprinkler Association, representing self

Revise as follows:

903.4 (IBC [F] 903.4) Sprinkler system supervision and alarms. All valves controlling the water supply for *automatic sprinkler systems*, pumps, tanks, water levels and temperatures, critical air pressures and water-flow switches on all sprinkler systems shall be electrically supervised by a *listed* fire alarm control unit.

Exceptions:

1. *Automatic sprinkler systems* protecting ~~one- and two-family *dwellings*~~ installed in accordance with NFPA 13D.
2. Limited area systems serving fewer than 20 sprinklers.
3. *Automatic sprinkler systems* installed in accordance with NFPA 13R where a common supply main is used to supply both domestic water and the *automatic sprinkler system*, and a separate shutoff valve for the *automatic sprinkler system* is not provided.
4. Jockey pump control valves that are sealed or locked in the open position.
5. Control valves to commercial kitchen hoods, paint spray booths or dip tanks that are sealed or locked in the open position.
6. Valves controlling the fuel supply to fire pump engines that are sealed or locked in the open position.
7. Trim valves to pressure switches in dry, preaction and deluge sprinkler systems that are sealed or locked in the open position.

Reason: This requirement should be predicated upon the type of installed system instead of naming the facility it is installed in. This change also avoids the lack of coordination for changes to other sections, such as the addition of townhouses to Section 903.3.1.3 last cycle. This format follows that used Section 903.4, exception 3.

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

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

ICCFILENAME: HUGGINS-F2-903.4.DOC

F85–09/10
903.4.2 (IBC [F] 903.4.2)

Proponent: Michael Perrino, Code Consultants, Inc.

Revise as follows:

903.4.2 (IBC [F] 903.4.2) Alarms. An *approved* audible devices , located on the exterior of the building in an approved location, shall be connected to every each automatic sprinkler system. Such sprinkler water-flow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Alarm devices shall be provided on the exterior of the building in an *approved* location. Where a fire alarm system is installed, actuation of the *automatic sprinkler system* shall actuate the building fire alarm system.

Reason: Current language can be misinterpreted to require audible devices throughout a building. This language makes it clear from the beginning of the section that the audible devices required by this section are only required on the exterior of a building.

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

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

ICCFILENAME: PERRINO-F1-903.4.2.DOC

F86–09/10
903.4.2 (IBC [F] 903.4.2)

Proponent: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Revise as follows:

903.4.2 Alarms. *Approved* audible audio and visual devices shall be connected to every *automatic sprinkler system*. Such sprinkler water-flow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Alarm devices shall be provided on the exterior of the building in an *approved* location. Where a fire alarm system is installed, actuation of the *automatic sprinkler system* shall actuate the building fire alarm system.

Reason: This would aid the fire service in their response to alarms by providing an outside horn strobe device. In areas with a large number of buildings that sound waves can bounce off of it is sometimes difficult to readily locate where the original sound is emanating from. Combining a visual device with the audible device will assist in quicker location identification.

An additional advantage would be that the fire code official could then require this device to be placed above the fire department connection as the "approved location" and this could then aid responding apparatus in locating the FDC especially at night or if the fire department connection is obstructed for any reason.

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

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

ICCFILENAME: DAVIDSON-SHUMAN-F12-903.4.2.DOC

F87–09/10
904.1.1 (New) [IBC [F] 904.1.1 (New)]

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

Add new text as follows:

904.1.1 (IBC [F] 904.1.1) Certification of service personnel for fire extinguishing equipment. Service personnel providing or conducting maintenance on *automatic fire extinguishing systems*, other than *automatic sprinkler systems*, shall possess a valid Certificate issued by an *approved* third party certification organization, an *approved* governmental agency, or other *approved* organization for the type of system and work performed.

Reason: This proposal will allow the code official to specify a minimum level of qualifications for servicing fire extinguishing systems. Ensuring technicians are qualified will enable communities to stay in compliance with the latest code regulations for fire extinguishing systems.

This proposal allows several options for the code official. The code official could choose to accept certification from a third party organization, a governmental agency, or any other organization. Formal certification for automatic fire extinguishing system technicians provides a mechanism for the technicians to demonstrate their knowledge of codes, standards, and related practices. The code official only needs to ascertain that the service technician has the proper certification.

Third party certification programs must meet a minimum acceptable standard that ensures a proper examination preparation. Certification programs provide a mechanism for fire code officials to use to evaluate individuals for the necessary knowledge. Certification programs from third party certification agencies should comply with Regulations and National Standards, such as:

- Uniform Guidelines on Employee Selection Procedures
- US Equal Employment Opportunity Commission (EEOC)
- Standards for Educational & Psychological Testing
- National Council on Measurement in Education (NCME)
- American Educational Research Association (AERA)
- American Psychological Association (APA)

Certification by governmental agency quite often is a certificate issued by a state agency. Similar to third party certifications, governmental certification must be specific to the type of work to be performed.

Certification by other organizations could consist of manufacturer training and certification programs. These certifications typically are only valid for the products from the specific manufacturer.

The code official has the option to determine which certification methods are acceptable, or even if multiple certifications are necessary. Requiring certified technicians helps protect public safety and promotes professionalism and expertise and helps ensure the competency of those individuals involved in the service industry.

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

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

ICCFILENAME: LARIVIERE-F12-904.1.1.DOC

F88–09/10
904.3.2 (IBC [F] 904.3.2)

Proponent: Jim Tidwell, Tidwell Code Consulting, representing Fire Equipment Manufacturers Association

Revise as follows:

904.3.2 (IBC [F] 904.3.2) Actuation. Automatic fire-extinguishing systems shall be automatically activated and provided with a manual means of activation in accordance with Section 904.11.1. Where more than one hazard could be simultaneously involved in fire due to their proximity, all hazards shall be protected by a single system designed to protect all hazards that could become involved.

Exception: Multiple systems may be installed if they are designed to operate simultaneously.

Reason: To clarify that all hazards must be appropriately protected. Allowing separate systems with differing activation mechanisms presents a significant potential for fire propagation beyond the capability of the fire protection systems. A likely scenario would be that a fire occurs in one area, and spreads to an adjacent hazard before the fire protection system activates; then, after the system has exhausted all of its supply of chemical, the adjacent fire reignites the original hazard, which is no longer protected. This requirement is consistent with NFPA 17 and 17-A. This change is for clarification only.

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

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

ICCFILENAME: TIDWELL-F1-904.3.2.DOC

F89–09/10
904.5.1 (New)

Proponent: Mark Conroy, Brooks Equipment Company

Add new text as follows:

904.5.1 Technician qualifications. A service technician who performs maintenance on a wet-chemical extinguishing system shall comply with the qualification requirements of NFPA 17A.

(Renumber subsequent sections)

Reason: NFPA 17A requires certification of technicians that perform maintenance on wet chemical extinguishing systems in section 7.3. It is therefore reasonable and appropriate to reference NFPA 17A for qualification requirements for service technicians performing maintenance of these systems.

Some states have licensing programs that include a qualification test. This code change proposal allows these programs to continue, but mandates technician certification where licensing is not required.

Where licensing programs have not been developed, fire code officials are the best suited to determine appropriateness of testing programs based on test content and competitive pricing that is considered fair and reasonable at the local level.

Standardized test programs are the basis for certification. The tests are based on information available in the public domain and as a minimum include questions on the industry standard, NFPA 17A, Standard for Wet Chemical Extinguishing Systems. Where states do not have licensing programs with qualification tests, these certification programs can be used to fulfill this code change proposal for qualification of personnel servicing wet chemical extinguishing systems.

This code change proposal allows the fire code official to make the final determination of suitability based on testing programs that set a benchmark that is considered achievable, affordable, and reasonable.

Cost Impact: The cost of certification could be as high as $180 per technician. Some programs mandate periodic payments to maintain a certificate. The cost of certification could be passed along to the building owner in the form of higher fees for installing and servicing these systems. Therefore, this code change proposal could potentially increase the cost of construction.

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

ICCFILENAME: CONROY-F2-904.5.1

F90–09/10
904.6.1 (New)

Proponent: Mark Conroy, Brooks Equipment Company

Add new text as follows:

904.6.1 Technician qualifications. A service technician who performs maintenance on a dry extinguishing system shall comply with the qualification requirements of NFPA 17.

(Renumber subsequent sections)

Reason: NFPA 17 (2009) requires certification of technicians that perform maintenance on dry chemical extinguishing systems in section 11.1. It is therefore reasonable and appropriate to reference NFPA 17 for qualification requirements for service technicians performing maintenance of these systems.

Some states have licensing programs that include a qualification test. This code change proposal allows these programs to continue, but mandates technician certification where licensing is not required.

Where licensing programs have not been developed, fire code officials are the best suited to determine appropriateness of testing programs based on test content and competitive pricing that is considered fair and reasonable at the local level.

Standardized test programs are the basis for certification. The tests are based on information available in the public domain and as a minimum include questions on the industry standard, NFPA 17, Standard for Dry Chemical Extinguishing Systems. Where states do not have licensing programs with qualification tests, these certification programs can be used to fulfill this code change proposal for qualification of personnel servicing dry chemical extinguishing systems.

This code change proposal allows the fire code official to make the final determination of suitability based on testing programs that set a benchmark that is considered achievable, affordable, and reasonable.

Cost Impact: The code change proposal could potentially increase the cost of construction. The cost of certification could be as high as $180 per technician. Some programs mandate periodic payments to maintain a certificate. The cost of certification could be passed along to the building owner in the form of higher fees for installing and servicing these systems.

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

ICCFILENAME: CONROY-F3-904.6.1 (NEW)

F91–09/10
905.3.2 (IBC [F] 905.3.2)

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

Delete without substitution:

~~**905.3.2 (IBC [F] 905.3.2) Group A.** Class I automatic wet standpipes shall be provided in nonsprinklered Group A buildings having an *occupant load* exceeding 1,000 *persons*.~~

~~**Exceptions:**~~

~~1. Open-air-seating spaces without enclosed spaces.~~
~~2. Class I automatic dry and semiautomatic dry standpipes or manual wet standpipes are allowed in buildings where the highest floor surface used for human occupancy is 75 feet (22 860 mm) or less above the lowest level of fire department vehicle access.~~

(Renumber subsequent sections)

Reason: The current code language requires that a standpipe system be installed in new Group A occupancies with an occupant load over 1,000 and that are not sprinklered. Groups A-1, A-3 and A-4 require sprinklers at an occupant load of 300; Group A-2 requires sprinklers at an occupant load of 100. Which leaves Group A-5 with no occupant load requirement, but it would be exempted based on Exception 1 of Section 905.3.2.

Therefore, a Group A occupancy with an occupant load over 1,000 persons is not permitted to be unsprinklered. As a result, this requirement will never be applicable.

Therefore, this section is proposed to be deleted.

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

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

ICCFILENAME: LARIVIERE-F13-905.3.2.DOC

F92–09/10
905.3.6 (IBC [F] 905.3.6), 1107.5

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

Revise as follows:

905.3.6 (IBC [F] 905.3.6) Helistops and heliports. Buildings with a *helistop* or *heliport* ~~that are equipped with a standpipe shall extend the~~ shall be provided with a Class I or III standpipe system extended to the roof level on which the *helistop* or *heliport* is located in accordance with Section 1107.5.

1107.5 Standpipe systems. ~~Where a~~ A building with a rooftop *helistop* or *heliport* ~~is equipped~~ shall be provided with a Class I or III standpipe system~~, the system shall be~~ extended to the roof level on which the helistop or heliport is located. All portions of the *helistop* and *heliport* area shall be within 150 feet (45 720 mm) of a $2^1/_2$-inch (63.5 mm) outlet on ~~a Class I or III~~ the standpipe system.

Reason: Currently, Section 905.3.6 and 1107.5 require a standpipe connection to serve a heliport IF the building has a standpipe system. The hazard is not related to the existence of the standpipe system. The hazard is the existence of the helistop or heliport.

A heliport is a distinct hazard that will involve flammable fuels. In the event of an emergency, rapid deployment of hand hose lines will be necessary to attack a resulting fire, effectuate rescue and to protect exposures and the remainder of the building. This proposal will specify that when a helistop or heliport is provided on a rooftop location, then a standpipe system is required.

The requirement will be for a standpipe system throughout the building, not just a connection at the roof level. This is critical in firefighting operations because many times the connection below the rooftop level may be needed just to gain access onto the roof. If the only connection is on the roof, it is of no use if the firefighters cannot get to it.

Additionally, a heliport includes fueling operations. It is entirely possible for a spill to not only affect the rooftop, but also floors below as the liquid fuel spreads. The standpipe system will again be utilized in these situations.

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

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

ICCFILENAME: LARIVIERE-F14-905.3.6.DOC

F93–09/10
905.4 (IBC [F] 905.4)

Proponent: Marshall Klein, PE, Marshall A. Klein & Associates Inc.

Revise as follows:

905.4 (IBC [F] 905.4) Location of Class I standpipe hose connections. Class I standpipe hose connections shall be provided in all of the following locations:

1. In every required *stairway*, a hose connection shall be provided for each floor level above or below grade. Hose connections shall be located at an intermediate floor level landing between floors, unless otherwise *approved* by the *fire code official*.
2. On each side of the wall adjacent to the *exit* opening of a horizontal *exit*.

   Exception: Where floor areas adjacent to a horizontal *exit* are reachable from *exit stairway* hose connections by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30 480 mm) of hose, a hose connection shall not be required at the horizontal *exit*.

3. In every *exit* passageway, at the entrance from the exit passageway to other areas of a building.

   Exception: Where floor areas adjacent to an exit passageway are reachable from *exit stairway* hose connections by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30 480 mm) of hose, a hose connection shall not be required at the entrance from the exit passageway to other areas of the building.

4. In covered mall buildings, adjacent to each exterior public entrance to the mall and adjacent to each entrance from an *exit* passageway or *exit corridor* to the mall.
5. Where the roof has a slope less than four units vertical in 12 units horizontal (33.3-percent slope), ~~each standpipe shall be provided with~~ a hose connection shall be located to serve ~~either on~~ the roof or at the highest landing of a stairway with stair access to the roof provided in accordance with Section 1009.13. ~~An additional hose connection shall be provided at the top of the most hydraulically remote standpipe for testing purposes.~~
6. Where the most remote portion of a nonsprinklered floor or story is more than 150 feet (45 720 mm) from a hose connection or the most remote portion of a sprinklered floor or story is more than 200 feet (60 960 mm) from a hose connection, the *fire code official* is authorized to require that additional hose connections be provided in *approved* locations.

Reason: Back during the 1999 ICC Code Cycle, Code Proposal F370-99 (which is now the existing wording in IBC/IFC Section 905.4) was approved as submitted to correlate the standpipe hose connection locations with NFPA 14.

The 2012 I Codes will reference the 2010 edition of NFPA 14 under IBC/IFC Section 905.2 This code proposal is correlating IBC/IFC hose connection requirements with the latest revisions for the location of hose connection in the 2010 edition of NFPA 14 Section 7.3.2.

The existing wording of the first sentence in Item #5 requires a hose connection at every roof location (where the roof has less than a 1 in 4 slope) above all stairways, whether or not such stairways actually have access to the roof. Since IBC/IFC Section 1009.13 does not require all stairways to have access to the roof, if additional hose connections are then placed on the roof from stairways that do not extend to the roof, such hose connections are not only a large initial expense, but also a long term maintenance expense (freezing issues). These additional roof hose connections are really not needed from a system testing or fire-fighting purpose. For fighting a roof fire, fire fighters would only hook up to a hose connection from a "protected enclosure" and enter the fire area on the roof with a charged hose line, not first go onto the roof that is on fire and then hook up to an unprotected roof hose connection. For flow/pressure standpipe testing purposes you only need one hose connection.

The ROP and ROC stages of the 2010 edition of NFPA 14 have been completed and NFPA 14 Committee Code Proposals 14-53 and 14-55 were accepted without any public comments submitted on them. Therefore, the code revisions to IBC/IFC Section 905.4(5) in this code proposal will correlate with NFPA 14.

The NFPA 14 Committee Code Proposal 14-53 added to A.7.3.2 the following sentence: "Only one standpipe is necessary to serve the roof, it is not the intent to extend each standpipe to the roof level." The substantiation by the NFPA 14 Committee was: "Clarifies the requirement for standpipes on building roofs." Therefore, the first sentence in Section 905.4(5) has been revised to correlate with NFPA 14 hose connection requirement for serving the roof.

The NFPA 14 Committee Code Proposal 14-55 deleted NFPA 14 Section 7.3.2.2 which read: "7.3.2.2 An additional 2½ in. (65 mm) hose connection shall be provided at the hydraulically most remote portion of the system to facilitate testing." The substantiation by the NFPA 14 Committee to delete this section was: "It is not the intent of the committee to require the second hose valve for testing. The topmost outlet and the outlet on the next floor below can be used for testing purposes. This better reflects the calculation requirement in Chapter 7." Therefore, the section sentence in Section 905.4(5) has been deleted to correlate with NFPA 14's deletion of this additional hose connection that is not needed to properly test the standpipe system.

The addition of the reference to IBC/IFC Section 1009.13, "Stairway to roof", in Section 905.4(5) is for user friendliness and correlation purposes with a related section of the Codes

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

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

ICCFILENAME: KLEIN-F3-905.4

F94–09/10
906.1 (IBC [F] 906.1)

Proponent: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Revise as follows:

906.1 (IBC [F] 906.1) Where required. Portable fire extinguishers shall be installed in the following locations.

1. In new and existing Group A, B, E, F, H, I , M, R-1, R-2, R-4 and S occupancies.

   ~~**Exception:** In new and existing Group A, B and E occupancies equipped throughout with quick response sprinklers, portable fire extinguishers shall be required only in locations specified in Items 2 through 6.~~

2. Within 30 feet (9144 mm) of commercial cooking equipment.
3. In areas where flammable or *combustible liquids* are stored, used or dispensed.
4. On each floor of structures under construction, except Group R-3 occupancies, in accordance with Section 1415.1.
5. Where required by the sections indicated in Table 906.1.
6. Special-hazard areas, including but not limited to laboratories, computer rooms and generator rooms, where required by the *fire code official*.

Reason: Fire extinguishers have historically been the first line of defense for small, controllable fires. They are intended to be used for fires of limited size and easily controlled. If a fire is discovered in its early stages the most effective means of protecting life and preventing property loss is to sound an alarm and then to control and/or extinguish the incipient stage fire with a portable fire extinguisher. To simply wait for the fire to grow to size large enough for a sprinkler head to activate is contrary to lessons and guidance from the fire service and fire protection professionals. Since fire extinguishers provide a first line of defense vs. sprinklers, it remains unclear as to the justification for this exception .In that light, the Exception 1 to Section 906.1 should be deleted.

This exception was not in the original draft of the International Fire Code and it did not exist in any of the legacy fire codes. It currently does not exist in NFPA 1 Uniform Fire Code, NFPA 10 Standard for Portable Fire Extinguishers or NFPA 5000 Building Construction and Safety Code. It first appeared in the Final Draft of the 2000 editions of the IFC/IBC. Since the first publication of the International Fire Code, some fire service and fire protection professionals have expressed concern over the inclusion of an exception.

As a result a number of states have deleted the exception upon adoption of the IFC/IBC.

- 12 States plus Washington D.C. and New York City have Deleted Line 1 Exception.
- 2 States have amended Section 906.1 and the exception to require more extinguishers
- 2 States use both NFPA 1 and the IFC with more stringent code applicable.
- 17 additional States have adopted NFPA 1 as their fire code instead of the IFC.

A total of 33 State jurisdictions and an unknown number of local jurisdictions have chosen to delete the exception in favor of providing the ability to control a fire at its earliest stages.

There are other issues with this exception that have arisen since states have now been adopting the IFC and enforcing it within their state. Some examples are:

- The exception is not being interpreted correctly and as a result is not being limited to occupancies with “QUICK RESPONSE” sprinklers installed. Instead, it is being applied in all cases where “REGULAR” sprinklers are installed.
- When an occupancy is being renovated and the sprinkler system is updated, presently installed extinguishers are being removed, lessening the level of protection available.
- Fire code officials do not all see hazard areas the same and as a result Section 906.1, Item 6 is not consistently applied jurisdiction to jurisdiction.
- Some officials are exempting all extinguishers from being required thereby placing the occupants in danger at the time of a fire.

An added detriment is that if a building is occupied without fire extinguishers the ability of the building owner to properly and effectively place fire extinguishers is negatively impacted by the practical difficulty of installing fire extinguisher cabinets. Walls may not be thick enough for recessing the cabinets to keep the fire extinguishers from being obstructions to travel or from being hit and damaged themselves. If the walls and partitions can handle the recessed cabinets, design drawings and permits may be required to modify the walls and partitions.

This proposal will eliminate the exception and provide for the proper placement of an important firefighting tool.

Cost Impact: The code change proposal will cause a cost increase in new construction.

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

ICCFILENAME: DAVIDSON-SHUMAN-F8-906.1.DOC

F95–09/10
906.1 (IBC [F] 906.1)

Proponent: Steven Orlowski, National Association of Home Builders

Revise as follows:

906.1 (IBC [F] 906.1) Where required. Portable fire extinguishers shall be installed in the following locations.

1. In new and existing Group A, B, E, F, H, I, M, R-1, R-2, R-4, and S Occupancies.

   Exception: In new and existing Group A, B, ~~and~~ E and R-2 occupancies equipped with quick response sprinklers, portable fire extinguishers shall be required only in locations specified in Items 2 through 6.

2. Within 30 feet (9144 mm) of commercial cooking equipment.
3. In areas where flammable or *combustible liquids* are stored, used, or dispensed.
4. On each floor of structures under construction, except R-3 occupancies, in accordance with Section 1415.1.
5. Where required by the sections indicated in Table 906.1.
6. Special-hazard areas, including but not limited to, laboratories, computer rooms and generator rooms where required by the *fire code official*.

Reason: Both the International Building Code and the International Fire Code specifically require that all new R occupancies, which are considered light hazard according to NFPA 13, are equipped with quick-response or residential type automatic sprinklers. In addition, NFPA 13 permits some R occupancies to install an automatic suppression system in accordance to NFPA 13 R, when the structure does not exceed 4 stories in height. The purpose for requiring the quick response heads in group A, B, E and R-2 occupancies is to lower the operating temperature for the suppression system to react during the incipient stage of a fire emergency. This provides additional time for the occupants to evacuate the structure and achieve the overall desire for the occupant to evacuate the structure rather than fight the fire and put themselves at unnecessary risk.

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

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

ICCFILENAME: ORLOWSKI-F1-906.1.DOC

F96–09/10
906.3 (New) [IBC [F] 906.3 (New)]

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

Add new text as follows:

906.3 (IBC [F] 906.3) Certification of service personnel. Service personnel providing or conducting maintenance shall possess a valid Certificate issued by an *approved* third party certification organization, an *approved* governmental agency, or other *approved* organizations for the type of work performed.

(Renumber subsequent sections)

Reason: This proposal will allow the code official to specify a minimum level of qualifications for servicing portable fire extinguishers. Ensuring technicians are qualified will enable communities to stay in compliance with the latest code regulations for portable fire extinguishers.

This proposal allows several options for the code official. The code official could choose to accept certification from a third party organization, a governmental agency, or any other organization. Formal certification for portable fire extinguisher technicians provides a mechanism for the technicians to demonstrate their knowledge of codes, standards, and related practices. The code official only needs to ascertain that the service technician has the proper certification.

Third party certification programs must meet a minimum acceptable standard that ensures a proper examination preparation. Certification programs provide a mechanism for fire code officials to use to evaluate individuals for the necessary knowledge. Certification programs from third party certification agencies should comply with Regulations and National Standards, such as:

- Uniform Guidelines on Employee Selection Procedures
- US Equal Employment Opportunity Commission (EEOC)
- Standards for Educational & Psychological Testing
- National Council on Measurement in Education (NCME)
- American Educational Research Association (AERA)
- American Psychological Association (APA)

Certification by governmental agency quite often is a certificate issued by a state agency. Similar to third party certifications, governmental certification must be specific to the type of work to be performed.

Certification by other organizations could consist of manufacturer training and certification programs. These certifications typically are only valid for the products from the specific manufacturer.

The code official has the option to determine which certification methods are acceptable, or even if multiple certifications are necessary. Requiring certified technicians helps protect public safety and promotes professionalism and expertise and helps ensure the competency of those individuals involved in the service industry.

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

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

ICCFILENAME: LARIVIERE-F15-906.3.DOC

F97–09/10
906.3 (New) [IBC [F] 906.3 (New)]

Proponent: Mark Conroy, Brooks Equipment Company

Add new text follows:

906.3 (IBC [F] 906.3) Technician qualifications. A service technician who performs maintenance and recharging of portable fire extinguishers shall comply with the technician qualification requirements of NFPA 10.

(Renumber subsequent sections)

Reason: NFPA 10 requires certification of technicians in section 7.1.2. It is therefore reasonable and appropriate to reference NFPA 10 for qualification requirements for service technicians performing maintenance and recharging of fire extinguishers.

Some states have licensing programs that include a qualification test. This code change proposal allows these programs to continue, but mandates technician certification where licensing is not required.

Where licensing programs have not been developed, fire code officials are the best suited to determine appropriateness of testing programs based on test content and competitive pricing that is considered fair and reasonable at the local level.

Standardized test programs are the basis for certification. The tests are based on information available in the public domain and as a minimum include questions on the industry standard, NFPA 10, Standard on Portable Fire Extinguishers. Where states do not have licensing programs with qualification tests, these certification programs can be used to fulfill this code change proposal for qualification of personnel servicing fire extinguishers.

This code change proposal allows the fire code official to make the final determination of suitability based on testing programs that set a benchmark that is considered achievable, affordable, and reasonable.

Cost Impact: The cost of certification could be as high as $180 per technician. Some programs mandate periodic payments to maintain a certificate. The cost of certification could be passed along to the building owner in the form of higher fees for installing and servicing extinguishers. Therefore, this code change proposal could potentially increase the cost of construction.

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

ICCFILENAME: CONROY-F1-906.3 (NEW)

F98–09/10
907.1.1 (IBC [F] 907.1.1)

Proponent: Rick Sheets, Fire Committee Chair, Brinks Home Security, representing National Burglar and Fire Alarm Association

Revise as follows:

907.1.1 (IBC [F] 907.1.1) Construction documents. *Construction documents* for fire alarm systems shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code, the *International Building Code,* and relevant laws, ordinances, rules and regulations~~, as determined by the *fire code official*~~.

Reason: Rules and regulations are determined by law, not by an individual. This wording suggests that this is something that is intended to be "interpreted".

Administrative wording in chapter one states the duties and responsibilities of the code official, making this additional vague and incomplete language unnecessary.

IFC Section 106.4 *specifically* prohibits inspectors from dismissing provisions of adopted codes or ordinances.

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

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

ICCFILENAME: SHEETS-F14-907.1.1-PRIMARY.DOC

F99–09/10
907.1.1 (New) [IBC [F] 907.1.1 (New)]

Proponent: Rick Sheets, Fire Committee Chair, Brinks Home Security, representing National Burglar and Fire Alarm Association

Add new text as follows:

907.1.1 (IBC [F] 907.1.1) Non-required systems. Non-required systems shall be permitted to be installed and maintained in accordance with the applicable provisions of Sections 907.1 and 907.3 through 907.9.

(Renumber subsequent sections)

Reason: The problem is that due to misapplication or misinterpretation of these rules, often times voluntary non-required protection is being discouraged. If the code is satisfied with no protection for a particular Use Group, then only applicable requirements should be enforced for non-required systems that a building owner chooses to have installed. The person paying for the *extra* protection should be the person setting the level of protection. The extra protection must be installed properly but to be compatible with NFPA 72, 2007 5.5.2.3 "Non-Required Coverage", the amount or level of additional protection must be left up to the building owner.

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

Analysis: Note that if this code change proposal should be approved the IBC would reference Section 907.8 instead of 907.9.

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

ICCFILENAME: SHEETS-F4-907.1.1-B.DOC

F100–09/10
907.2.1 (IBC [F] 907.2.1)

Proponent: Gene Boecker, Code Consultants, Inc.

Revise as follows:

907.2.1 (IBC [F] 907.2.1) Group A. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in Group A occupancies ~~having an~~ where the occupant load ~~of~~ due to the assembly occupancy is 300 or more. Group A occupancies not separated from one another in accordance with Section 707.3.9 of the *International Building Code* shall be considered as a single occupancy for the purposes of applying this section. Portions of Group E occupancies occupied for assembly purposes shall be provided with a fire alarm system as required for the Group E occupancy.

> **Exception:** Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler water flow.

Reason: Section 508 of the IBC already addresses the extent of application for conditions where there are differing occupancy groups. The revised language recognizes that and makes reference back to that section of the code. There has been a question about how to apply the 300 occupants. If the 300 occupants are all in a single room, it is clear. However, it is not clear how the people in different parts of the building are combined to reach the threshold of 300.

For example: There are 150 assembly occupants in a small restaurant and another 200 occupants in another small restaurant in the same building, it is not clear from the code whether those people should be added together or not; and, if not, under what conditions. If the two restaurants are at opposite ends of a small strip retail center or on different floors of a small downtown building, the code will now be clear that the two areas must be separated using the mixed occupancy provisions if there are other occupancies between the two or by a fire barrier if the two restaurants adjoin one another.

The exception is unaffected by the proposal.

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

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

ICCFILENAME: BOECKER-F3-907.2.1.DOC

F101–09/10

907.2.1 (IBC [F] 907.2.1), 907.2.2(IBC [F] 907.2.2), 907.2.3 (IBC [F] 907.2.3), 907.2.4 (IBC [F] 907.2.4), 907.2.7(IBC [F] 907.2.7), 907.2.9.1 (IBC [F] 907.2.9.1)

Proponent: Jeremy N. Mohler, CET, Rocky Mountain Consulting Engineers, Inc., representing self

Revise as follows:

907.2.1 (IBC [F] 907.2.1) Group A. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in Group A occupancies having an occupant load of 300 or more. Portions of Group E occupancies occupied for assembly purposes shall be provided with a fire alarm system as required for the Group E occupancy.

~~**Exception:** Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler water flow.~~

907.2.2 (IBC [F] 907.2.2) Group B. A manual fire alarm system shall be installed in Group B occupancies where one of the following conditions exists:

1. The combined Group B occupant load of all floors is 500 or more.
2. The Group B occupant load is more than 100 persons above or below the lowest level of exit discharge.
3. The Group Bfire area contains a Group B ambulatory health care facility.

~~**Exception:** Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler water flow.~~

907.2.3 (IBC [F] 907.2.3) Group E.A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in Group E occupancies. When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

Exceptions:

1. A manual fire alarm system is not required in Group E occupancies with an occupant load of less than 50.
2. Manual fire alarm boxes are not required in Group E occupancies where all of the following apply:
   - 2.1. Interior corridors are protected by smoke detectors.
   - 2.2. Auditoriums, cafeterias, gymnasiums and similar areas are protected by heat detectors or other approved detection devices.
   - 2.3. Shops and laboratories involving dusts or vapors are protected by heat detectors or other approved detection devices.
   - 2.4. The capability to activate the evacuation signal from a central point is provided.
   - 2.5. In buildings where normally occupied spaces are provided with a two-way communication system between such spaces and a constantly attended receiving station from where a general evacuation alarm can be sounded, except in locations specifically designated by the fire code official.
3. ~~Manual fire alarm boxes shall not be required in Group E occupancies where the building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, the notification appliances will activate on sprinkler water flow and manual activation is provided from a normally occupied location.~~

907.2.4 (IBC [F] 907.2.4) Group F. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in Group F occupancies where both of the following conditions exist:

1. The Group F occupancy is two or more stories in height; and
2. The Group F occupancy has a combined occupant load of 500 or more above or below the lowest level of exit discharge.

~~**Exception:** Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler water flow.~~

907.2.7 (IBC [F] 907.2.7) Group M. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in Group M occupancies where one of the following conditions exists:

1. The combined Group M occupant load of all floors is 500 or more persons.
2. The Group M occupant load is more than 100 persons above or below the lowest level of exit discharge.

Exceptions:

1. A manual fire alarm system is not required in covered mall buildings complying with Section 402 of the *International Building Code*.
2. ~~Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the occupant notification appliances will automatically activate throughout the notification zones upon sprinkler water flow.~~

907.2.9.1 (IBC [F] 907.2.9.1) Manual fire alarm system. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in Group R-2 occupancies where:

1. Any dwelling unit or sleeping unit is located three or more stories above the lowest level of exit discharge;
2. Any dwelling unit or sleeping unit is located more than one story below the highest level of exit discharge of exits serving the dwelling unit or sleeping unit; or
3. The building contains more than 16 dwelling units or sleeping units.

Exceptions:

1. A fire alarm system is not required in buildings not more than two stories in height where all dwelling units or sleeping units and contiguous attic and crawl spaces are separated from each other and public or common areas by at least 1-hour fire partitions and each dwelling unit or sleeping unit has an exit directly to a public way, exit court or yard.
2. ~~Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and the occupant notification appliances will automatically activate throughout the notification zones upon a sprinkler water flow.~~
3. ~~3.~~ 2. A fire alarm system is not required in buildings that do not have interior corridors serving dwelling units and are protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, provided that dwelling units either have a means of egress door opening directly to an exterior exit access that leads directly to the exits or are served by open-ended corridors designed in accordance with Section 1026.6, Exception 4.

Reason: In these code sections a simple manual system is to be installed. These exceptions remove all human interface with the fire alarm system, and put the entire operation of the alarm system on a single, simple monitor module which monitors the water flow of the sprinkler system. Sprinkler systems are designed to be a fire suppression system, and not a fire extinguishing system which will allow for the accumulation of smoke throughout the building. If there is to be a voltage surge, a loose connection, conductors pulled from the monitor module for any reason, or if the fire originates within the sprinkler riser room demolishing the monitor module activating the fire alarm system, then the system would never alarm and occupants would not be notified of a life safety issue within the building. Most sprinkler heads are set to release at 150 degrees F or higher. A smoldering fire may not reach this temperature for minutes or, in some cases, hours but will produce a lot of smoke. In this case, human discovery of the fire will most likely precede the activation of a sprinkler head. Manual fire alarm pull stations have always been required and placed at most exits. People may stay within a burning building searching for a manual pull station to activate the fire alarm system, which may result in smoke inhalation and death of that person.

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

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

ICCFILENAME: MOHLER-F1-907.2.1

F102–09/10
907.2.1.1 (IBC [F] 907.2.1.1)

Proponent: Gene Boecker, Code Consultants, Inc., representing self

Revise as follows:

907.2.1.1 (IBC [F] 907.2.1.1) System initiation in Group A occupancies with an occupant load of 1,000 or more. Activation of the fire alarm in Group A occupancies ~~with an~~ where the occupant load ~~of~~ due to the assembly occupancy is 1,000 or more shall initiate a signal using an emergency voice/alarm communications system in accordance with Section 907.6.2.2. Group A occupancies not separated from one another in accordance with Section 707.3.9 of the *International Building* Code shall be considered as a single occupancy for the purposes of applying this section.

Exception: Where *approved*, the prerecorded announcement is allowed to be manually deactivated for a period of time, not to exceed 3 minutes, for the sole purpose of allowing a live voice announcement from an *approved*, constantly attended location.

Reason: Section 508 of the IBC already addresses the extent of application for conditions where there are differing occupancy groups. The revised language recognizes that and makes reference back to that section of the code. There has been a question about how to apply the 1,000 occupants. If the 1,000 occupants are all in a single room, it is clear. However, it is not clear how the people in different parts of the building are combined to reach the threshold of 1,000.

For example: There are 250 assembly occupants in a small restaurant at one end of a hotel and sports bar with an occupant load of 120 in a separate location. At the other end of the hotel is a conference center with an occupant load of 700. It is not clear from the code whether those people should be added together or not; and, if not, under what conditions. The code will now be clear that the areas must be separated using the mixed occupancy provisions if there are other occupancies between them or by a fire barrier if the areas adjoin one another.

The exception is unaffected by the proposal.

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

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

ICCFILENAME: BOECKER-F2-907.2.1.1.DOC

F103–09/10
907.2.1.1 (IBC [F] 907.2.1.1), 907.6.2.2.5 (New) [IBC [F] 907.5.2.2.5 (New)]

Proponent: Ed Roether, Populous (Formerly HOK Sport Venue Event), representing self

Revise as follows:

907.2.1.1 (IBC [F] 907.2.1.1) System initiation in Group A occupancies with an occupant load of 1,000 or more. Activation of the fire alarm in Group A occupancies with an *occupant load* of 1,000 or more shall initiate a signal using an emergency voice/alarm communications system in accordance with 907.6.2.2.

Exceptions:

1. Where approved, the prerecorded announcement is allowed to be manually deactivated for a period of time, not to exceed 3 minutes, for the sole purpose of allowing a live voice announcement from an approved, constantly attended location.
2. A public address system shall be permitted to serve as the emergency voice/alarm communication system when in compliance with Section 907.6.2.2.5.

907.6.2.2.5 (IBC [F] 907.5.2.2.5) Public address system. In Group A occupancies a public address system that is audible above the expected ambient noise level shall be permitted to serve as the emergency voice/alarm communication system. Prerecorded or live emergency voice announcements shall be from an approved location constantly attended by personnel trained to respond to an emergency.

Reason: Large assembly occupancies with large volume spaces, a large number of occupants and elevated sound levels present significant challenges in providing effective occupant notification by standard means in accordance with the NFPA 72, National Fire Alarm Code. This proposal provides an alternate approach to the NFPA 72 emergency voice alarm and communications system provisions for these unique occupancies while still maintaining those features that assure effective occupant notification in an emergency. Essentially, all recently constructed stadiums, arenas and grandstands have provided voice/alarm communication by their public address system since it provides the most effective occupant notification with intelligibility and audibility facets. These occupancies demand the routine operation of highly reliant, acoustically capable, and sufficiently

audible public address systems that can be relied upon to effect occupant evacuation, relocation, or both. NFPA 101 has historically allowed alternative occupant notification systems for these large seating areas that incorporate the public address system as conceptually comparable to a system in compliance with NFPA 72 so that a reliable and effective occupant notification system is provided.

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

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

ICCFILENAME: ROETHER-F1-907.2.1.1.DOC

F104–09/10
907.2.1.1 (New) [IBC [F] 907.2.1.1 (New)]

Proponent: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Add new text as follows:

907.2.1.1 (IBC [F] 907.2.1.1) Group A-2. Where a Group A-2 occupancy is required to be equipped with an automatic sprinkler system by this code or the *International Building Code*, the sprinkler system water flow switch(es) shall be connected to an automatic fire alarm system.

(Renumber subsequent sections)

Reason: The reason for this proposal is to link a fire alarm requirement with the language requiring a sprinkler system in section 903.2.1.2 for group A-2 occupancies. In a facility with a required sprinkler system, a fire alarm panel is required by section 903.4.1of the fire code to electronically monitor the sprinkler system signals. Adding this requirement for an automatic fire alarm system in an A-2 occupancy would only require the installation of audible/visual devices throughout the facility since the exception for 907.2.1 does not require manual fire alarm boxes. This would provide early warning to those occupants in the building to ensure prompt evacuation in the event of fire sprinkler system activation.

Cost Impact: The code change proposal will increase the cost of construction of Group A-2 occupancies required to have suppression systems.

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

ICCFILENAME: DAVIDSON-SHUMAN-F7-907.2.1.DOC

F105–09/10
907.2.1.2 (New), 907.6.2.2.4 (New) [IBC [F] 907.2.1.2 (New), [F] 907.5.2.2.4 (New)]

Proponent: Ed Roether, Populous (Formerly HOK Sport Venue Event), representing self

Add new text as follows:

907.2.1.2 (IBC [F] 907.2.1.2) Emergency voice/alarm communication captions. Stadiums, arenas and grandstands required to caption audible public announcements shall be in accordance with Section 907.6.2.2.4.

907.6.2.2.4 (IBC [F] 907.5.2.2.4) Emergency voice/alarm communication captions. Where stadiums, arenas and grandstands are required to caption audible public announcements in accordance with Section 1108.2.7.2 of the *International Building Code*, the emergency/voice alarm communication system shall also be captioned. Prerecorded or live emergency captions shall be from an *approved* location constantly attended by personnel trained to respond to an emergency, The caption displays shall be permitted to serve as the visual notification appliances for the assembly seating area.

(Renumber subsequent section)

Reason: Large assembly occupancies with large volume spaces present significant challenges in providing effective occupant notification by standard means in accordance with NFPA 72. Captioning emergency safety information that is announced over the PA system was ruled as needed for equivalent communication with persons having a hearing impairment in a court decision over civil rights under the Americans with Disabilities Act (ADA) at Fed Ex Field, dated September 30, 2008. It was also proposed as a requirement in the Proposed Rule by the Department of Justice, dated June 17, 2008, to establish new design guidelines for the ADA. This proposal provides effective emergency communication for those with hearing impairments in the large volume spaces while still maintaining a fully compliant NFPA 72 system elsewhere. Another code change proposal establishes a simple threshold of 15,000 seats for where captioning would be required since some facilities would not have the ability to adequately caption and the current requirement in Section 1108.2.7.2 has no threshold. Currently, any grandstand with a public address system requires equivalent text and in a little league ballpark the seating would meet the definition of a grandstand and there will likely be a microphone with a loud speaker that would address the public. A stadium requires a certain amount of sophistication before captioning can be readily possible. This proposal in tandem with the other code change proposal would apply to only those stadiums, arenas and grandstands that would have adequate infrastructure to caption announcements.

This proposal provides an alternate approach to the NFPA 72, National Fire Alarm Code, emergency voice/alarm and communications system provisions for these unique occupancies while still maintaining those features that assure effective occupant notification in an emergency by appropriately trained personnel. Caption displays installed in large volume spaces, such as stadiums, arenas and grandstands, which are not listed as visible notification appliances for fire alarm systems, provide effective visual notification since the notification objective is reasonably achieved. It is the intent of this proposal to permit the omission of visible notification appliances in the seating area provided that the adjacent areas have visible notification in accordance with NFPA 72. NFPA 101 has historically allowed alternative occupant notification systems for these large seating areas that incorporate the public address system and, by changes in 2009 NFPA 101, the electronic displays or message boards as conceptually comparable to a system in compliance with NFPA 72 so that a reliable and effective occupant notification system is provided.

Finally, this proposal allows the use of either pre-recorded or real-time captions of audible announcements. It should be noted that the microphone required in the fire command center in case the fire department needs to over-ride the emergency notification system to make "live" safety and emergency announcements raises challenges when trying to caption those announcements. Providing a stenographer on-site for a potential emergency at any point in time may be difficult and providing a stenographer off-site requires further interface between a system in compliance with NFPA 72 and one that is not. So, there are some technical challenges with captioning emergency announcements that need further consideration in the building's fire safety and evacuation plans.

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

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

ICCFILENAME: ROETHER-F2-907.2.1.2.DOC

F106–09/10
907.2.2.1 (IBC [F] 907.2.2.1)

Proponent: Rick Sheets, Fire Committee Chair, Brinks Home Security, representing National Burglar and Fire Alarm Association

Revise as follows:

907.2.2.1 (IBC [F]907.2.2.1) Group B ambulatory health care facilities. *Fire areas* containing Group B ambulatory health care facilities shall be provided with an electronically supervised automatic smoke detection system installed within the ambulatory health care facility and in public use areas outside of tenant spaces, including public *corridors* and elevator lobbies.

~~**Exception:** Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 provided the occupant notification appliances will activate throughout the notification zones upon sprinkler water flow.~~

Reason: Delete Exception.

Another new occupancy has been defined under the "B" Business category, called "Ambulatory Health Care Facilities". (304.1) These facilities are defined as buildings or portions of buildings providing medical, surgical, psychiatric or nursing care less than 24 hours a day to persons incapable of self-preservation (i.e. 'put under' for minor surgery etc.). These occupancies, covered in 907.2.2.1, need an automatic smoke detection system installed in the Ambulatory Health Care Facility plus in their public use areas, corridors and elevator lobbies including all the public areas on other floors outside the AHCF area, ...except if the building is sprinkled and its activation causes the (required) occupant notification appliances to activate.

The problem with allowing this exception is that by code, heat detectors (which is what a sprinkler head is) are not, and never have been, permitted to replace smoke detectors for protection of life. Heat detectors are not life-safety devices in any code or standard because they do not provide the early warning needed for the safe evacuation of occupants. Sprinklers have a great reputation for saving lives only when used along with early detection provided by smoke detectors.

Cost Impact: The code change proposal will increase the cost of construction $.30 per square foot.

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

ICCFILENAME: SHEETS-F1-907.2.2.1.DOC

F107–09/10
907.2.3 (IBC [F] 907.2.3)

Proponent: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Revise as follows:

907.2.3 (IBC [F] 907.2.3) Group E. A manual fire alarm system that ~~activates~~ initiates the occupant notification signal utilizing an emergency voice/alarm communication system meeting the requirements of Section 907.6.2.2 and installed in accordance with Section 907.6 shall be installed in Group E occupancies. When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

Exceptions:

1. A manual fire alarm system is not required in Group E occupancies with an occupant load of ~~less than 50~~ 30 or less.
2. Manual fire alarm boxes are not required in Group E occupancies where all of the following apply:
   2.1. Interior corridors are protected by smoke detectors.
   2.2. Auditoriums, cafeterias, gymnasiums and similar areas are protected by heat detectors or other approved detection devices.
   2.3. Shops and laboratories involving dusts or vapors are protected by heat detectors or other approved detection devices.
   ~~2.4. The capability to activate the evacuation signal from a central point is provided.~~
   ~~2.5. In buildings where normally occupied spaces are provided with a two-way communication system between such spaces and a constantly attended receiving station from where a general evacuation alarm can be sounded, except in locations specifically designated by the fire code official.~~
3. Manual fire alarm boxes shall not be required in Group E occupancies where the building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, the ~~notification appliances~~ emergency voice/alarm communication system will activate on sprinkler waterflow and manual activation is provided from a normally occupied location.

Reason: Group E occupancies mix a high concentration of children with fuel loads on a daily basis. As budgets shrink, so do the number of adult supervisors. Our children are in schools because they are required to be there. We owe them a duty to ensure they are safe from the risk of fire while in school. We simply cannot wait for a catastrophe to protect children while at school.

Unfortunately the world of elementary, secondary and higher education learning has gone through tremendous changes in security measures undertaken, both operationally and hardware installations, due to the threat of violent acts committed against students and staff. Where we had educational facilities with highly effective fire drill evacuation procedures and actions during system activation, we now have written plans and training in place to ignore the activation of the fire alarm system if a "lockdown" has been declared because the activation of the fire alarm system may be a diversion to bring staff and students out into the open to serve as victims.

This is not a possible situation. This is a very real situation that occurs throughout the country in response to the acts of violence that have occurred at educational facilities. Though the exact procedure may vary site to site, the main premise of a "lockdown" is to gather staff and students into classrooms and offices and to lock the doors, preventing intruders from getting into the room and preventing staff and students from leaving the rooms until an all clear is announced. The staff and students are trained to ignore a fire alarm activation during a lockdown until they are ordered to evacuate after someone in authority, (could be a Principal or could be a Police Commander), makes a determination that the fire threat is real and that they must evacuate to survive the fire.

Once the students and staff ignore the fire alarm, there needs to be a reliable method of communicating the message that now is the time to evacuate. PA systems that do not meet appropriate standards of care for installation or maintenance related to reliability at the time of a fire emergency do not satisfy that need. To address this issue this proposal would require the installation of a emergency voice/alarm communications system installed in accordance with the code and referenced standards. Recognizing that there is a related increase in the cost of construction Section 907.5.2.2 allows that system to be used for other announcements to eliminate the need for a public address system for that purpose.

Section 907.2.3, Exception one has been modified to correlate the occupant load triggers, Items 2.4 and 2.5 would be redundant since the emergency voice/alarm communications system would meet those two requirements and Exception 3 was modified to correlate with the new language in 907.2.3.

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

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

ICCFILENAME: DAVIDSON-SHUMAN-F2-907.2.3.DOC

F108 –09/10

907.2.6.1.1(IBC [F] 907.2.6.1.1), 907.2.8.3 (IBC [F] 907.2.8.3), 907.2.9.2 (IBC [F] 907.2.9.2), 907.2.10.3 (IBC [F] 907.2.10.3), 907.2.11 (IBC [F] 907.2.11), 907.2.11.1 (IBC [F] 907.2.11.1), 907.2.11.2 (IBC [F] 907.2.11.2), 907.2.11.3(IBC [F] 907.2.11.3), 907.2.11.4 (IBC [F] 907.2.11.4), 902.1 (IBC [F] 902.1); IRC R314.1, R314.2, R314.3, R314.4, R202, Chapter 44

Proponent: Roger Evans, Park City Municipal Corporation, representing Utah Chapter of ICC

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IFC COMMITTEE. PART II WILL BE HEARD BY THE IRC BUILDING/ENERGY COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IFC

Revise as follows:

907.2.6.1.1 (IBC [F] 907.2.6.1.1) Smoke alarms and smoke detectors. Single- and multiple-station smoke alarms or smoke detectors shall be installed in accordance with Section 907.2.11.
907.2.8.3 (IBC [F] 907.2.8.3) Smoke alarms and smoke detectors. Single- and multiple-station smoke alarms or smoke detectors shall be installed in accordance with Section 907.2.11.

907.2.9.2 (IBC [F] 907.2.9.2) Smoke alarms and smoke detectors. Single- and multiple-station smoke alarms or smoke detectors shall be installed in accordance with Section 907.2.11.

907.2.10.3 (IBC [F] 907.2.10.3) Smoke alarms and smoke detectors. Single- and multiple-station smoke alarms or smoke detectors shall be installed in accordance with Section 907.2.11.

907.2.11 (IBC [F] 907.2.11) Single- and multiple-station smoke alarms and smoke detectors. Listed single- and multiple-station smoke alarms complying with ANSI/UL 217 or smoke detectors complying with ANSI/UL 268 shall be installed in accordance with Sections 907.2.11.1 through 907.2.11.4 and NFPA 72.

907.2.11.1 (IBC [F] 907.2.11.1) Group R-1. Single- or multiple-station smoke alarms or smoke detectors shall be installed in all of the following locations in Group R-1:

1. In sleeping areas.
2. In every room in the path of the means of egress from the sleeping area to the door leading from the sleeping unit.
3. In each story within the sleeping unit, including basements. For sleeping units with split levels and without an intervening door between the adjacent levels, a smoke alarm or smoke detector installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

907.2.11.2 (IBC [F] 907.2.11.2) Groups R-2, R-3, R-4 and I-1. Single or multiple-station smoke alarms or smoke detectors shall be installed and maintained in Groups R-2, R-3, R-4 and I-1 regardless of occupant load at all of the following locations:

1. On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms.
2. In each room used for sleeping purposes.

   Exception: Single- or multiple-station smoke alarms in Group I-1 shall not be required where smoke detectors are provided in the sleeping rooms as part of an automatic smoke detection system.

3. In each story within a dwelling unit, including basements but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

907.2.11.3 (IBC [F] 907.2.11.3) Interconnection. Where more than one smoke alarm or smoke detector is required to be installed within an individual dwelling unit or sleeping unit in Group R-1, R-2, R-3 or R-4, the smoke alarms shall be interconnected in such a manner that the activation of one will activate all of the alarms in the individual unit and the activation of a smoke detector shall activate the fire alarm audible notification devices throughout the individual dwelling unit. ~~The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.~~ The required fire alarm signal shall be clearly audible in all sleeping rooms, having a sound level of at least 15 db above average ambient sound level or 5 db above the maximum sound level, or a sound level at least 75 db at the pillow.

907.2.11.4 (IBC [F] 907.2.11.4) Power source. ~~In new construction, required smoke alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source and shall be equipped with a battery backup. Smoke alarms with integral strobes that are not equipped with battery back-up shall be connected to an emergency electrical system. Smoke alarms shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection.~~ Required smoke alarms or smoke detectors shall receive their power by one of the following means:

1. Listed smoke alarms shall receive their primary power from the building wiring when such wiring is served from a commercial source with secondary power backup and without a disconnecting switch other than those required for overcurrent protection. Listed smoke alarms that are battery-powered shall not be permitted in new construction.

2. Listed smoke detectors shall receive their power from the approved control panel. The approved control panel shall receive its primary power from the building wiring when such wiring is served from a commercial source and the primary power source shall not include a disconnecting switch other than those required for overcurrent protection. The control panel shall be equipped with rechargeable batteries for secondary power backup.
3. Listed low-power radio frequency (wireless) smoke detectors shall be permitted to be battery powered when the battery is electrically supervised and shall be capable of sending an alarm signal to the approved control panel for a minimum of 7 days after sending the initial battery depletion signal.

   Exception: Smoke alarms are not required to be equipped with battery backup where they are connected to an emergency electrical system.

902.1(IBC [F] 902.1) Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

SMOKE DETECTOR. A listed device intended to be connected to an approved smoke detection system for the purpose of sensing visible or invisible particles of combustion and alerting occupants by a distinct and audible signal.

PART II – IRC BUILDING/ENERGY

1. Revise IRC as follows:

R314.1 Smoke detection and notification. All smoke alarms and smoke detectors shall be listed in accordance with ANSI/UL 217 and ANSI/UL 268 respectively and shall be installed in accordance with the provisions of this code and the household fire warning equipment provisions of NFPA 72.

R314.2 Smoke detection systems. Household fire alarm systems ~~installed in accordance with NFPA 72 that include smoke alarms, or a combination of smoke detector and audible notification device installed as required by this section for smoke alarms, shall be permitted. The household fire alarm system shall provide the same level of smoke detection and alarm as required by this section for smoke alarms.~~ , including smoke alarms or a combination of smoke detectors and audible notification devices, shall be installed in accordance with NFPA 72 and as required by Sections R314.3 and R314.4. Where a household fire warning system is installed using a combination of smoke detector(s) and audible notification device(s), it shall become a permanent fixture of the occupancy and owned by the homeowner. The system shall be monitored by an approved supervising station and be maintained in accordance with NFPA 72.

~~Exception:~~ ~~Where smoke alarms are provided meeting the requirements of Section~~ R314.4~~.~~

R314.3 Location. Smoke alarms or smoke detectors shall be installed in the following locations:

1. In each sleeping room.
2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional story of the dwelling, including basements and habitable attics but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm or smoke detector installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

~~Exception~~ **R314.3.1 Interconnection**. ~~When~~ Where more than one smoke alarm is required to be installed within an individual dwelling unit the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit and the activation of a smoke detector shall activate the fire alarm audible notification devices throughout the individual dwelling unit. The required fire alarm signal shall be clearly audible in all sleeping rooms, having a sound level of at least 15 db above average ambient sound level or 5 db above the maximum sound level, or a sound level at least 75 db at the pillow.

Exception: The interconnection of smoke alarms or smoke detectors in existing areas shall not be required where work requiring a permit does not result in the removal of interior finishes exposing the structure which could provide access for wiring or in dwellings without attics, crawl spaces or basements.

~~R314.3.1~~ R314.3.2 Alterations, repairs and additions. When alterations, repairs or additions requiring a permit occur, or when one or more sleeping rooms are added or created in existing dwellings, the individual dwelling unit shall be equipped with smoke alarms or smoke detectors located as required for new dwellings.

Exceptions:

1. Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck, are exempt from the requirements of this section.
2. Installation, alteration or repairs of plumbing or mechanical systems are exempt from the requirements of this section.
3. Smoke alarms that receive their primary power from the building wiring when such wiring is served from a commercial source or smoke detectors that receive their primary power from an approved panel shall not be required to be hard-wired in existing dwellings where work requiring a permit does not result in the removal of interior finishes exposing the structure which could provide access for wiring or in dwellings without attics, crawl spaces or basements.

R314.4 Power source. ~~Smoke alarms shall receive their primary power from the building wiring when such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection. Smoke alarms shall be interconnected.~~ Required smoke alarms or smoke detectors shall receive their power by one of the following means:

1. Listed smoke alarms shall receive their primary power from the building wiring when such wiring is served from a commercial source with secondary power backup and without a disconnecting switch other than those required for overcurrent protection. Listed smoke alarms that are battery-powered shall not be permitted in new construction.
2. Listed smoke detectors shall receive their power from the approved control panel. The approved control panel shall receive its primary power from the building wiring when such wiring is served from a commercial source and the primary power source shall not include a disconnecting switch other than those required for overcurrent protection. The control panel shall be equipped with rechargeable batteries for secondary power backup.
3. Listed low-power radio frequency (wireless) smoke detectors shall be permitted to be battery powered when the battery is electrically supervised and shall be capable of sending an alarm signal to the approved control panel for a minimum of 7 days after sending the initial battery depletion signal.

Exceptions~~:~~:

~~1.~~ Smoke alarms shall be permitted to be battery operated when installed in buildings without commercial power.

~~2. Interconnection and hard-wiring of smoke alarms in existing areas shall not be required where the alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space or basement available which could provide access for hard-wiring and interconnection without the removal of interior finishes.~~

2. Add new definition to Section R202 as follows:

SMOKE DETECTOR. A device intended to be connected to an approved smoke detection system for the purpose of sensing visible or invisible particles of combustion and alerting occupants by a distinct and audible signal.

3. Add new standard to Chapter 44 as follows:

ANSI/UL 268-06 Smoke Detectors for Fire Alarm Signaling Systems

Reason: As read in context the language in the 2009 IFC relating to the interconnection of smoke alarms and smoke alarm power requirements in the 2009 edition of the IRC and IFC does not call out system-connected smoke detectors. This has caused some local authorities to disallow the installation of ANSI/UL 268 system-connected smoke detectors. The performance and reliability of fire alarm systems using ANSI/UL 268 smoke detectors are extremely high if they are installed and maintained in accordance with National Fire Protection Association (NFPA) 72.

The proposed code will remove all ambiguity relating to the installation of smoke detectors and will ensure that both smoke alarms and smoke detectors may be permitted for installation.

Cost Impact: There will be no cost impact because the proposed change is not mandating the installation of smoke detectors over smoke alarms. The decision as to which type of device to install will be up the system designer and/or building owner.

Analysis: UL 217-06 is currently referenced in both the IFC and the IRC. UL 268-06 is currently referenced in the IFC and if this code change is approved UL 268 will be added to the IRC Chapter 44 as a referenced standard.

PART I – IFC

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

PART II – IRC BUILDING/ENERGY

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

ICCFILENAME: EVANSR-907-F2.DOC

F109–09/10

907.2.9 (IBC [F] 907.2.9), 907.2.9.3 (New) [IBC [F] 907.2.9.3 (New)]

Proponent: William Freer, Fire Protection Specialist, NYS Office of Fire Prevention and Control

1. Revise as follows:

907.2.9 (IBC [F] 907.2.9) Group R-2. Fire alarm systems and smoke alarms shall be installed in Group R-2 occupancies as required in Section 907.2.9.1 ~~and 907.2.9.2~~ through 907.2.9.3.

907.2.9.3 ([F] 907.2.9.3) Group R-2 college and university buildings. An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.6 shall be installed in Group R-2 college and university buildings in the following locations:

1. Common spaces outside of dwelling units and sleeping units
2. Laundry rooms, mechanical equipment rooms, and storage rooms
3. All interior corridors serving sleeping units or dwelling units.

Required smoke alarms in dwelling units and sleeping units in Group R-2 college and university buildings shall be interconnected with the fire alarm system in accordance with NFPA 72.

Exception: An automatic smoke detection system is not required in buildings that do not have interior corridors serving sleeping units or dwelling units and where each sleeping unit or dwelling unit either have a *means of egress* door opening directly to an exterior *exit access* that leads directly to an *exit* or a *means of egress* door opening directly to an exit.

Reason: This code change would add new requirements to the code. The current code only requires single and multiple station smoke alarms in new R-2 student housing. Single and multiple station smoke alarms are not required to be connected to a building fire alarm which would evacuate the building in event of a fire or smoke condition. They are also not required to be in all areas of the building which have been shown to be frequent areas of ignition. In a study completed by the New York State Governor's Task Force on Campus Fire Safety it was cited that 43% of fires in college dormitories are located in dorm rooms or kitchens, leaving the other 57% to be located in areas that would not require smoke detection under the current code. The study also showed that there were approximately 300 fires on college campus over a 3 year period while only 160 and were reported to the Fire Department. The Center for Campus Fire Safety reports 99 deaths have been "reported" in fires in student housing since 2000. An NFPA study on student housing showed 3,300 structural fires in Dormitories, Fraternities, Sororities and Barracks between 2002-2005. Since 1980 there has been an increase of 3% in reported fires in dormitory type occupancies, while there has been a 52% decrease in overall reported structural fires. New York State has required Fire Alarm and detection system in new dormitories since 2003 and has not had any deaths reported in these buildings since that change.

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

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

ICCFILENAME: FREER-F2-907.2.9.DOC

F110–09/10
907.2.9.2 (New) [IBC [F] 907.2.9.2 (New)]

Proponent: Ken Kraus, Los Angeles Fire Department

Add new text as follows:

907.2.9.2 (IBC [F] 907.2.9.2) Automatic smoke detection system. An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.6 shall be installed through out all interior corridors serving 10 or more dwelling units.

> **Exception:** An automatic smoke detection system is not required in buildings that do not have interior *corridors* serving *dwelling units* and where each *dwelling unit* has a *means of egress* door opening directly to an *exit* or to an exterior *exit access* that leads directly to an *exit*.

Reason: Automatic fire alarm systems are currently required, with exception, within interior corridors in R-1 Occupancies, e.g., Hotels and Motels. While Apartment buildings represent, in some respects, hazards similar to those found in R-1 Occupancies, they represent distinct and extenuating conditions that warrant similar protectives. Specifically:

Non transient occupants in R-2 Occupancies utilize cooking appliances to a much greater extent than R-1 Occupants.
R-2 occupants disable smoke alarms since low voltage and false alarms represent a continual nuisance.
R-2 occupants are much more likely to prop open required fire protection assemblies (for ventilation) than occupants in hotels and motels.

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

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

ICCFILENAME: KRAUS-F1-907.2.9.2.DOC

F111–09/10
907.2.10.2 (IBC [F] 907.2.10.2)

Proponent: Rick Sheets, Fire Committee Chair, Brinks Home Security, representing National Burglar and Fire Alarm Association

Revise as follows:

907.2.10.2 (IBC [F] 907.2.10.2) Automatic smoke detection system. An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.6 shall be installed in corridors, waiting areas open to corridors and habitable spaces other than sleeping units and kitchens.

Exceptions:

1. ~~Smoke detection in habitable spaces is not required where the facility is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.~~
2. An automatic smoke detection system is not required in buildings that do not have interior corridors serving sleeping units and where each sleeping unit has a means of egress door opening directly to an exit or to an exterior exit access that leads directly to an exit.

Reason: Exception #1 should be deleted.

Background: A new R-4 occupancy has been defined under the "B" Business category, called "Ambulatory Health Care Facilities". (AHCF, 304.1) These facilities provide medical, surgical, psychiatric or nursing care less than 24 hours a day to persons incapable of self-preservation (i.e. 'put under' for minor surgery etc.). These occupancies, covered in 907.2.2.1, need an automatic smoke detection system installed in the Ambulatory Health Care Facility area, plus in their public use areas, corridors and elevator lobbies for all the public areas located outside the AHCF area. While we see the need for a new occupancy type, we cannot see where sprinklers are permitted to replace required smoke detection.

Problem:

First, it seems that this exception doesn't simply allow smoke detection to be omitted; it seems to allow the "smoke detection" to be omitted from an "automatic smoke detection system." Doesn't this mean that virtually no system will be installed, since the manual boxes required by 907.2.10.1 are also allowed to be omitted in sprinklered buildings? Isn't this pushing the sprinkler reliance a little too far?

Secondly, sprinkler heads are essentially fixed-temperature heat detectors. Smoke detectors required in other parts of the ICC codes only permit heat detectors to be used where the environment is not suitable for the use of smoke detectors. It is not reasonable to expect the occupants and staff of these facilities to wait until a smoldering/small fire generates enough heat to activate a sprinkler head, when the environment allows early warning to be used. Section 907.2.10.1 indicates there won't even be manual pull boxes at the exits, even if the fire is soon discovered by an occupant. We are also confident most fire departments would rather be informed of smoke rather than told that a sprinkler system is currently trying to control a fire.

The fire alarm and detection community has watched as manual pull boxes are permitted to be omitted, but this is the first time automatic smoke detection is permitted to be omitted. Please stop this dangerous trend and provide the early warning needed for the safe evacuation of these occupants. Sprinkler are not perfect and they do have a great reputation for saving lives, but they provide the best chances for survival when used along with the early warning provided by smoke detectors.

Cost Impact: This code change proposal would increase the cost by $0.15 to $0.30 per square foot.

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

ICCFILENAME: SHEETS-F2-907.2.10.2.DOC

F112–09/10
907.2.11 (IBC [F] 907.2.11); IRC R314.1

Proponents: Joseph Fleming, Deputy Chief, Boston Fire Department, representing The Boston, MA Fire Department; Sean DeCrane, Cleveland Fire Department representing the Cleveland, OH Fire Department and the International Association of Fire Fighters

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IFC COMMITTEE. PART II WILL BE HEARD BY THE IRC BUILDING/ENERGY COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IFC

Revise as follows:

907.2.11 (IBC [F] 907.2.11) Single and multiple-station smoke alarms. *Listed* single- and multiple-station photoelectric smoke alarms complying with UL 217 shall be installed in accordance Sections 907.2.11.1 through 907.2.11.4 and NFPA 72.

PART II – IRC BUILDING/ENERGY

Revise as follows:

R314.1 Smoke detection and notification. All smoke alarms installed to meet the requirements of this code shall be the photoelectric type and shall be listed in accordance with UL 217 and installed in accordance with the provisions of this code and the household fire warning equipment provisions of NFPA 72.

Reason: (**Fleming)** According to the United States Fire Administration (http://www.usfa.dhs.gov/downloads/pdf/tfrs/v5i1.pdf) 37% of fire fatalities occur with operational smoke alarms and another 21% occur with disabled alarms. The use of photoelectric alarms, as opposed to alarms using ionization technology could reduce both by ½. This would reduce fire deaths in the U.S. by approximately 25% which translates into over 750 lives saved each year. The following information supports this estimated benefit.

1. There are some fires were smoke alarms/detectors cannot provide a benefit: arson fires in egress paths, victims intimate with flaming fires, explosions, etc. In addition, it is unlikely that smoke alarms/detectors provide the critical warning to occupants who are awake. As a consequence, when discussing smoke alarms, we should focus our attention on the types of fires where the smoke alarm can provide a crucial benefit to occupants not on all the types of fires that occur. The vast majority of fires where a smoke alarm/detector can help occupants are smoldering fires started when the victim is asleep.

    - *Smoke detectors should be able to save at least 60% and possibly 75% of sleeping victims, but only 13% of victims who were awake.* (McGuire, J., Ruscoe, B., The Value of a Fire Detectors in the Home, Fire Study No. 9, National Research Council of Canada, Division of Building Research, Ottawa, Ont., Canada, December, 1962.)
    - *"Delayed discovery, typically associated with fires that occur at night when everyone is asleep, also tends to be a characteristic of the smoldering fire caused by discarded smoking material. These smoldering fires are the leading causes of US fire fatalities and detectors are ideally designed to deal with them.* ("A Decade of Detectors", Fire Journal 09/85, John Hall - NFPA.)

2. In flaming fires the ionization alarm/detector is faster than the photoelectric by 30-50 seconds. This extra time is virtually irrelevant to alert occupants. For example, in the recent smoke alarm testing involving flaming cooking fires (http://smokealarm.nist.gov/pdf_files/SmokeDetectors_Q&As_Feb2008.pdf), which is the most common type of flaming fire, although the photo was 30-50 seconds slower than the ionization it still provided on average over 10 minutes warning. It has often been said that in a fire "seconds count." However it is hard to imagine a scenario were the extra seconds provided by the ionization in the most common type of flaming fires makes a difference for life safety, when the photoelectric is already providing on average over 10 minutes of Available Safe Egress Time. As a consequence, although photoelectric alarms/detectors respond later in flaming fires this is a quantitative as opposed to a qualitative advantage. Here are some quotes from researchers.

    - *The advantage of ionization smoke detectors during flaming fires is only about a 15-20 second earlier warning. This margin will only be decisive for the loss of human life in extraordinary circumstances. In general the difference between the alarm times for the optical and the ionization detectors are reduced when the detection is made from an adjacent room. (*Meland, Oysten, and Lonuik, Lars, "Detection of Smoke - Full Scale Tests with Flaming and Smouldering Fires, "Fire Safety Science," - Proceedings of the Third International Symposium, July, 1991,)

- *Under the conditions of ignition from flames, the ionization chamber type detector exhibited a greater sensitivity to the smoke produced than the photoelectric system. However, the rate of generation of smoke was so great that the extra time given by the ionization chamber as a result may be of little practical use. (*R., (Riley, K., and Rogers, S., "A Study of the Operation and Effectiveness of Fire Detectors Installed in the Bedrooms and Corridors of Residential Institutions", Fire Research Station, Fire Research Current Paper 26/78, Borehamwood, England, April 1978.)

3. In smoldering fires the photoelectric is faster than the ionization by 30 minutes or more. This extra time is critical for sleeping occupants. If the ionization was consistently providing adequate warning, it would not matter that it was slower than the photoelectric. Unfortunately it doesn't. According to NIST's testimony to the Boston City Council), *"ionization alarms may not always alarm even when a room is filled with smoke from a smoldering fire."* In addition, according to data collected by NIST Report during smoldering fires the ionization smoke alarm often provided less than 1-2 minutes of Available Safe Egress Time. (1-2 minutes is the minimum time needed for sleeping occupants to escape.) In fact the ionization, in many cases, was providing negative available safe egress time. (http://smokealarm.nist.gov/pdf_files/StatementfortheRecordWG1finalsmokealarmstatement.pdf

   This finding has been noted by many other researchers.
   - *Ionization chamber type detectors, in the room of origin and the corridor, did not, in the smoldering fire tests, provide adequate warning that the escape route was impassable or that conditions in the room were potentially hazardous to life. (*R., Riley, K., and Rogers, etc.)
   - *"This test will show that most photoelectric detectors, operated by battery will detect smoke at about 1.5-3% smoke, which is good. The test will show that the photoelectric detectors operated by household current will activate between 2 and 4 %, which is still good. But, the test also will show that many ionization detectors will not activate until the smoke obscuration reaches 10-20 and sometimes 25%. … Therefore, because of the present state of the art in detecting smoke, the Subcommittee on Smoke Detectors can take no other course but to recommend the installation of photoelectric detectors."* ("Residential Smoke Alarm Report - Prepared by Special Automatic Detection Committee of the International Association of Fire Chiefs," The International Fire Chief, September 1980.)
   - The tests i.e. the CALCHIEFS Tests, being commented upon in the previous quote were conducted by the Los Angeles Fire Dept. They concluded that photoelectrics were the preferred smoke alarm for all hallways and bedrooms. ("An Evaluation of Fire Detectors for Residential Placement," Los Angeles City Fire Dept., Fire Prevention Bureau – Research Unit, August 1981.)
   - *"Photoelectric detectors sighted in the hallway are more effective for detecting smoldering smoke than ionization detectors, providing adequate escape time for most conditions of size and location of the smoke sources. Ionization detectors sited in the hallway generally provide inadequate escape times unless smoke movement into the hallway is slowed down by narrow door openings, causing a slower loss of visibility, or unless they are sited close to the smoke source." (* P.F. Johnson and S. K. Brown, "Smoke Detection of Smoldering Fires in a Typical Melbourne Dwelling," *Fire Technology,* Vol. 22, No. 4, 1986, pp. 295-340.)
   - *"The ionization detectors detected smoke from a smoldering fire much later than optical (photoelectric) detectors. When the particular conditions during the fire development are taken into consideration there are reasons to indicate that this detection principle would not provide adequate safety during this type of fire".* (Meland, Oysten, and Lonuik, Lars, "Detection of Smoke - Full Scale Tests with Flaming and Smouldering Fires, "Fire Safety Science," - Proceedings of the Third International Symposium, July, 1991, pp. 975-984.)

4. In addition to being inadequate at providing adequate warning in smoldering fires, several researchers have identified that the ionization smoke alarm is far more susceptible to disablement due to nuisance alarms than is the photoelectric. Here are some quotes from the recent NIST Smoke Alarm Report. http://smokealarm.nist.gov/

   Additionally a separate study of nuisance alarm sources was conducted because this was identified as an important issue in a prior study by the U.S. Consumer Product Safety Commission. It was observed that ionization alarms had a propensity to alarm when exposed to nuisance aerosols produced in the early stages of some cooking activities, prior to noticeable smoke production. This phenomenon could be particularly vexing to homeowners who experience such nuisance alarms. … While one third of the smoke detectors did not work on the initial test, half of these were made operational by restoring power. Homeowners interviewed revealed that most of these were intentionally disconnected due to nuisance alarms, mostly from cooking.

   For the Toasting Scenario the ionization located near the kitchen responded in about 130-150 seconds. The photoelectric responded in 225-300. In fact according to NIST, *"Photoelectric alarm thresholds were met only after item started to char and produce visible smoke."* So although both responded, it is much more likely that the ionization will repeatedly respond to most normal toasting and be more likely to be disabled..

   Here are some recent quotes by other researchers on nuisance alarms.
   - *"Homes with ionization alarms had more than 8 times the rate of false alarms as those with photoelectric. In small rural residences, photoelectric smoke alarms have lower rates of false alarms and disconnections." (*Perkins, M., "Ionization and photoelectric smoke alarms in rural Alaskan homes," Western Journal of Medicine, 2000;173:89-92 (Contact: Alaska Injury Prevention Center, Anchorage, AK.))
   - *"We favor photoelectric detectors to reduce rates of nuisance alarms from cooking and to provide optimal protection from cigarette related fires." (*Kuklinski, D., Berger, L., Weaver, J., "Smoke detector Nuisance Alarms: A Field Study in a Native American Community," NFPA Journal; Sept/Oct. 1995.)
   - *"On direct observation at first follow-up, ionization study alarms were more likely to be non-functional, 20% ionization vs. 5% photoelectric, with the most common reason being a disconnected or absent battery." (*Mueller, B., et al, "Randomized controlled trial of ionization and photoelectric smoke alarm functionality," Injury Prevention, 2008; 14:80-86.)

   Even smoke alarm manufacturers are aware of the benefits of photoelectric technology. (They just do a very poor job of communicating this to consumers.)
   - *"The optical smoke alarm therefore is less likely to react to the results of cooking and this makes it far more suitable for installation near kitchens or in confined spaces such as bed sits. The slight price differential between the two types of alarms can be balanced out by the elimination of false alarms being triggered by nearby kitchens and bathrooms."* "Domestic smoke alarms – a guide for specifiers," Bendall, D. (BFK Brands Europe), Fire Prevention 281 July/August 1995.

- *"Never install ionization smoke alarms in areas where cooking fumes, open fires and products of combustion are present. Where these conditions occur and a smoke alarm must be installed, a photoelectric alarm is the best option."* http://www.kidde.com.au/utcfs/kid/How+Smoke+Alarms+Work.html

5. Combination alarms/detectors have the potential to provide the quickest response to both smoldering and flaming fires but due to the excessive nuisance alarms from the ionization part of the alarm/detector, they should not be allowed near kitchens and bathrooms. In addition, the minor advantage that ionization or combination have over photoelectric in flaming fires is marginal and probably not critical.

   To quote a study (Mueller et al) cited earlier, *"An alarm containing both technologies is more expensive; it may also be more likely rendered non-functional if either technology causes frequent nuisance alarms. Our results suggest that installing photoelectric alarms on main floors of homes similar to those in our study may increase the proportion of functioning alarms and therefore provided longer term protection,"*

   Other items to consider:
   - I am not aware of any "wireless alarms" that come as combination (photo/ion).
   - Both ion and photo are sold with 10 year batteries. Are Combination (ion/photo)?
   - Combination CO/Smoke come with CO/Ion or CO/Photo. Is there a Combo Smoke Alarm/CO?
   - Why require dual in sprinkled occupancies when, according to the USFA, the only type of fire that can kill someone is a smoldering fire? "*Even though fire sprinklers are effective life safety devices you still need smoke alarms. Some fires can begin as smoldering fires that produce smoke and gases but don't generate enough heat to activate the sprinklers. Smoke alarms are needed to provide warning for these situations."* (http://www.usfa.dhs.gov/citizens/all_citizens/home_fire_prev/manufactured/sprinklers-mh.shtm)

6. I would like to mention that based on this research the Australasian Fire Authorities Council has recommended the use of photoelectric smoke alarms as opposed to ionization or combination.

   http://www.afac.com.au/__data/assets/pdf_file/0020/3674/AFACSmokeAlarmposition1June2006.pdf

7. Precedents for this action.

   a. Since 1998 the Massachusetts State Building Code has mandated photoelectric smoke alarm within 20 feet of a kitchen or bathroom due to the propensity of ionization smoke alarms to experience nuisance alarms.
   b. Since 2002 **NFPA 72 (the National Fire Alarm Code)** has only allowed ionization smoke alarms near kitchens if they were equipped with a silence button. The NFPA 72 committee has finally recognized the advantage that photoelectric smoke alarms have in regards to nuisance alarms. However I take exception to their assumption that a "hush button" neutralizes the ionizations propensity for nuisance alarms. No study has shown these to be effective at reducing disablement of ionization alarms. http://www.nfpa.org/assets/files/PDF/ROP/72-A2009-ROC.pdf (Page 72-249)
   c. **New Vermont Law** – Photoelectric-only type of smoke alarms are required to be installed in the vicinity of any bedrooms and on each level of a dwelling, for all new dwellings and dwellings that are sold or transferred, beginning January 1, 2009. http://www.dps.state.vt.us/fire/heating/photoelectric.html
   d. **Massachusetts has voted to Change the State Fire Code** so that as of January 1, 2010, smoke alarms with only ionization technology will not be allowed to meet the code. http://www.realtown.com/massachusettsrealestate/blog/massachusetts-smoke-detector-laws-changing
   e. **The 7th Edition of the Massachusetts State Building Code** was updated so that as of January 1, 2008 smoke alarms with only ionization technology will not be allowed to meet the code. http://www.ludlow.ma.us/building/permit_applications/life-safety-systems-app.pdf

Bibliography – In addition to references cited above, the following will be provided to the committee.

1. Fleming, J., *"Photoelectric vs. Ionization Detectors - A Review of the Literature,"* NFPRF Fire Suppression and Detection Research Symposium, Orlando, FL, 2/98.
2. Fleming, J., *"Photoelectric vs. Ionization Detectors - A Review of the Literature, Revisited,"* (NFPRF Fire Suppression and Detection Research Symposium, Orlando, FL, 01/05. This presentation included analyses of: 1) 30 years of smoke detector studies, 2) the National Institute of Standards Smoke Detector Project, 3) statistic regarding the effectiveness of smoke detectors, ands 4) the effectiveness of Underwriter's Labs Smoke Detector Approval Standard, UL217.)
3. Fleming, J., *"Smoke Detectors and the Investigation of Fatal Fires,"* Published in May 2000 issue of "Fire & Arson Investigator", the official magazine of International Association of Arson Investigators. (Also published on Interfire.org, an Arson Resource Website – posted 02/01.)

Reason: (DeCrane) I do not want to get into me too testimony, even during the reason statement, and my colleague Joseph Fleming from the Boston Fire Department has written an extensive Reason Statement. This will make it difficult to go in depth referencing various reports as Chief Fleming has provided the technical substantiation for this code change.

As a representative of the International Association of Fire Fighters (IAFF), I represent the professional fire fighters of North America. At the IAFF's most recent convention, the Union representatives of over 280,000 professional fire fighters across the United States and Canada, with representatives from the United Kingdom, Australia and New Zealand, voted unanimously to support he requirement of photoelectric smoke detectors.

The representatives, of those who respond to difficult fire scenes involving thousands of fatalities, have determined it is time to move forward with the requirement of photoelectric smoke detectors. Countless times our members have responded to residential fires and removed victims who had disabled their detectors due to nuisance alarms. Tragically many of these families forgot to replace the batteries or reinstall the hard wire detector when they were finished cooking. Unfortunately in many incidents these occupants, or a loved one, ended up paying the ultimate price for their forgetfulness, or some may argue, the lack of the detector industry addressing the problem.

On behalf of the nation's professional fire fighters we request your support for this code change.

Cost Impact: (Fleming) The code change proposal will not increase construction costs in any meaningful manner. The cost difference between ionization and photoelectric is minimal, particularly when one considers the benefit.

Cost Impact: (DeCrane) The code change proposal will minimally increase construction costs.

PART I – IFC

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

PART II – IRC BUILDING/ENERGY

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

ICCFILENAME: FLEMING-DECRANE-F1-907.2.11

F113–09/10
907.2.11.2 (IBC [F] 907.2.11.2)

Proponent: Rick Sheets, Fire Committee Chair, Brinks Home Security, representing National Burglar and Fire Alarm Association

Revise as follows:

907.2.11.2 (IBC [F] 907.2.11.1) Groups R-2, R-3, R-4 and I-1. Single- or multiple-station smoke alarms shall be installed and maintained in Groups R-2, R-3, R-4 and I-1 regardless of *occupant load* at all of the following locations:

1. On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms.
2. In each room used for sleeping purposes.

   ~~**Exception:** Single- or multiple-station smoke alarms in Group I-1 shall not be required where smoke detectors are provided in the sleeping rooms as part of an automatic smoke detection system.~~

3. In each *story* within *a dwelling unit,* including basements but not including crawl spaces and uninhabitable *attics.* In *dwellings* or *dwelling units* with split levels and without an intervening door between the adjacent levels, a smoke alarm or smoke detector installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full *story* below the upper level.

   Exception: Single- or multiple-station smoke alarms in Groups R-2, R-3, R-4, and I-1 shall not be required where smoke detectors are part of an automatic smoke detection system and installed in all the locations required by Section 907.2.11.2.

Reason: There is no logical reason that these other groups (R-2, R-3, R-4) should be discouraged from installing superior fire alarm and detection systems. Professional protection using system-type smoke detection, with all its associated technological features, should be allowed for all similar occupancies, not just I-1. Chapter one of this code at 104.09 states that equal or superior alternate methods are allowed.

Cost Impact: The code change proposal will not increase the cost of construction. (No increase is required, but the change allows for optional protection at additional costs.)

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

ICCFILENAME: SHEETS-F7-907.2.11.2.DOC

F114–09/10

907.2.11.3 (IBC [F] 907.2.11.3), 4603.7, 4603.7.1; IPMC [F] 704.2, [F] 704.3, [F] 704.4; IBC 3403.5 (New) [IEBC [B] 302.5 (New)], 3404.7 (New) [IEBC [B] 303.7 (New)]; IEBC 704.4.3, 1004.1;

Proponent: Jonathan C. Siu, City of Seattle, representing the Seattle Department of Planning and Development

THIS IS A 3 PART CODE CHANGE. ALL PARTS WILL BE HEARD BY THE FIRE CODE COMMITTEE AS 3 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THE FIRE CODE COMMITTEE.

PART I – IFC and IPMC

1. Revise IFC as follows:

907.2.11.3 (IBC [F] 907.2.11.3) Interconnection. Where more than one smoke alarm is required to be installed within an individual *dwelling unit* or *sleeping unit* in Group ~~R-1, R-2, R-3 or R-4~~ R or I-1 occupancies, the smoke alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

4603.7 Single- and multiple-station smoke alarms. Single and multiple-station smoke alarms shall be installed in existing Group R and I-1 occupancies ~~and in *dwellings* not classified as Group R occupancies~~ in accordance with Sections 4603.7.1 through 4603.7.3.

4603.7.1 Where required. Existing Group R and I-1 occupancies ~~and in *dwellings* not classified as Group R occupancies~~ not already provided with single-station smoke alarms shall be provided with single-station smoke alarms. Installation shall be in accordance with Section 907.2.11, except as provided in Sections 4603.7.2 and 4603.7.3.

2. Revise IPMC as follows:

[F] 704.2 Smoke alarms. Single- or multiple-station smoke alarms shall be installed and maintained in Groups~~ R-2, R-3, R-4 and in dwellings not regulated in group~~ R or I-1 occupancies, regardless of *occupant* load at all of the following locations:

1. On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of *bedrooms*.
2. In each room used for sleeping purposes.
3. In each story within a *dwelling unit*, including *basements* and cellars but not including crawl spaces and uninhabitable attics. In dwellings or *dwelling units* with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

~~Single- or multiple-station smoke alarms shall be installed in other groups in accordance with the *International Fire Code*.~~

[F] 704.3 Power source. In Group R or I-1 occupancies ~~and in dwellings not regulated as Group R occupancies~~, single-station smoke alarms shall receive their primary power from the building wiring provided that such wiring is served from a commercial source and shall be equipped with a battery backup. Smoke alarms shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection.

Exception: Smoke alarms are permitted to be solely battery operated in buildings where no construction is taking place, buildings that are not served from a commercial power source and in existing areas of buildings undergoing alterations or repairs that do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space or *basement* available which could provide access for building wiring without the removal of interior finishes.

[F] 704.4 Interconnection. Where more than one smoke alarm is required to be installed within an individual *dwelling unit* in Groups~~ R-2, R-3, R-4 and in dwellings not regulated in group~~ R or I-1 occupancies, the smoke alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit. The alarm shall be clearly audible in all *bedrooms* over background noise levels with all intervening doors closed.

Exceptions:

1. Interconnection is not required in buildings which are not undergoing alterations, repairs or construction of any kind.
2. Smoke alarms in existing areas are not required to be interconnected where alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space or *basement* available which could provide access for interconnection without the removal of interior finishes.

PART II – IBC GENERAL

Add new text to IBC as follows:

3403.5 (IEBC [B] 302.5) Smoke alarms in existing portions of a building. Where an *addition* is made to a building or structure of a Group R or I-1 occupancy, the *existing building* shall be provided with smoke alarms in accordance with Section 4603.7 of the *International Fire Code*.

3404.7 (IEBC [B] 303.7) Smoke alarms. Individual sleeping units and individual dwelling units in Group R and I-1 occupancies shall be provided with smoke alarms in accordance with Section 4603.7 of the *International Fire Code*.

PART III – IEBC

Revise IEBC as follows:

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,~~ R 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.

1004.1 Smoke Alarms in existing portions of a building. ~~Whenever~~ Where an *addition* is made to a building or structure of a Group ~~R-3, or R-4~~ R or I-1 occupancy, the *existing building* shall be provided with smoke alarms as required by Section 4603.7 of the *International ~~Building~~ Fire Code* or Section R314 of the *International Residential Code* as applicable.

Reason (Part I): The purpose of this code change is to align the IFC, IBC, and IEBC requirements.

The change in Section 4607.3 clarifies what non-Group R dwellings are being referred to, and is part of an effort to align the requirements in the IFC, IBC, and IEBC.

The change to refer to Group R occupancies rather than listing them individually in Section 907.2.11.3 is strictly editorial. Addition of Group I-1 occupancies is to align this section with IFC Section 4603.7 and IEBC Section 704.4.3.

Reason (Part II): For many years, the code community has been touting the efficacy of smoke alarms in saving lives. While there are requirements in the Fire Code to provide smoke alarms in existing buildings, there is no clear path to get to the requirements from the building code. As the ICC codes currently stand, only the Existing Building Code references the Fire Code for this important requirement. This proposal adds requirements in the building code to provide smoke alarms in existing buildings with residential and supervised residential occupancies when additions or alterations are made to the building, with text that is modeled on Sections 704.4.3 and 1004.1 of the IEBC.

In some jurisdictions where the review for building code and fire code compliance are split between the building and fire departments, additions and alterations, particularly those for single family residences, are not reviewed by the fire department. Without a clear path to the requirements, it would be easy for a building code reviewer to miss that smoke alarms are indeed required in areas of dwelling or sleeping units where there may not be construction occurring. For those of us who were accustomed to finding such a requirement in a legacy building code, it is disconcerting to find that the topic is not addressed at all in the IBC, and it would be helpful to have a pointer to the provisions.

This proposal is one of 3 submitted to coordinate the IFC, IBC, and IEBC, provisions relating to smoke alarms in existing buildings.

Reason (Part III): The purposes of this code change proposal are to provide a correct cross-reference to the requirements for retrofitting smoke alarms, and to align the Existing Building Code with the Fire Code.

As currently written, the IBC does not address the issue of providing smoke alarms in the existing portion of a building in Chapter 34 or anywhere else, so the reference to the IBC in this section is confusing. Those requirements are actually contained in the Fire Code (IFC Section 4603.7). While the proponent has submitted a separate proposal to modify Chapter 34 of the IBC to provide a cross-reference to the Fire Code, a direct reference to the Fire Code from the IEBC is clearer than referring to the IBC which then refers to the IFC. Note that for alterations, IEBC Section 704.4.3 already correctly refers the user to the Fire Code, rather than the Building Code.

The extension of the requirement to all Group R occupancies and to I-1 occupancies is to align this section with IEBC Section 704.4.3 (Level 2 alterations), as well as IFC Section 903.2.11.3 (smoke alarms in new construction).

The proposed change to refer to Group R occupancies in general rather than listing them individually in Section 704.4.3 is editorial, and is one of several proposals to align the text in the Building, Fire, and Existing Building codes. The deletion of the redundant “rehabilitation” in the exception is also editorial.

Cost Impact (Parts I-III): The code change proposal will cause a decrease in cost of construction.

PART I – IFC

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 – IEBC

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

ICCFILENAME: SIU-F1-907.2.11.3-2.DOC

F115–09/10

907.2.11.3 (IBC [F] 907.2.11.3), 4603.7.2; IPMC [F] 704.4; IRC R314.3, R314.4, R314.5 (New)

Proponent: Jonathan C. Siu, City of Seattle, WA, representing the Seattle Department of Planning and Development

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IFC COMMITTEE. PART II WILL BE HEARD BY THE IRC BUILDING/ENERGY COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IFC and IPMC

1. Revise IFC as follows:

907.2.11.3 (IBC [F] 907.2.11.3) Interconnection. Where more than one smoke alarm is required to be installed within an individual *dwelling unit* or *sleeping unit* in Group R-1, R-2, R-3 or R-4, the smoke alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit. Physical interconnection of smoke alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

4603.7.2 Interconnection. Where more than one smoke alarm is required to be installed within an individual *dwelling* or *sleeping unit,* the smoke alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit. Physical interconnection of smoke alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

Exceptions:

1. Interconnection is not required in buildings that are not undergoing *alterations*, repairs or construction of any kind.
2. Smoke alarms in existing areas are not required to be interconnected where *alterations* or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space or *basement* available which could provide access for interconnection without the removal of interior finishes.

2. Revise IPMC as follows:

[F] 704.4 Interconnection. Where more than one smoke alarm is required to be installed within an individual *dwelling unit* in Group R-2, R-3, R-4 and in dwellings not regulated as Group R occupancies, the smoke alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit. . Physical interconnection of smoke alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm. The alarm shall be clearly audible in all *bedrooms* over background noise levels with all intervening doors closed.

Exceptions:

1. Interconnection is not required in buildings which are not undergoing alterations, repairs or construction of any kind.
2. Smoke alarms in existing areas are not required to be interconnected where alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space or *basement* available which could provide access for interconnection without the removal of interior finishes.

PART II – IRC BUILDING/ENERGY

Revise IRC as follows:

R314.3 Location. Smoke alarms shall be installed in the following locations:

1. In each sleeping room.
2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional *story* of the *dwelling*, including *basements* and habitable attics but not including crawl spaces and uninhabitable *attics*. In *dwellings* or *dwelling units* with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full *story* below the upper level.

~~When more than one smoke alarm is required to be installed within an individual *dwelling* unit the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit.~~

R314.4 Power source. Smoke alarms shall receive their primary power from the building wiring when such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection. ~~Smoke alarms shall be interconnected.~~

Exceptions:

1. Smoke alarms shall be permitted to be battery operated when installed in buildings without commercial power.
2. ~~Interconnection and~~ Hard-wiring of smoke alarms in existing areas shall not be required where *alterations* or repairs do not result in removal of interior wall or ceiling finishes exposing the structure, unless there is an *attic*, crawl space or *basement* available which could provide access for hard-wiring ~~and interconnection~~ without the removal of interior finishes.

R314.5 Interconnection. Where more than one smoke alarm is required to be installed within an individual *dwelling* unit in accordance with Section R314.3, the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit. Physical interconnection of smoke alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.

Exception: Interconnection of smoke alarms in existing areas shall not be required where *alterations* or repairs do not result in removal of interior wall or ceiling finishes exposing the structure, unless there is an *attic*, crawl space or *basement* available which could provide access for interconnection without the removal of interior finishes.

Reason (Part I): The purpose of this proposal is to recognize listed wireless smoke alarms.

This proposal adds language that would allow listed wireless alarms to substitute for wired interconnection of the smoke alarms in both new and existing construction. While the code officials with whom we have discussed this issue would accept wireless systems as being interconnected, we have heard from other sources that some code officials do not recognize wireless interconnection as meeting the code requirement for interconnection. Adding the proposed text would make it clear that listed wireless systems comply with the code. It is the intent of this code change proposal that the new text in IFC Section 907.2.11.3 would appear in the same section in the IBC.

Reason (Part II): The requirements for interconnection of smoke alarms in the 2009 IRC are divided between two sections, neither of whose titles reflect they contain any requirements relating to interconnection. (See the second paragraph of Section R314.3, titled "Location" and Section R314.4, titled "Power Source"). This can make it difficult to find the requirements for interconnection, unless the code user already knows where to look. The editorial change being proposed creates a new section that consolidates the interconnection requirements into a new section (R314.5), separate from the other two, with an appropriate title. This format is similar to the IFC and IBC, Sections 907.2.11.3 (interconnection) and 907.2.11.4 (power source), as well as IFC Sections 4603.7.2 and 4603.7.3.

The substantive change being proposed is to add language that would allow listed wireless alarms to substitute for wired interconnection of the smoke alarms in both new and existing construction. While the code officials with whom we have discussed this issue would accept wireless systems as being interconnected, we have heard from other sources that some code officials do not recognize wireless interconnection as meeting the code requirement for interconnection. Adding the proposed text would make it clear that listed wireless systems comply with the code.

Cost Impact (Parts I-II): The code change proposal will decrease the cost of construction.

PART I – IFC

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

PART II – IRC BUILDING/ENERGY

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

ICCFILENAME: SIU-F2-907.2.11.3.DOC

F116–09/10

907.2.12 (New) [IBC [F] 907.2.12 (New)], 4603.8 (New); IRC R314.5 (New), R314.5.1(New), R314.5.2 (New), R314.5.3 (New)

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IFC COMMITTEE. PART II WILL BE HEARD BY THE IRC BUILDING COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: David Fredrick Scarelli representing DBA-Sentry Signal Company

PART I – IFC

Add new text as follows:

907.2.12 (IBC [F] 907.2.12) Line type heat detection. A line type heat detection system that activates at 475°F (246°C) shall be installed in Group R Occupancies in accordance with Sections 907.2.12.1 through 907.2.12.2, NFPA 72, NFPA 70 and manufacturer's instructions.

907.2.12.1 (IBC [F] 907.2.12.1) Location. A line type heat detection shall be installed in the following locations:

1. Above all NM-B Cable
2. Above all electrical boxes
3. Above or near all raceways.

907.2.12.2 (IBC [F] 907.2.12.2) Interconnection. The line type heat detection system shall be interconnected with the smoke alarms required by Section 907.2.11 in such a manner that when the line type heat detection activates such detection shall activate the smoke alarms in all sleeping units and dwelling units.

4603.8 Line type heat detection. A line type heat detection that activates at 475° F (246°C) shall be installed in existing Group R Occupancies in accordance with Sections 4603.8.1 through 4603.8.2, NFPA 72, NFPA 70 and manufacturer's instructions.

4603.8.1 Location. Line type heat detection shall be installed in the following locations:

1. Above all exposed NM-B Cable
2. Above all electrical boxes
3. Above or near all raceways.

4603.8.2 Interconnection. The line type heat detection system shall be interconnected with the smoke alarms required by Section 907.2.11 in such a manner that when the line type heat detection activates such detection shall activate the smoke alarms in all sleeping and dwelling units.

PART II – IRC

Add new text as follows:

R314.5 Line type heat detection. A line type heat detection system that activates at 475°F(246°C) shall be installed in accordance with Sections 314.5.1 through 314.5.2, NFPA 72, NFPA 70 and manufacturer's instructions.

R314.5.1 Location. Line type heat detection shall be installed in the following locations:

1. Above all NM-B Cable
2. Above all electrical boxes
3. Above or near all raceways.

R314.5.2 Interconnection. The line type heat detection system shall be interconnected with the smoke alarms in such a manner that when the line type heat detection activates such detection shall activate all of the alarms in the dwelling unit. Where there are two dwelling units the line type heat detection shall be interconnected with the smoke alarms in both dwelling units.

Reason: According to death certificate data, 25% of fire and flame deaths in 2002 were due to smoke inhalation alone, 26% due to burns and 21% to a combination of burns and smoke inhalation. There were 517,000 structural, 3,140 civilian deaths and 17,730 civilian induries. *(page 37).

ESCAPING – all seemed savable …; SLEEPING – 1/3 estimated as savable; RESCUING OR FIREFIGHTING – ¾ estimated savable … **Reanalysis of who can be saved.** (see additional data attached)

Deterioration of electrical wiring caused by time or the environment is a predominant cause of ignition. *+ (pg. 24)

Fires in electrical distribution systems contribute significantly to the U.S. fire problem, accounting for a consistent portion of the problem year after year. *+ (page 69)

In 2006 an estimated 71,360 injuries involving electrical distribution or lighting equipment were reported to hospital emergency rooms. +

Electrical distributions and lighting equipment dwelling fires are the only type of home fires that have been shown to increase in frequency with increasing dwelling age. *+

The majority of 2002-2005 non-confined home structure fires involving electrical distribution or lighting equipment began with the ignition of products and materials often found in structural areas, including wire or cable insulation (30%), structural members or framing (12%), insulation within the structural area (5%). Pg 6#

Three-fourths (75%) of deaths in 2002-2005 home fires involving electrical distribution or lighting equipment involved victims who were outside the area of origin when the fire began. (pg 6#)

Branch circuit wiring (51%) accounted for half of the 2002-2005 non-confined home structure fires involving wiring. (pg 54 #)

Half (52%) of 2002-2005 non-confined home structure fires involving wiring began in fire areas of origin that are all concealed or exterior spaces. (pg 55 #)

The majority (57%) of 2002-2005 non-confined home structure fires involving overcurrent protection devices began with ignition wire or cable insulation. (pg 89#)

SUMMARY: Electrical distribution equipment is a highly significant contributor to the high number of civilian deaths and civilian injuries resulting year after year in home fires. Many lives can be saved and injuries prevented if earlier warning can be sounded.

CONCLUSION: The line type open switch activated by heat and/or fire is designed by earliest warning to prevent death by asphyxiation and burning.

(6b) Circuitry short circuits and overloads trip the circuit breakers when the breaker rating is reached. Lower leakage causes hot spots along the line and eventually causes fires that could be detected long before they could become autocatalytic. The line type open switch is designed to detect this hazard long before life is endangered.

Bibliography

+ Characteristics of Home Fire Victims, NFPA, Fire analysis and Research Division. July, 2005. Pg. 59, John R. Hall Jr.

** How Many People Can be Saved From Home Fires if Given More Time to Escape? Fire Technology, 40. Pgs 117-126, 2004: John R. Hall Jr. Fire Analysis and Research Division, NFPA

+ Statistics from National Electronic Injury Surveillance System (NEISS). Data obtained from the U.S. Consumer Product Safety Commission (CPSC) website, www.cpsc.gov

*+ Linda E. Smith and Dennis McCoskrie, "What Causes Wiring Fires in Residences?" Fire Journal, Jan/Feb 1990. Volume 84, Number 1

"Home Structure Fires Involving Electrical Distribution and Lighting Equpment." John R. Hall, Jr., Fire Analysis and Research Division, NFPA, March 2008.

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

PART I – IFC

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

PART II – IRC BUILDING/ENERGY

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

ICCFILENAME: SCARELLI F1-907.2.12.DOC

F117–09/10
907.2.12.1 (IBC [F] 907.2.12.1)

Proponent: Rick Sheets, Fire Committee Chair, Brinks Home Security, representing National Burglar and Fire Alarm Association

Revise as follows:

907.2.12.1 (IBC [F] 907.2.12.1) Alarm. Activation of any single smoke detector, the *automatic sprinkler system* or any other automatic fire detection device shall immediately sound an alarm at ~~the building at~~ a constantly attended location from which emergency action can be initiated, including the capability of manual initiation of requirements in Section 907.2.12.2.

Reason: Deleting the words "at the building" allows for a broader interpretation of a suitable location from which to take action.

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

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

ICCFILENAME: SHEETS-F8-907.2.12.1-PRIMARY.DOC

F118–09/10
907.2.12.1 (IBC [F] 907.2.12.1)

Proponent: Rick Sheets, Fire Committee Chair, Brinks Home Security, representing National Burglar and Fire Alarm Association

Revise as follows:

907.2.12.1 (IBC [F] 907.2.12.1) Alarm. Activation of any single smoke detector, the *automatic sprinkler system* or any other automatic fire detection device shall immediately ~~sound an~~ activate an audible and visible alarm at the building at a constantly attended location from which emergency action can be initiated, including the capability of manual initiation of requirements in Section 907.2.12.2.

Reason: The confusing language contained in the existing code is the problem, as it is not consisted with NFPA 72, nor other references in this code or the IBC.

This could be resolved by using the word "activate" instead of "sound". Also, adding the words "audible and visible" is consistent with other codes and standards where private mode signaling is required or permitted.

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

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

ICCFILENAME: SHEETS-F9-907.2.12.1-SECONDARY.DOC

F119–09/10
907.2.13.1.1 (IBC [F] 907.2.13.1.1)

Proponent: Thomas P. Hammerberg, Automatic Fire Alarm Association, Inc.

Revise as follows:

907.2.13.1.1 (IBC [F] 907.2.13.1.1) Area smoke detection. Area smoke detectors shall be provided in accordance with this section. Smoke detectors shall be connected to an automatic fire alarm system. The activation of any detector required by this section shall operate the emergency voice/alarm communication system in accordance with Section 907.6.2.2. In addition to smoke detectors required by Sections 907.2.1 through 907.2.10, smoke detectors shall be located as follows:

1. In each mechanical equipment, electrical, transformer, telephone equipment or similar room which is not provided with sprinkler protection.
2. In each elevator machine room and in elevator lobbies.

Reason: This change will provide more clarity for the requirements for smoke detectors in high-rise buildings. Without this language, it is possible to interpret this to mean that the only smoke detectors required in a high-rise are as listed in this Section. It further clarifies which detectors must activate the emergency voice alarm communication 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: HAMMERBERG-F1-907.2.13.1.1.DOC

F120–09/10
907.2.13.1.2 (IBC [F] 907.2.13.1.2); IMC 606.2.1 (New), 606.2.2

Proponent: Dave Frable, U.S. General Services Administration

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 – IFC

Revise as follows:

907.2.13.1.2 (IBC [F] 907.2.13.1.2) Duct smoke detection. Duct smoke detectors complying with Section 907.3.1 shall be located as follows:

1. In the main supply air duct of each air-handling system having a design capacity greater than 2,000 cubic feet per minute (cfm) (0.94 m^3/s), downstream of any filters.

~~1.~~ 2. In the main return ~~air and exhaust air plenum~~ of each air-~~conditioning~~ handling system having a design capacity greater than ~~2,000~~ 15,000 cubic feet per minute (cfm) ~~(0.94 m^3/s)~~(7.1 m^3/s). Such detectors shall be located in a serviceable area downstream of the last duct inlet.

3. In the supply air system where multiple air-handling systems share common or supply return air ducts or plenums with a combined design capacity greater than 2,000 cfm (0.9 m^3/s),

4. At each story in return air systems having a design capacity greater than 15,000 cfm (7.1 m^3/s), where return air risers serve two or more stories.

~~2.~~ 5. At each connection to a vertical duct or riser serving two or more stories from a return air duct or plenum of an air-conditioning system with a design capacity of greater than 15,000 cfm (7.1 m^3/s). In Group R-1 and R-2 occupancies a listed smoke detector is allowed to be used in each return air riser carrying not more than 5,000 cfm (2.4 m^3/s) and serving not more than 10 air inlet openings.

Exception: Smoke detectors are not required in the return air system where all portions of the building served by the air distribution system are protected by area smoke detectors connected to a fire alarm system in accordance with the *International Fire Code*.

PART II – IMC

Revise as follows:

606.2 Where required. Smoke detectors shall be installed where indicated in Sections 606.2.1 through ~~606.2.3~~ 606.2.4.

Exception: Smoke detectors shall not be required where air distribution systems are incapable of spreading smoke beyond the enclosing walls, floors and ceilings of the room or space in which the smoke is generated.

606.2.1 Supply air systems. Smoke detectors shall be installed in supply air systems with a design capacity greater than 2,000 cubic feet per minute (cfm) (0.94 m^3/s), in the supply air duct or plenum downstream of any filters.

~~606.2.1~~ 606.2.2 Return air systems. Smoke detectors shall be installed in return air systems with a design capacity greater than ~~2,000~~ 15,000 cfm (~~0.9~~ 7.1m^3/s), in the return air duct or plenum upstream of any filters, exhaust air connections, outdoor air connections, or decontamination equipment and appliances.

Exception: Smoke detectors are not required in the return air system where all portions of the building served by the air distribution system are protected by area smoke detectors connected to a fire alarm system in accordance with the *International Fire Cod*e. The area smoke detection system shall comply with Section 606.4.

~~**606.2.2**~~ **606.2.3 Common supply and return air systems.** Where multiple air-handling systems share common supply or return air ducts or plenums with a combined design capacity greater than 2,000 cfm (0.9 m^3/s), the supply ~~return~~ air system shall be provided with smoke detectors in accordance with Section 606.2.1.

~~**Exception:** Individual smoke detectors shall not be required for each fan-powered terminal unit, provided that such units do not have an individual design capacity greater than 2,000 cfm (0.9 m^3/s) and will be shut down by activation of one of the following:~~

~~1. Smoke detectors required by Sections 606.2.1 and 606.2.3.~~
~~2. An approved area smoke detector system located in the return air plenum serving such units.~~
~~3. An area smoke detector system as prescribed in the exception to Section 606.2.1~~.

In all cases, the smoke detectors shall comply with Sections 606.4 and 606.4.1.

Reason: The intent of this proposal is to improve the level of detection of smoke within air handling units cost effectively and to correlate smoke detector requirements in air handling systems in the IBC, IFC and IMC with the requirements currently found in NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*.

During the 2006/2007 ICC Code Development Hearings in Orlando, both the Fire Code Committee and Mechanical Code Committee recommended approval of two similar code change proposals (F113-06/07 – Part 1& Part 2). However, at the Final Action Hearings of the ICC in May 2007, the ICC membership voted to overturn both the Fire Code Committee and the Mechanical Code Committee's recommendations and disapproved the subject code change proposals. At the hearings, no new information or technical substantiation was brought forth to substantiate overturning the two Code Committee's recommendations for approval. It should be emphasized that the main issue of contention by the opponents of this code change proposal at both the Code Committee and Final Action Hearings was that this issue had been debated many times before in the ICC Code Development Process. However, that is untrue. During the 2009 Code Hearings in Minneapolis, the only mention of this occurring was in the Commonwealth of Virginia's Mechanical Code over 10 years ago.

The technical substantiation to revise the location of smoke detectors from the return air side to the supply air side is valid; and will improve the level of detection of smoke within air-handling units. Opponents may argue that return air detectors will detect fires in a building much quicker than detectors located on the supply air side, but return air detectors are **not** a substitute for area detectors. If there is a desire for early detection of smoke, area smoke detectors should be installed. However, we contend that the detector serving the supply air detector will operate as desired once the smoke concentration levels in the supply air exceeds the alarm threshold so occupants should not be at risk should the return air fan continues to run prior to the supply air fan shutting down. In addition, return air detectors will not be able to detect smoke from a fire on the supply side of air handling units due to fan belts, motors or combustible filters so their respective fan will shut off appropriately. A smoke detector located on the supply side can also detect smoke from an exterior fire that gets pulled into the fresh air intake for the air handling system. Thus, a smoke detector located on the supply side will serve the purpose of protecting building occupants from smoke produced by air handling unit fire or smoke ingress via the fresh air intake for the air handling unit. Therefore overall detection is improved.

Correlating the IFC, IBC and IMC with NFPA 90A is also important as many jurisdictions adopt both the IFC/IMC and NFPA 90A. Accredited health care organizations are required by law to comply with NFPA 90A. Not having the subject requirements in the IBC in concert with NFPA 90A results in the unnecessary installation of smoke detectors in both the return and supply air systems. This code change proposal aims to maintain detection in air handling systems, not remove it. There should be no increase in installation costs as this code change proposal merely shifts the location of devices from the return air side to the supply air side, where air handling units are greater than 2000 cfm. In fact, changing the requirement as proposed will reduce the cost in jurisdictions that must comply with the IFC/IMC and NFPA 90A (i.e., leaving the requirements as currently stated in both the IFC and IMC already results in unnecessary additional costs).

Specific code changes are as follows:

PART I:
(New) IFC 907.2.13.1.2, paragraph 1
Over the past few years, the U.S. General Services Administration has had a number of fire incidences that did not activate the building fire alarm system because there were no smoke detectors installed in the main supply air duct of the air-handling system downstream of any filter. Conversely, GSA has no incidence of a return air duct smoke detector activating as a result of detecting smoke in the return air handling system. Installing duct smoke detectors in the supply air system would ensure that a fire within the supply air filters, in the air handling motors or originating outside near air intakes can be discovered before it spreads. Establishing a 2,000 cfm threshold for installing detectors in supply air fans appears to be an industry standard.

(New) 907.2.13.1.2, paragraphs 2 & 3 (Note: the intent is for 907.2.13.1.2 to be have similar language as 606.2.2 and 606.2.3 so the codes are coordinated). The current requirement for installing duct smoke detectors in return air systems exceeding 2,000 cfm is overly restrictive. The 15,000 cfm threshold for return air systems appears to be an industry standard, as this capacity was used in the legacy codes and is currently used by NFPA 90A. The term "air conditioning system" has been replaced with "air handling system to more accurately reflect the type of system used in buildings today.

(Deleted text) Per the commentary for Section 606.1, requiring duct smoke detectors in exhaust air plenums does not provide any protection for the fan or the building occupants, since smoke is being exhausted out of the building. In addition, return air smoke detection is not supposed to be used as a means for detecting smoke in buildings.

(New) IFC 907.2.13.1.2, paragraph 4 is material extracted from IMC existing 606.2.3 (changed to 606.2.4).
This is an editorial change to coordinate the two codes.

(Revision) 907.2.13.1.2 Paragraph No. 5 (formally Paragraph No. 2) – The purpose of this code change is to correlate this paragraph with the changes above. The code language contained in the IBC does not have a capacity threshold for return air ducts/plenum with connections to more than two stories and, therefore, all return duct/plenum system that connects more than two floors would require duct mounted smoke detectors at the connection to the riser regardless of the size of the system. This would be onerous to smaller buildings that have multi-story returns. In addition, no other code (either the legacy codes or NFPA 90A require duct smoke detectors in multi-story return air systems unless they exceed 15,000 cfm. This change also would correlate the capacity requirements currently specified in NFPA 90A - 2007 edition (NFPA 90A – 6.4.2).

(New) Exception to IFC 907.2.13.1.2 (2) through (5) is material extracted from the IMC existing exception to 606.2.1 (changed to 606.2.2) that eliminates the need for duct smoke detectors in return air systems when the entire building is protected by area smoke detectors.

PART II:
(Revision) 606.2. This is an editorial change to coordinate the two codes.

(New) IMC 606.2.1

Over the past few years, the U.S. General Services Administration has had a number of fire incidences that did not activate the building fire alarm system because there were no smoke detectors installed in the main supply air duct of the air-handling system downstream of any filter. Conversely, GSA has no incidence of a return air duct smoke detector activating as a result of detecting smoke in the return air handling system. Installing duct smoke detectors in the supply air system would ensure that a fire within the supply air filters, in the air handling motors or originating outside near air intakes can be discovered before it spreads. Establishing a 2,000 cfm threshold for installing detectors in supply air fans appears to be an industry standard.

(Revision/New) 606.2.1 and 606.2.2 (changed to 606.2.2 and 606.2.3, respectively) (Note: the intent is for 907.2.13.1.2 paragraphs 2 & 3 to have similar language as 606.2.2 and 606.2.3 so the codes are coordinated). The current requirement for installing duct smoke detectors in return air systems exceeding 2,000 cfm is overly restrictive. The 15,000 cfm threshold for return air systems appears to be an industry standard, as this capacity was used in the legacy codes and is currently used by NFPA 90A. The term "air conditioning system" has been replaced with "air handling system to more accurately reflect the type of system used in buildings today.

(Deletion) Exception to IMC 606.2.2 (changed to IMC 606.2.3):

The 2,000 cfm requirement has been applied to the supply air side. Therefore the Exception needs to be deleted given the proposed new return air threshold will be increased from 2,000 cfm to 15,000 cfm.

(Revision) IMC 606.2.3 (changed to IMC 606.2.4) editorial as a new section was inserted. Existing text 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: FRABLE-F1-907.2.13.1.2.DOC

F121–09/10

907.4, 907.4.1 (New) [IBC [F] 907.3, [F] 907.3.1 (New)]

Proponent: Rick Sheets, Fire Committee Chair, Brinks Home Security, representing National Burglar and Fire Alarm Association

Revise as follows:

907.4 (IBC [F] 907.3) Fire safety functions. Automatic fire detectors utilized for the purpose of performing fire safety functions shall be connected to the building's fire alarm control unit where a fire alarm system is required by Section 907.2. Detectors shall, upon actuation, perform the intended function and activate the alarm notification appliances or activate a visible and audible supervisory signal at *a constantly attended location.*

907.4.1 (IBC [F] 907.3.1) Power source. In buildings not equipped with a fire alarm system, the automatic fire detector shall be powered by normal electrical service and, upon actuation, perform the intended function. The detectors shall be located in accordance with NFPA 72.

Exception: Elevator recall and supervisory service detectors shall be connected to a dedicated function fire alarm control unit that shall be designated as "Elevator Recall Control & Supervisory Unit".

Reason: Including this exception means-monitoring the integrity of the initiating device circuits cannot be omitted. In the past, smoke alarms and heat detectors were directly wired in the elevator equipment without providing the required monitoring for integrity of the circuit wiring, allowing elevators to be used during a fire. The requirement for the use of a fire alarm control unit for elevator recall is also a requirement of NFPA 72, (found in Section 6.16.3 in the 2007 edition), and should be added here for conformity as well as safety.

Cost Impact: The code change proposal will not increase the cost of construction since compliance with NFPA 72 is already required by this code and elevator codes.

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

ICCFILENAME: SHEETS-F12-907.4.1.DOC

F122–09/10
907.5.1 (IBC [F] 907.4.1)

Proponent: Thomas P. Hammerberg, Automatic Fire Alarm Association, Inc

Revise as follows:

907.5.1 (IBC [F] 907.4.1) Protection of fire alarm control unit. In areas that are not continuously occupied, a single smoke detector shall be provided at the location of each fire alarm control unit, notification appliance circuit power extenders and supervising station transmitting equipment.

Exceptions:

1. Where ambient conditions prohibit installation of smoke detector, a *heat detector* shall be permitted.
2. The smoke detector shall not be required where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.

Reason: This exception was added to this requirement during the last code cycle so the language would be consistent with NFPA 72. This exception was deleted in the 2010 edition of NFPA 72, so needs to be deleted here for consistency.

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

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

ICCFILENAME: HAMMERBERG-F2-907.5.1.DOC

F123–09/10
907.5.2.6 (New) [IBC [F] 907.4.2.6 (New)]

Proponent: Patrick D. Bradshaw, CFI-II, CFPE; Richland County Emergency Services (Fire Marshal's Office), SC, representing self

Add new text as follows:

907.5.2.6 (IBC [F] 907.4.2.6) Unobstructed and unobscured. Manual fire alarm boxes shall be accessible, unobstructed, unobscured and visible at all times

Reason: Currently there is no clear requirement in the IFC for maintaining manual fire alarm boxes clear and unobstructed. It is recommended that a minimum of 3 feet be kept clear but more may be needed. NFPA 72 does address the installation to be unobstructed in section 5.13.5 of the 2007 edition. NFPA 1 and NFPA 101 both address this requirement. For those jurisdictions adopting the ICC family of codes, this apparent common sense requirement is not found. Adding this requirement to the IFC will streamline inspections and enforcement by mandating this in the body of the code in a concise manner and not a secondary reference.

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

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

ICCFILENAME: BRADSHAW-F1-907.4.6.DOC

F124–09/10
907.6.2.1 (IBC [F] 907.5.2.1)

Proponent: Dave Frable, U.S. General Services Administration

Revise as follows:

907.6.2.1 (IBC [F] 907.5.2.1) Audible alarms. Audible alarm notification appliances shall be provided and emit a distinctive sound that is not to be used for any purpose other than that of a fire alarm.

Exceptions

1. Visible alarm notification appliances shall be allowed in lieu of audible alarm notification appliances in critical care areas of Group I-2 occupancies.
2. Where provided, audible notification appliances located in each occupant evacuation elevator lobby in accordance with Section 3008.5.1 of the *International Building Code* shall be connected to a separate notification zone for manual paging only.

Reason: The intent of this code change is to ensure that automatic emergency voice/alarm messages do not interfere with operation of the two-way communication. Ensures that live voice messages from the emergency voice/alarm communication will only transmit into the subject enclosed elevator lobby.

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

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

ICCFILENAME: FRABLE-F2-907.6.2.1.DOC

F125–09/10
907.6.2.1.1 (IBC [F] 907.5.2.1.1)

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

Revise as follows:

907.6.2.1.1 (IBC [F] 907.5.2.1.1) Average sound pressure. The audible alarm notification appliances shall provide a sound pressure level of 15 decibels (dBA) above the average ambient sound level or 5 dBA above the maximum sound level having a duration of at least 60 seconds, whichever is greater, in every occupiable space within the building. ~~The minimum sound pressure levels shall be 75 dBA in occupancies in Groups R and I-1; 90 dBA in mechanical equipment rooms; and 60 dBA in other occupancies.~~

Reason: The concept of providing a minimum dBA level in the code was contained in the First Draft of the IFC/IBC. This concept can be traced back to the Legacy Codes and was added in 1990. At that time, the code requirement was consistent with, or more restrictive than, the requirements contained in NFPA 72G. NFPA 72G has since been incorporated into NFPA 72 and the sound levels have not only been relocated from the body of the standard to Annex B, but have also been revised in NFPA 72. The subsequent revisions of the sound levels in NFPA 72 occurred without a corresponding revision to the sound levels now found in the International Codes. In other words, the IFC/IBC has not kept up with these revisions in NFPA 72.

Both NFPA 72G and NFPA 72 provide guidance on the expected ambient sound level. Whereas, the IFC provides a minimum level of the notification appliance. Both IFC and NFPA 72 require 15 dBA above the ambient sound level. The required notification sound levels in NFPA 72G, NFPA 72 and IFC are shown below:

Use or Occupancy	NFPA 72G	NFPA 72	IFC/IBC
Business Occupancies	45 + 15 = **60**	55 + 15 = **70**	**60**
Educational Occupancies	45 + 15 = **60**	45 + 15 = **60**	**60**
Industrial Occupancies	80 + 15 = **95**	80 + 15 = **95**	**60**
Institutional Occupancies	50 + 15 = **65**	50 + 15 = **65**	**75**
Mercantile Occupancies	40 + 15 = **55**	40 + 15 = **55**	**60**
Piers and Water surrounded structures	40 + 15 = **55**	40 + 15 = **55**	**60**
Places of Assembly	40 + 15 = **55**	55 + 15 = **70**	**60**
Residential Occupancies	35 + 15 = **50**	35 + 15 = **50**	**75**
Residential at the pillow	Na	**75** dBA	**not specified**
Storage Occupancies	30 + 15 = **45**	30 + 15 = **45**	**60**
Thoroughfares, High Density Urban	70 + 15 = **85**	70 + 15 = **85**	**60**
Thoroughfares, Medium Density Urban	55 + 15 = **70**	55 + 15 = **70**	**60**
Thoroughfares, Rural and Suburban	40 + 15 = **55**	40 + 15 = **55**	**60**
Tower Occupancies	35 + 15 = **50**	35 + 15 = **50**	**60**
Underground Structures and Windowless Buildings	40 + 15 = **55**	40 + 15 = **55**	**60**
Vehicles and Vessels	50 + 15 = **65**	50 + 15 = **65**	**60**
Mechanical Equipment Rooms	85 + 15 = **100**	85 + 15 = **100**	**90**

The sound levels required in the IFC are not consistent with the ambient sound levels recommended for design in NFPA 72. In some cases, the IFC requirement is a higher sound level and in some cases it is lower. More importantly, the requirements in the IFC do not cover all of the possible categories or uses of the building. There is no justification to continue with the requirement in IFC and it should be deleted.

By deleting the specific sound levels specified in the IFC/IBC, the requirement then falls back to 15 dbA above the ambient sound level. This is the true test - whether or not the audibility is 15dBA over the ambient sound level. As an example, the IFC requires that the sound level for a notification device in a casino is 60 dBA; while NFPA 72 would recommend 70 dBA; while the actual ambient sound level may require devices at 95 dBA.

Therefore, these requirements in the IFC are too limited and are proposed to be deleted. Even the sound levels in NFPA 72 are only recommendations for design. The actual requirement of 15 dBA above the ambient sound level is retained in the IFC and is consistent with NFPA 72.

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

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

ICCFILENAME: LARIVIERE-F16-907.6.2.1.1.DOC

F126–09/10
907.6.2.2 (IBC [F] 907.5.2.2), 907.6.2.2.5 (New) [IBC [F] 907.5.2.2.5 (New)]

Proponent: Gene Boecker, Code Consultants, Inc.

1. Revise as follows:

907.6.2.2 (IBC [F] 907.5.2.2) Emergency voice/alarm communication systems. Emergency voice/alarm communication systems required by this code shall be designed and installed in accordance with NFPA 72. ~~The operation of any automatic fire detector, sprinkler waterflow device or manual fire alarm box shall automatically sound an alert tone followed by voice instructions giving approved information and directions for a general or staged evacuation in accordance with the building's fire safety and evacuation plans required by Section 404. In high-rise buildings, the system shall operate on a minimum of the alarming floor, the floor above and the floor below. Speakers shall be provided throughout the building by paging zones. At a minimum, paging zones shall be provided as follows:~~

~~1. Elevator groups.~~
~~2. Exit stairways.~~
~~3. Each floor.~~
~~4. Areas of refuge as defined in Section 1002.1.~~

~~**Exception:** In Group I-1 and I-2 occupancies, the alarm shall sound in a constantly attended area and a general occupant notification shall be broadcast over the overhead page.~~

2. Add new text as follows:

907.6.2.2.5 (IBC [F] 907.5.2.2.5) High-rise buildings. The operation of any automatic fire detector, sprinkler waterflow device or manual fire alarm box shall automatically sound an alert tone followed by voice instructions giving approved information and directions for a general or staged evacuation in accordance with the building's fire safety and evacuation plans required by Section 404. In high-rise buildings, the system shall operate on a minimum of the alarming floor, the floor above and the floor below. Speakers shall be provided throughout the building by paging zones. At a minimum, paging zones shall be provided as follows:

1. Elevator groups.
2. Exit stairways.
3. Each floor.
4. Areas of refuge as defined in Section 1002.1.

Exception: In Group I-1 and I-2 occupancies, the alarm shall sound in a constantly attended area and a general occupant notification shall be broadcast over the overhead page.

Reason: This code change proposal clarifies the requirements of the Code for voice/alarm communication systems. In addition to high-rise buildings, voice/alarm communications systems may also be required in assembly occupancies, buildings with an atrium, and covered mall buildings. The second, third, and fourth sentences of Section 907.6.2.2 (IBC [F] 907.5.2.2) and the associated exception have been relocated to a new Section 907.6.2.2.5 (IBC [F] 907.5.2.2.5), because these sentences refer solely to high-rise voice/alarm communication system requirements and do not apply to all voice/alarm communication systems required by other sections of the Code. The revised section clearly differentiates between requirements applicable to all voice/alarm communication systems and requirements solely applicable to voice/alarm communication systems in high-rise buildings.

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

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

ICCFILENAME: BOECKER-F8-907.6.2.2.DOC

F127–09/10
907.6.2.2 (IBC [F] 907.5.2.2)

Proponent: Rick Sheets, Fire Committee Chair, Brinks Home Security, representing National Burglar and Fire Alarm Association

Revise as follows:

907.6.2.2 (IBC [F] 907.5.2.2)Emergency voice/alarm communication systems. Emergency voice/alarm communication systems required by this code shall be designed and installed in accordance with NFPA 72. The operation of any automatic fire detector, sprinkler water flow device or manual fire alarm box shall automatically sound an alert tone followed by voice instructions giving *approved* information and directions for a general or staged evacuation in accordance with the building's fire safety and evacuation plans required by Section 404. In high-rise buildings, the system shall operate on a minimum of the alarming floor, the floor above and the floor below. Speakers shall be provided throughout the building by paging zones. At a minimum, paging zones shall be provided as follows:

1. Each elevator group~~s~~.
2. Each interior exit stairway~~s~~.
3. Each floor.
4. Areas of refuge as defined in Section 1002.1

Reason: The problem is that exterior stairways that are not enclosed cannot be properly served by an Emergency Voice Alarm Communication speaker system.

The requirement for speakers as part of an EVAC system to be installed in exterior stairways should be eliminated due to fact that a voice announcement's effectiveness is lost in an open environment because of wind and street noise. The quantity and volume of speakers necessitated by this requirement would be impractical. Their use would be startling to anyone near them, and offset any perceived value.

Stairways and elevators not within a common hoistway should not be grouped together so the word "each" should be added.

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

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

ICCFILENAME: SHEETS-F13-907.6.2.2.DOC

F128–09/10
907.6.2.3.4 (IBC [F] 907.5.2.3.4)

Proponent: Gene Boecker, Code Consultants, Inc.

Revise as follows:

907.6.2.3.4 (IBC [F] 907.5.2.3.4) Group R-2. In Group R-2 occupancies required by Section 907 to have a fire alarm system, all dwelling units and sleeping units shall be provided with the ~~capability~~ capacity at the fire alarm control unit to support visible alarm notification appliances in accordance with ICC A117.1.

Reason: The section indicates that all dwelling units shall be provided with the capability to support visible alarm notification appliances in accordance with ICC/ANSI A117.1. The code requires that all dwelling units be provided with the capability to support visible notification appliances, which allows for misinterpretation. The added text clarifies the intent for the dwelling units being capable of supporting visible notification appliances and provides a means of enforcing the intent of the code.

The cost of construction may or may not be increased depending on what is currently being used as the "norm" for meeting this provision. Therefore, the comment below is stating the position with regards to increase in cost. It is just as likely, however, that the cost will be reduced if there are more restrictive interpretations being used to meet the requirement.

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

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

ICCFILENAME: BOECKER-F5-907.6.2.3.4.DOC

F129–09/10
907.7.3 (IBC [F] 907.7.3)

Proponent: Jeff Hugo, CBO, National Fire Sprinkler Association

Revise as follows:

907.7.3 (IBC [F] 907.7.3) Zones. Each floor shall be zoned separately and a zone shall not exceed 22,500 square feet (2090 m^2). The length of any zone shall not exceed 300 feet (91 440 mm) in any direction.

Exceptions:

1. Automatic sprinkler system zones shall not exceed the area permitted by NFPA 13.
2. For buildings with one exit complying with Section 1019.2, the sprinkler system in the building shall be permitted to be a single zone.

Reason: The requirement for each floor to be a separate zone hampers innovative design of sprinkler systems. If the building is permitted to be a single zone, piping for sprinklers on the top floor can be fed through the walls from the floor below, keeping sprinkler piping out of the attic, which will eliminate concerns over pipe freezing and reduce the cost of the installation.

Typically, codes have required water flow alarms on each floor because fire fighters want to know which floor the fire is on when they arrive at the building. In a small building (so small that it complies with the rules for a single exit), you will not need a water flow alarm to tell you which floor the fire is on. You will be able to hear the water flowing from the sprinkler from the single stairwell.

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

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

ICCFILENAME: HUGO-F1-907.8.DOC

F130–09/10
907.9.4

Proponent: Thomas P. Hammerberg, Automatic Fire Alarm Association, Inc.

Revise as follows:

907.9.4 Method. To verify that each smoke detector is within its *listed* and marked sensitivity range, it shall be tested using one of the following methods:

1. A calibrated test method;
2. The manufacturer's calibrated sensitivity test instrument;
3. *Listed* control equipment arranged for the purpose;
4. A smoke detector/control unit arrangement whereby the detector causes a signal at the control unit where the detector's sensitivity is outside its acceptable sensitivity range; or
5. Another calibrated sensitivity test method acceptable to the *fire code official*.

Detectors found to have a sensitivity outside the *listed* and marked sensitivity range shall be cleaned and recalibrated or replaced.

Exceptions:

1. Detectors *listed* as field adjustable shall be permitted to be either adjusted within the *listed* and marked sensitivity range and cleaned and recalibrated or they shall be replaced.
2. This requirement shall not apply to single-station smoke alarms in one- or two-family dwellings.

Reason: This change is required for consistency with the requirements for NFPA 72. NFPA 72 presently requires sensitivity testing for all smoke detectors and smoke alarms other than those installed in one- or two-family dwellings. This is not a new requirement in NFPA 72.

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

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

ICCFILENAME: HAMMERBERG-F3-907.9.4.DOC

F131–09/10
907.9.4

Proponent: Thomas P. Hammerberg, Automatic Fire Alarm Association, Inc.

Revise as follows:

907.9.4 Method. To verify that each smoke detector is within its *listed* and marked sensitivity range, it shall be tested using one of the following methods:

1. A calibrated test method;
2. The manufacturer's calibrated sensitivity test instrument;
3. *Listed* control equipment arranged for the purpose;
4. A smoke detector/control unit arrangement whereby the detector causes a signal at the control unit where the detector's sensitivity is outside its acceptable sensitivity range; or
5. Another calibrated sensitivity test method acceptable to the *fire code official*.

Detectors found to have a sensitivity outside the *listed* and marked sensitivity range shall be cleaned and recalibrated or replaced.

Exceptions:

1. Detectors *listed* as field adjustable shall be permitted to be either adjusted within the *listed* and marked sensitivity range and cleaned and recalibrated or they shall be replaced.
2. This requirement shall not apply to single-or multiple-station smoke alarms in one- or two-family dwellings.

Reason: This change is required for consistency with the requirements for NFPA 72. NFPA 72 presently requires sensitivity testing for all smoke detectors and smoke alarms other than those installed in one- or two-family dwellings. This is not a new requirement in NFPA 72.

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

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

ICCFILENAME: HAMMERBERG-F4-907.9.4-2.DOC

F132–09/10
908 (New) [IBC [F] 908(New)], 902 (IBC [F] 902), Chapter 47 (IBC Chapter 35); IRC R315, R202, Chapter 44

Proponent: Roger Evans, Park City Municipal Corporation, representing Utah Chapter of ICC

THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IFC COMMITTEE. PART II WILL BE HEARD BY THE IRC BUILDING/ENERGY COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IFC

1. Add new text as follows:

SECTION 908 (IBC SECTION [F] 908)
CARBON MONOXIDE ALARMS AND
CARBON MONOXIDE DETECTION SYSTEMS

908.1 General. This section covers the application, installation, performance and maintenance of carbon monoxide alarms and carbon monoxide detection systems in new buildings and structures.

908.1.1 Carbon monoxide alarms, carbon monoxide detectors and combination smoke/carbon monoxide devices. Carbon monoxide alarms, carbon monoxide detectors and combination smoke/carbon monoxide alarms and combination smoke/carbon monoxide detectors described in sections 908.1.2 through 908.1.5 shall be installed and maintained in accordance with the provisions of this code, NFPA 72 and NFPA 720.

908.1.2 Carbon monoxide alarms. Single- or multiple-station carbon monoxide alarms shall be listed and labeled in accordance with ANSI/UL 2034.

908.1.3 Carbon monoxide detectors. Carbon monoxide detectors shall be listed and labeled in accordance with ANSI/UL 2075.

908.1.4 Combination smoke/carbon monoxide alarms. Combination smoke/carbon monoxide alarms shall be listed and labeled in accordance with ANSI/UL 217 and ANSI/UL 2034

908.1.5 Combination smoke/carbon monoxide detectors. Combination smoke/carbon monoxide detectors shall be listed and labeled in accordance with ANSI/UL 268 and ANSI/UL 2075

908.2 Power Source. Required single- or multiple-station carbon monoxide alarms, carbon monoxide detectors, combination smoke/carbon monoxide alarms or combination smoke/carbon monoxide detectors shall receive their power by one of the following means:

1. Listed carbon monoxide alarms shall receive their primary power from the building wiring when such wiring is served from a commercial source with secondary power backup and without a disconnecting switch other than those required for overcurrent protection. Listed carbon monoxide alarms that are battery-powered or plug-in with battery backup shall not be permitted in new construction.
2. Listed carbon monoxide detectors shall receive their power from the approved control panel. The approved control panel shall receive its primary power from the building wiring when such wiring is served from a commercial source and the primary power source shall not include a disconnecting switch other than those required for overcurrent protection. The control panel shall be equipped with rechargeable batteries for secondary power backup.
3. Listed low-power radio frequency (wireless) detectors shall be permitted to be battery powered when the battery is electrically supervised and shall be capable of sending an alarm signal to the approved control panel for a minimum of 7 days after sending the initial battery depletion signal.

908.2.1 Interconnection. Where more than one listed carbon monoxide alarm, or, combination smoke/carbon monoxide alarm is required to be installed within a dwelling unit they shall be interconnected in such a manner that the activation of one carbon monoxide alarm shall activate all of the carbon monoxide alarms in the dwelling unit and the activation of a carbon monoxide detector or combination smoke/carbon monoxide detector shall activate the carbon monoxide audible notification devices throughout the individual dwelling unit. The required carbon monoxide alarm signal shall be clearly audible in all sleeping rooms, having a sound level of at least 15 db above average ambient sound level or 5 db above the maximum sound level, or a sound level at least 75 db at the pillow.

Exception: Carbon monoxide alarms, carbon monoxide detectors, combination smoke/carbon monoxide alarms or combination smoke/carbon monoxide detectors installed in existing construction shall not be required to cause all carbon monoxide alarms to sound.

908.2.2 Acceptance testing. When the installation of carbon monoxide alarms, carbon monoxide detectors, combination smoke/carbon monoxide alarms or combination smoke/carbon monoxide detectors is complete, each alarm or detector and interconnecting wiring shall be tested in accordance with NFPA 72 and NFPA 720.

908.2.3 Where required. Listed single- or multiple-station carbon monoxide alarms, carbon monoxide detectors, combination smoke/carbon monoxide alarms or combination smoke/carbon monoxide detectors shall be installed in locations described in sections 908.2.4 through 908.2.5.

908.2.4 Group R-1. Group R-1 occupancies located in a buildings that contain fuel burning appliances or which have attached garages, listed multiple-station carbon monoxide alarms, carbon monoxide detectors, combination smoke/carbon monoxide alarms or combination smoke/carbon monoxide detectors shall be installed in the following locations:

1. On the ceiling or wall of the same room as permanently installed fuel burning appliances in accordance with manufacturers published instructions
2. Centrally located on every habitable level, in every HVAC zone of the building

Exception: Carbon monoxide alarms or carbon monoxide detectors shall not be required in sleeping units unless the sleeping unit contains a fuel-burning appliance.

The required carbon monoxide alarms or carbon monoxide detectors shall be annunciated at a constantly attended location

908.2.5 Groups R-2, R-3 and R-4. Group R-2, R-3 and R-4 occupancies located in buildings that contain fuel burning appliances or which have attached garages, listed multiple-station carbon monoxide alarms, carbon monoxide detectors, combination smoke/carbon monoxide alarms or combination smoke/carbon monoxide detectors shall be installed in the following:

1. Outside each separate dwelling unit sleeping area in the immediate vicinity of the bedrooms
2. On every level of a dwelling unit, including basements and in every HVAC zone of the building
3. On the ceiling or wall of the same room as permanently installed fuel burning appliances in accordance with manufacturers published instructions.

   Exception: Carbon monoxide alarms or carbon monoxide detectors shall not be required in sleeping units unless the sleeping unit contains a fuel-burning appliance.

The required carbon monoxide alarms or carbon monoxide detectors shall be annunciated at a constantly attended location

2. Add new definitions as follows:

902.1(IBC [F] 902.1) Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

CARBON MONOXIDE.

Single-Station Carbon Monoxide Alarm. A device intended for the purpose of detecting carbon monoxide gas and alerting occupants by a distinct and audible signal comprising of an assembly that incorporates a sensor, control components and an alarm notification appliance in a single unit operated from a power source either located in the unit or obtained at the point of installation.

Multiple-Station Carbon Monoxide Alarm. A carbon monoxide alarm capable of being interconnected to one or more additional carbon monoxide alarms so that the actuation of one causes the appropriate alarm signal to be annunciated in all interconnected alarms.

Carbon Monoxide Detector. A device intended to be connected to an approved carbon monoxide detection system for the purpose of detecting carbon monoxide gas and alerting occupants by a distinct and audible signal.

Carbon Monoxide Detection System. A system of devices that consists of a control panel and circuits arranged to monitor and annunciate the status of carbon monoxide detectors and to initiate the appropriate response to those signals.

Combination Smoke/Carbon Monoxide Device. A device that combines a carbon monoxide alarm or carbon monoxide detector with smoke sensing technology; provided that the combined device is listed by a nationally recognized testing laboratory (NRTL) to the applicable ANSI/ UL Standards for both smoke detection and carbon monoxide detection. Such combined alarm units or detection systems shall emit an audible alarm in a manner that clearly differentiates between the two hazards as specified in the appropriate NFPA and ANSI/UL Standard.

3. Add new standards to Chapter 47 (IBC Chapter 35) as follows:

NFPA

720-2009	Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment 2009 Edition

UL

2034-2008	Standard for Single and Multiple Station Carbon Monoxide Alarms, with Revisions through February 20, 2009
2075-2004	Standard for Gas and vapor Detectors and Sensors, with revisions through September 28, 2007

PART II – IRC BUILDING/ENERGY

1. Revise as follows:

R315.1. Carbon monoxide alarms, carbon monoxide detectors or combination smoke/carbon monoxide devices. Carbon monoxide alarms, carbon monoxide detectors and combination smoke/carbon monoxide devices described in sections R315.1.1 through R315.1.4 shall be installed and maintained in accordance with the provisions of this code, NFPA 72 and NFPA 720. ~~**Carbon monoxide alarms.** In new construction, dwelling units within which fuel-fired appliances are installed or have attached garages shall be provided with an approved carbon monoxide alarm installed outside of each separate sleeping area in the immediate vicinity of the bedroom(s).~~

R315.1.1 Carbon monoxide alarms. Single- or multiple-station carbon monoxide alarms shall be listed and labeled in accordance with ANSI/UL 2034.

R315.1.2 Carbon monoxide detectors. Carbon monoxide detectors shall be listed and labeled in accordance with ANSI/UL 2075.

R315.1.3 Combination smoke/carbon monoxide alarms. Combination smoke/carbon monoxide alarms shall be listed and labeled in accordance with ANSI/UL 217 and ANSI/UL 2034

R315.1.4 Combination smoke/carbon monoxide detectors. Combination smoke/carbon monoxide detectors shall be listed and labeled in accordance with ANSI/UL 268 and ANSI/UL 2075.

R315.2 Where Required in New Construction. In new construction within which fuel burning appliances exist or which have attached garages, carbon monoxide alarms, carbon monoxide detectors, combination smoke/carbon monoxide alarms or combination smoke/carbon monoxide detectors shall be installed in the following locations:

1. Outside each separate dwelling unit sleeping area in the immediate vicinity of the bedrooms.
2. On every level of a dwelling unit, including basements

~~**R315.2**~~ **R315.3 Where required in existing dwellings.** Where work requiring a permit occurs in existing dwellings that have attached garages or in existing dwellings within which fuel-fired appliances exist, carbon monoxide alarms/detectors shall be provided in accordance with Sections R315.1 and R315.2.

~~**R315.3 Alarm Requirements** Single station carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with this code and the manufacturer's installation instructions.~~

R315.4 Carbon monoxide alarm signal requirements. Where more than one listed carbon monoxide alarm, or combination smoke/carbon monoxide is required to be installed within a dwelling unit they shall be interconnected in such a manner that the activation of one carbon monoxide alarm shall activate all of the carbon monoxide alarms in the dwelling unit and the activation of a carbon monoxide detector or combination smoke/carbon monoxide detector shall activate the carbon monoxide audible notification devices throughout the individual dwelling unit. The required carbon monoxide alarm signal shall be clearly audible in all sleeping rooms, having a sound level of at least 15 db above average ambient sound level or 5 db above the maximum sound level, or a sound level at least 75 db at the pillow.

R315.5 Power source. Required single- or multiple-station carbon monoxide alarms, carbon monoxide detectors, combination smoke/carbon monoxide alarms or combination smoke/carbon monoxide detectors shall receive their power by one of the following means:

1. Listed carbon monoxide alarms shall be battery-powered, plug-in with battery backup, or receive their primary power from the building wiring when such wiring is served from a commercial source with secondary power backup and without a disconnecting switch other than those required for overcurrent protection.Listed carbon monoxide alarms that are battery-powered or plug-in with battery backup shall not be permitted in new construction.
2. Listed carbon monoxide detectors shall receive their power from the approved control panel. The approved control panel shall receive its primary power from the building wiring when such wiring is served from a commercial source and the primary power source shall not include a disconnecting switch other than those required for overcurrent protection. The control panel shall be equipped with rechargeable batteries for secondary power backup.
3. Listed low-power radio frequency (wireless) detectors shall be permitted to be battery powered when the battery is electrically supervised and shall be capable of sending an alarm signal to the approved control panel for a minimum of 7 days after sending the initial battery depletion signal.

2. Add new definition to Section R202 as follows:

CARBON MONOXIDE.

Single-Station Carbon Monoxide Alarm. A device intended for the purpose of detecting carbon monoxide gas and alerting occupants by a distinct and audible signal comprising of an assembly that incorporates a sensor, control components and an alarm notification appliance in a single unit operated from a power source either located in the unit or obtained at the point of installation.

Multiple-Station Carbon Monoxide Alarm. A carbon monoxide alarm capable of being interconnected to one or more additional carbon monoxide alarms so that the actuation of one causes the appropriate alarm signal to be annunciated in all interconnected alarms.

Carbon Monoxide Detector. A device intended to be connected to an approved carbon monoxide detection system for the purpose of detecting carbon monoxide gas and alerting occupants by a distinct and audible signal.

Carbon Monoxide Detection System. A system of devices that consists of a control panel and circuits arranged to monitor and annunciate the status of carbon monoxide detectors and to initiate the appropriate response to those signals.

Combination Smoke/Carbon Monoxide Device. A device that combines a carbon monoxide alarm or carbon monoxide detector with smoke sensing technology; provided that the combined device is listed by a nationally recognized testing laboratory (NRTL) to the applicable ANSI/ UL Standards for both smoke detection and carbon monoxide detection. Such combined alarm units or detection systems shall emit an audible alarm in a manner that clearly differentiates between the two hazards as specified in the appropriate NFPA and ANSI/UL Standard.

3. Add new standards to Chapter 44 as follows:

NFPA

720-2009	Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment 2009 Edition

UL

2075-2004	First Edition of the Standard for Gas and vapor Detectors and Sensors, with revisions through September 28, 2007

Reason (Part I): The purpose for this code change is to protect people sleeping in commercial Group R occupancies such as hotels, motels, adult & child day care, apartments and dormitories from serious injury or possibly death from unintentional non-fire related carbon monoxide (CO) exposure by mandating the installation of carbon monoxide detection devices. The Centers for Disease Control and Prevention (CDC) reports that an estimated 15,000 emergency department visits and 500 unintentional deaths in the United States each year for the six year period 1999-2004. These carbon monoxide incidents were a contributing factor for 20 states enacting laws to require the installation of carbon monoxide detection devices. Of the 20 states that have adopted requirements for carbon monoxide detection, ten require the installation of carbon monoxide detectors in commercial Group R occupancies. In the absence of a national installation standard for commercial Group R occupancies each jurisdiction developed its own regulations with varying installation requirements.

We recommend that the International Fire Code develop the necessary installation requirements for CO detection devices in commercial Group R.

Cost Impact (Part I): It is estimated that the proposed code modification will have a minimal cost impact on the construction of Group R occupancies. For example in R-1 occupancies a CO alarm or detector will be installed by fuel burning appliance(s) and in each HVAC zone. In other R occupancies cost will be minimal as installation requirements are outside of each sleeping area and on each floor.

Analysis (Part I): UL 2034 is already referenced in the IRC but not currently in the IFC or IBC. If the code change is approved, UL 2034 would be added to Chapter 47 of the IFC and Chapter 35 of the IBC as a referenced standard.

UL 2075 is already referenced in the IFC but not currently in the IBC. If the code change is approved, UL 2075 would be added to Chapter 35 of the IBC as a referenced standard.

Reason (Part II): The purpose for this code change is to improve the life safety of citizens by reducing the incidence of carbon monoxide (CO) poisoning in dwellings and to revise the language in the 2009 edition of the IRC so it is consistent with nationally recognized industry consensus standards.

The CO provisions in the 2009 edition of the IRC did not include the reliable, proven and tested technologies of system-connected CO detectors even though they meet nationally recognized industry consensus standards

1. ANSI/UL 2075, *Gas and Vapor Detectors and Sensors*
2. ANSI/NFPA 720, *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment*

The performance and reliability of system-connected CO detectors have shown to be extremely high if they are listed and maintained to ANSI/UL 2075 and installed in accordance with NFPA 720. System-connected CO detectors designed to be part of a carbon monoxide detection system are required to be connected to an approved panel. The panel is required to be equipped with rechargeable batteries that keep the carbon monoxide

detection system operating during a power outage and will communicate the power loss condition to the supervising station. When the primary power is restored, the control panel will fully recharge the standby batteries. An added feature of a carbon monoxide detection system is that the interconnecting wiring to system-connected CO detectors are supervised such that a wiring fault results in a trouble signal at the premises and the supervising station.

The installation provisions in the 2009 edition of the IRC seem inconsistent with NFPA 720 when two or more CO alarms are installed within a dwelling unit. Section 9.6.5 of NFPA 720 requires that when two or more carbon monoxide alarms are to be installed that they are interconnected.. The rationale for this requirement is if a CO device is activated in the basement the occupants on the second floor on the opposite end of the home is unable to hear the audible alarm if the devices are not interconnected.

The 2009 edition of the IRC requires CO alarms outside each separate dwelling unit sleeping area in the immediate vicinity of the bedrooms. However, NFPA 720 requires CO devices to be installed on every level of a dwelling unit, including basements as well as outside each separate dwelling unit sleeping area in the immediate vicinity of the bedrooms.

Cost Impact (Part II): It is estimated that the proposed code modification will have a minimal cost impact on the construction of one- and two- family dwellings and townhouses. The proposed new requirements will not require addition CO detection devices to be installed; however the proposed changes will require additional wiring. While there are many variables that affect the cost of construction, most new dwelling construction is anticipated no more than two stories in height and will require wiring between no more than three CO detection devices: one per floor and one in the basement.

Analysis (Part II): A review of the standard(s) proposed for inclusion in the code, NFPA 720-2009, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009.

UL 2075 is already referenced in the IFC but not currently in the IBC. If the code change is approved, UL 2075 would be added to Chapter 35 of the IBC as a referenced standard.

PART I – IFC

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

PART II – IRC BUILDING/ENERGY

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

ICCFILENAME: EVANSR-F1-908.DOC

F133–09/10

908.7 (New) [IBC [F] 908.7 (New)], 4606.1 (New), Chapter 47 (IBC Chapter 35)

Proponent: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

1. Add new text as follows:

908.7 (IBC [F] 908.7) Carbon monoxide alarms. Group I or R occupancies located in a building containing a fuel-burning appliance or a building which has an attached garage shall be provided with single station carbon monoxide alarms. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance with NFPA 720 and the manufacturer's instructions. An open parking garage, as defined in the *International Building Code*, shall not be deemed to be an attached garage.

Exception: Sleeping units or dwelling units which do not themselves contain a fuel-burning appliance or have an attached garage, but which are located in a building with a fuel-burning appliance or an attached garage, need not be provided with single station carbon monoxide alarms provided that:

1. The ~~s~~leeping unit or dwelling unit is located more than one story above or below any story which contains a fuel-burning appliance or an attached garage;
2. The sleeping unit or dwelling unit is not connected by duct work or ventilation shafts to any room containing a fuel-burning appliance or to an attached garage; and
3. The building is provided with a common area carbon monoxide alarm system.

4606.1 Carbon monoxide alarms. Existing Group I or R occupancies located in a building containing a fuel-burning appliance or a building which has an attached garage shall be provided with single station carbon monoxide alarms. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance with NFPA 720 and the manufacturer's instructions. An open parking garage, as defined in the *International Building Code*, shall not be deemed to be an attached garage.

Exception: Sleeping units or dwelling units which do not themselves contain a fuel-burning appliance or have an attached garage, but which are located in a building with a fuel-burning appliance or an attached garage, need not be provided with single station carbon monoxide alarms provided that:

1. The sleeping units or dwelling unit is located more than one story above or below any story which contains a fuel-burning appliance or an attached garage;
2. The sleeping units or dwelling unit is not connected by duct work or ventilation shafts to any room containing a fuel-burning appliance or to an attached garage; and
3. The building is provided with a common area carbon monoxide alarm system.

2. Add new standards to Chapter 47 (IBC Chapter 35) as follows:

NFPA
720-2005 Standard for the Installation of Carbon Monoxide (CO) Warning Equipment in Dwelling Units

UL
2034-2008 Standard for Single and Multiple Station Carbon Monoxide Alarms

Reason: At the final action hearings for the last code change cycle held in Minnesota the voting membership present voted overwhelmingly to add requirements for the installation of carbon monoxide alarms for dwelling units built in compliance with the International Residential Code (IRC). The threat of poisoning from exposure to carbon monoxide is not limited to dwellings regulated by the IRC, it includes other institutional and residential occupancies. This proposal is intended to provide correlation with the position the membership took on this issue and add language to the IBC/IFC requiring the installation of carbon monoxide alarms in institutional and residential group occupancies.

According to the Journal of the American Medical Association (JAMA), carbon monoxide is the leading cause of accidental poisoning deaths in America with approximately 2,100 deaths per year. http://jama.ama-assn.org/cgi/search?fulltext=Carbon+Monoxide Over 15,000 people seek medical attention due to carbon monoxide exposure each year. http://www.ul.com/newsroom/newsrel/nr012609a.html

The industry has addressed the issue of reliability by updating the requirements of the UL 2034 standard. http://www.iccsafe.org/cs/cc/ctc/CO/CO_UL2034History.pdf Underwriters Laboratories instituted a Carbon Monoxide Field Study in 1994 and completed the study in March of 2004. The report on the study includes the following summary:

"Throughout the first phase of this study, the CO alarms have performed in an effective manor. During the September 2002 tests we recorded our first false positive at 70ppm CO (94 minutes into the test, post 1998 alarm). Also during the September 2002 tests we recorded our first no response sample (pre1998 alarm). During the September 2003 we recorded a significant late response sample (pre1998 alarm). These samples have been returned and analyzed by the manufacturer and/or the UL Field Report Group has opened an investigation. Other samples in the survey of the same, or similar, models are continuing to perform as expected.

On one occasion, a field study CO sample alarmed in an employee's home after their furnace was serviced. It was confirmed that there was a high level of CO present in their home. The problem was corrected and the alarm continues to function properly during follow-up sensitivity tests. On another occasion, a field sample was activated when the damper on a fireplace closed prematurely. The damper was opened, the house vented, and the alarm returned to its normal standby condition.

Throughout the entire survey program we have experienced a few units providing early/delayed signals during the sensitivity tests, but all of these CO alarms would provide effective signaling protection to the users should there be a fatal concentration of CO.

Of the few CO alarms that did not meet the UL2034 test points, most of them alarmed early and it was determined with the Stability Test results that these samples would most likely not false alarm in the field.

It is important to note that providing effective signaling protection does not necessarily mean complying with the finite test points of UL2034. All the alarms would have sounded while a person can react and follow the recommended procedures during an alarm signal.

The data shows that these CO alarms are providing the necessary signaling protection."
http://www.iccsafe.org/cs/cc/ctc/CO/CO_UL_AlarmSurvey.doc

All carbon monoxide detectors available today meet the updated requirements of the UL standard which eliminated the false positive indications that occurred when carbon monoxide detectors were first brought to market in the 1990's. The State of New Jersey has had regulations mandating the installation of carbon monoxide alarms in all new and existing residential occupancies since 1992. The state implemented a reporting program at that time to identify reliability and false positive indication problems and there have been no problems identified in over 10 years.

Carbon monoxide poisonings leading to injury or death is well documented and the only way to protect the occupants from this odorless and tasteless product of combustion, known as the "Silent Killer" is through the installation of detectors complying with today's standards.

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

Analysis: A review of the standards proposed for inclusion in the code, NFPA 720-2005 and UL 2034-2008, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009.

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

ICCFILENAME: DAVIDSON-SHUMAN-F14-908.7.DOC

F134–09/10
909.2 (IBC [F] 909.2), 909.10.2.1 (IBC [F] 909.10.2.1)

Proponent: Tony Crimi, A.C. Consulting Solutions Inc., representing International Firestop Council

Revise as follows:

909.2 (IBC [F] 909.2) General design requirements. Buildings, structures or parts thereof required by this code to have a smoke control system or systems, or a stair pressurization system shall have such systems designed in accordance with the applicable requirements of Section 909 and the generally accepted and well-established principles of engineering relevant to the design. The construction documents shall include sufficient information and detail to adequately describe the elements of the design necessary for the proper implementation of the smoke control systems. These documents shall be accompanied by sufficient information and analysis to demonstrate compliance with these provisions.

909.20.6.1 Ventilation systems. Smokeproof enclosure and pressurized stairway ventilation systems shall be independent of other building ventilation systems. The equipment, control wiring, power wiring and ductwork shall comply with one of the following:

1. Equipment, control wiring, power wiring and ductwork shall be located exterior to the building and directly connected to the smokeproof enclosure or pressurized stairway or connected to the smokeproof enclosure or pressurized stairway by ductwork enclosed by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 712, or both.
2. Equipment, control wiring, power wiring and ductwork shall be located within the smokeproof enclosure or pressurized stairway with intake or exhaust directly from and to the outside or through ductwork enclosed by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 712, or both.
3. Equipment, control wiring, power wiring and ductwork shall be located within the building if separated from the remainder of the building, including other mechanical equipment, by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 712, or both.

Exceptions:

1. Control wiring and power wiring utilizing a 2-hour rated cable or cable system.
2. Where encased with not less than 2 inches (51 mm) of concrete.
3. Ductwork shall be permitted to be protected using an approved alternative fire-resistive duct assembly that is a *listed* and *labeled* specifically for such purpose.

Reason: This proposal would require Stair pressurization ducts installed for the purposes of stairwell pressurization to be enclosed within a shaft or protected by an equivalent tested and listed assembly or system evaluated for the purpose. Smoke control systems have been required in nearly two thirds of the United States for over a decade. High-rise buildings constructed to the requirements of International Building Code, but without any specific measures to control smoke migration, are all the more vulnerable to property damage and occupants' loss of life.

The purpose of a closed pressurization system is to provide fresh air directly to stairwells or egress areas. This design air pressures need to be sufficient to maintain closed doors while preventing smoke from entering the egress path. Several incidents in North America during the past 40 years have demonstrated that serious fires can occur in modern high-rise buildings, that these fires can generate tremendous quantities of smoke, and that smoke can spread rapidly throughout these buildings. Most notable were the 1970 One New York Plaza fire, the1973 Hyatt Regency O'Hare Hotel fire, the 1980 MGM Grand Hotel in Las Vegas, a 1981 fire in North York Ontario at the Inn on the Park Hotel, the 1983 First Canadian Place in Toronto, Ontario, One Meridian Plaza, Philadelphia, Pennsylvania and the First Interstate Bank in Los Angeles, California in the 1990's, and the 2001 World Trade Center.

There is a large body of available research that indicates the need for smoke control is more pressing in tall buildings that in any other type of construction. Pressurization results in airflows of high velocity in the gaps around closed doors and construction cracks, thereby preventing smoke from flowing back into the pressurized space through these openings. Pressurized stairwells are provided with the goal of maintaining a tenable environment within the escape routes in the event of a building fire. While the option to use stairwell pressurization exists, the IBC does not require stairwell pressurization in high-rise buildings, and only requires smoke control in underground buildings, atriums, and covered mall buildings. Section 403.13 of the 2009 IBC requires smokeproof exit enclosures for high-rise buildings in every required stairway serving floors more than 75 feet (22.86 m) above the ground. Section 909.20.5 merely permits sprinklered Buildings to use stairwell pressurization as an alternate to the smokeproof enclosures. When employed, ducts used for Stair pressurization to provide uncontaminated air within required interior exit stairwells or areas of egress need to be protected from the effect of fire, or constructed as fire resistant systems.

Particularly in the case of tall buildings, the predominant factors that cause smoke movement in tall buildings are stack effects, the affect of external wind forces, and forced air movement within the building. Smoke removal and venting practices are complicated by stack effects, which will tend to favor natural air movement vertically through the building as a result of differences in temperature and densities between the inside and outside air. [1]

Options such as the use of natural ventilation are only available where openings in exterior stairwells can be accommodated. Even then, a number of problems have been identified with this approach. Firstly, the required volume of fresh air is high. Secondly, natural supply and exhaust through vents may be subject to adverse exterior wind conditions, and even when functioning satisfactorily, would generally require vents located on different exterior walls. Thirdly, the performance of natural vents is influenced by building stack effects, which may be particularly significant on the upper or lowermost stories for tall buildings. This effect can range from either strong inflow or strong outflow from all natural vents on a given storey.[2]

The IBC needs to provide more effective means to prevent smoke from entering critical exit stairwells in high-rise buildings. Properly designed stairwell pressurization prevents smoke from flowing back into the pressurized exit stairwells and smokeproof enclosures. The goal of this proposal is maintaining a tenable environment within the escape routes in the event of a building fire.

Bibliography:

1. Klote, J.H. and Milke, J.A. Fire Protection Handbook, NFPA 19th Edition, Volume II, Smoke Movement in Buildings, Chapter 6, Section 12-113 –12-126
2. Building Research Establishment, UK, Smoke Ventillation of Common Access Areas of Flats & Maisonettes (BD2410), Final Factual Report, Appendix A (Review), BRE Ltd, 2005

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

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

ICCFILENAME: CRIMI-F1-909.2.DOC

F135–09/10

909.3 (IBC [F] 909.3, IMC [F] 513.3), 909.18.8 (IBC [F] 909.18.8), 909.18.8.1 (IBC [F] 909.18.8.1), 909.18.8.2 (IBC [F] 909.18.8.2), 909.18.8.2.1 (IBC [F] 909.18.8.2.1), 909.18.8.2.2 (IBC [F] 909.18.8.2.2), 909.18.8.2.3 (IBC [F] 909.18.8.2.3); IBC [F] 1704.16, [F] 1704.16.1, [F] 1704.16.2

Proponent: Vickie Lovell, Representing National Energy Management Institute

1. Revise as follows:

909.3 (IBC [F] 909.3, IMC [F] 513.3) Special inspection and test requirements. In addition to the ordinary inspection and test requirements to which buildings, structures and parts thereof are required to undergo, smoke control systems subject to the provisions of Section 909 shall undergo special inspections and tests sufficient to verify the proper commissioning of the smoke control design in its final installed condition. The design submission accompanying the *construction documents* shall clearly detail procedures and methods to be used and the items subject to such inspections and tests. Such commissioning shall be in accordance with generally accepted engineering practice and, where possible, based on published standards for the particular testing involved. The special inspections and tests required by this section shall be conducted under the same terms as in Section 1704 of the International Building Code and Section 909.18 of this code.

909.18.8 (IBC [F] 909.18.8) Special inspections for smoke control. Smoke control systems shall be tested by a special inspector in accordance with the requirements for special inspections in Sections 909.18 through 909.19 and Section 909.20.6.3 of the *International Building Code*.

909.18.8.1 (IBC [F] 909.18.8.1) Scope of testing. Special inspections shall be conducted in accordance with the following:

1. During erection of ductwork and prior to concealment for the purposes of leakage testing and recording of device location.
2. Prior to occupancy and after sufficient completion for the purposes of pressure-difference testing, flow measurements, and detection and control verification.

909.18.8.2 (IBC [F] 909.18.8.2) Qualifications. Special inspection agencies for smoke control shall have expertise in fire protection engineering, mechanical engineering and certification as air balancers, or be certified by a third party accreditation program for air testing, adjusting and air balancing and for inspection of smoke control systems. An approved special inspection agency shall provide all information as necessary for the building official to determine that the agency meets the applicable requirements and shall be qualified to conduct, supervise and evaluate tests and periodic inspections and maintenance.

909.18.8.2.1 (IBC [F] 909.18.8.2.1) Independence. An approved special inspection agency shall be objective, competent and independent from the contractor responsible for the work being inspected. The agency shall also disclose possible conflicts of interest so that objectivity can be confirmed.

909.18.8.2.2 (IBC [F] 909.18.8.2.2) Equipment. An approved special inspection agency shall have adequate equipment to perform required tests. The equipment shall be periodically calibrated.

909.18.8.2.3 (IBC [F] 909.18.8.2.3) Personnel. An approved special inspection agency shall employ experienced personnel educated in conducting, supervising and evaluating tests and inspections.

IBC [F] 1704.16 Special inspection for smoke control. Smoke control systems shall be tested by a special inspector in accordance with Section 909.18.8.

~~**IBC [F] 1704.16.1 Testing scope.** The test scope shall be as follows:~~

~~1. During erection of ductwork and prior to concealment for the purposes of leakage testing and recording of device location.~~
~~2. Prior to occupancy and after sufficient completion for the purposes of pressure difference testing, flow measurements and detection and control verification.~~

~~**IBC [F] 1704.16.2 Qualifications**. *Special inspection* agencies for smoke control shall have expertise in fire protection engineering, mechanical engineering and certification as air balancers.~~

Reason: The purpose of this code change is to clarify and centralize the language as it relates to the qualifications of special inspectors and special inspection agencies of smoke control systems. This ties together the IBC, IFC, and IMC with consistent language as it relates to special inspections, testing and maintenance of smoke control systems.
909.3. This is an editorial change which adds the reference of the new language in Sections 909.18.
909.18.8. The addition of the referenced sections clarifies the intent of the code's requirement of special inspections, agencies, and inspectors.
909.18.8.2. through 909.18.8.2.3. This language is derived from Chapter 1703.1.1 of the 2009 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: LOVELL-F2-909.3

F136–09/10
909.5.2 (IBC [F] 909.5.2; IMC [F] 513.5.2)

Proponent: Douglas H. Evans, PE, FSFPE, Clark County, NV, representing the Department of Development Services – Building Division

Revise as follows:

909.5.2 (IBC [F] 909.5.2; IMC [F] 513.5.2) Opening protection. Openings in smoke barriers shall be protected by automatic-closing devices actuated by the required controls for the mechanical smoke control system. Door openings shall be protected by fire door assemblies complying with Section 715.4.3.

Exceptions:

1. Passive smoke control systems with automatic-closing devices actuated by spot-type smoke detectors listed for releasing service installed in accordance with Section 907.10.
2. Fixed openings between smoke zones that are protected utilizing the airflow method.
3. In Group I-2, where such doors are installed across corridors, a pair of opposite-swinging doors without a center mullion shall be installed having vision panels with fire protection-rated glazing materials in fire protection-rated frames, the area of which shall not exceed that tested. The doors shall be close-fitting within operational tolerances and shall not have undercuts, louvers or grilles. The doors shall have head and jamb stops, astragals or rabbets at meeting edges and shall be automatic- closing by smoke detection in accordance with Section 715.4.7.3. Positive-latching devices are not required.
4. Group I-3.
5. Openings between smoke zones with clear ceiling heights of 14 feet (4267 mm) or greater and bank-down capacity of greater than 20 minutes as determined by the design fire size.
6. Door openings in smoke barriers shall be permitted to be protected by self-closing fire doors in the following locations:
   6.1. Sleeping units.
   6.2. Individual dwelling units.

6.3. Mechanical rooms.
6.4. Elevator machine rooms.
6.5. Electrical rooms used exclusively for that purpose.
6.6. Doors typically maintained in a closed position as approved by the Building Official.

Reason: Section 909.5.2 requires all doors in smoke barriers that are part of a 909 smoke control system to be automatic-closing. Section 3.3.7 of NFPA 80 (2007 edition) defines an "automatic-closing door" as "A door that normally is open but that closes when the automatic-closing device is activated."

For buildings with a substantial number of doors in smoke barriers, the IBC requirement for all such doors to be automatic-closing results in a significant, and frequently unnecessary, cost increase for the project. The proposed amendment allows normally closed doors in smoke barriers to be self-closing and can even apply to pressurized stair doors if deemed acceptable to the Building Official.

The proposed amendment has been part of the Southern Nevada Building Code for several years and has proven to be a reasonable accommodation to owners and designers without negatively impacting life safety.

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

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

ICCFILENAME: EVANS-F2-909.5.2.DOC

F137–09/10
909.10.2 (IBC [F] 909.10.2; IMC [F] 513.10.2)

Proponent: Eli P. Howard, III, Sheet Metal & Air Conditioning Contractors National Association, Inc. (SMACNA)

Revise as follows:

909.10.2 (IBC [F] 909.10.2; IMC [F] 513.10.2) Ducts. Duct materials and joints shall be capable of withstanding the probable temperatures and pressures to which they are exposed as determined in accordance with Section 909.10.1. Ducts shall be constructed and supported in accordance with the *International Mechanical Code*. Ducts shall be leak tested to ~~1.5 times~~ the maximum design pressure in accordance with nationally accepted practices. Measured leakage shall not exceed 5 percent of design flow. Results of such testing shall be a part of the documentation procedure. Ducts shall be supported directly from fire-resistance-rated structural elements of the building by substantial, noncombustible supports.

Exception: Flexible connections (for the purpose of vibration isolation) complying with the *International Mechanical Code* and which are constructed of *approved* fire-resistance-rated materials.

Reason: The SMACNA/ANSI HVAC Duct Construction Standards call for leakage testing when required to be performed only to the operating pressure of the system. Exceeding this requirement for leakage testing will cause sealant within the joints to be pushed beyond its design limitation and cause further air leakage within the system.

Testing of systems at 1.5 times the operating pressure is only for structural integrity and is not recommended nor mandated by the SMACNA Standards.

Cost Impact: The code change proposal will cause a reduction in costs

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

ICCFILENAME: HOWARD-F1-909.10.2.DOC

F138–09/10
909.12 (IBC [F] 909.12; IMC [F] 513.12)

Proponent: Douglas H. Evans, PE, FSFPE, Clark County, NV, representing the Department of Development Services – Building Division

Revise as follows:

909.12 (IBC [F] 909.12; IMC [F] 513.12) Detection and control systems. Fire detection systems providing control input or output signals to mechanical smoke control systems or elements thereof shall comply with the requirements of Section 907. Such systems shall be equipped with a control unit complying with UL 864 and listed as smoke control equipment.

Control systems for mechanical smoke control systems shall include provisions for verification. Verification shall include positive confirmation of actuation, testing, manual override~~, the presence of power downstream of all disconnects~~ and, through a preprogrammed weekly test sequence, report abnormal conditions audibly, visually and by printed report.

Reason: The fire alarm system, associated initiating devices and all portions of the smoke control system that transfer fire alarm commands (e.g. BMS) meet the requirements outlined in the first paragraph of 909.12 through their UL 864 listing. This can be performed by **electrical supervision**, which verifies that the conductors are intact, but **provides no assurance that** the **monitored devices** will **function correctly**.

The second paragraph of 909.12 is intended to confirm that the mechanical components (fans, motors, belts, dampers, actuators, etc.) function properly. This is performed by verifying proper functioning through the use of position sensors for dampers and an acceptable method for confirming fan induced air movement. **Functional verification does not confirm continuity of conductors until the system is configured** (alarm condition or testing).

Both of the preceding options have advantages and disadvantages, but neither provides complete verification.

Except when the system configures (alarm or testing), there is no power supplied to the output side of smoke control components (fans and dampers). As such, it is not possible to continuously monitor power to these components and **one cannot be assured of continuity of conductors for the output side (fans and dampers) of a smoke control system** until the system configures.

The preprogrammed weekly test sequence, as required by 909.12, is intended to notify building operations of an improperly functioning system so it can be repaired when necessary. Worst case, it may not be known for one week that some portion of the distribution side of the smoke control system is not performing properly. This requirement confirms that components properly configure, as well as continuity of conductors. The weekly diagnostic provides the required level of assurance that the entire smoke control system will function within the intent of its design.

As described above, monitoring power downstream of all disconnects cannot be provided as required, is misleading and may be unnecessary.

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

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

ICCFILENAME: EVANS-F1-909.12.DOC

F139–09/10
909.12.1 (IBC [F] 909.12.1; IMC [F] 513.12.1)

Proponent: Howard Hardy, South Metro Fire Rescue Authority, representing the Fire Marshals Association of Colorado

Revise as follows:

909.12.1 (IBC [F] 909.12.1) (IMC [F] 513.12.1) Wiring. In addition to meeting requirements of NFPA 70, all wiring, regardless of voltage, shall be fully enclosed within continuous <u>metal</u> raceways.

Reason: This requirement dates back to the 1994 UBC and has not been updated. The purpose of enclosing the wiring in a raceway is to provide for survivability. There are many products available today that were not available when this section first appeared in the code. Many of the products are plastics and will not withstand the heat that may be present. We feel that clarifying the type of materials for the raceway will maintain the original code intent.

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

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

ICCFILENAME: HARDY-F1-909.12.1.DOC

F140–09/10
909.13.1 (IBC [F] 909.13.1; IMC [F] 513.13.1)

Proponent: Bob Eugene, Underwriters Laboratories, Inc.

Revise as follows:

909.13.1 (IBC [F] 909.13.1; IMC [F] 513.13.1) Materials. Control-air tubing shall be hard-drawn copper, Type L, ACR in accordance with ASTM B 42, ASTM B 43, ASTM B 68, ASTM B 88, ASTM B 251 and ASTM B 280. Fittings shall be wrought copper or brass, solder type in accordance with ASME B 16.18 or ASME B 16.22. Changes in direction shall be made with appropriate tool bends. Brass compression-type fittings shall be used at final connection to devices; other joints shall be brazed using a BCuP5 brazing alloy with solidus above 1,100ºF (593ºC) and liquids below 1,500ºF (816ºC). Brazing flux shall be used on copper-to-brass joints only.

Exception: Nonmetallic tubing used within control panels and at the final connection to devices provided all of the following conditions are met:

1. Tubing shall ~~be listed by an approved agency for flame and smoke characteristics~~ comply with the requirements of Section 602.2.1.3 of the *International Mechanical Code*.
2. Tubing and connected device shall be completely enclosed within a galvanized or paint-grade steel enclosure having a minimum thickness of 0.0296 inch (0.7534 mm) (No. 22 gage). Entry to the enclosure shall be by copper tubing with a protective grommet of Neoprene or Teflon or by suitable brass compression to male barbed adapter.
3. Tubing shall be identified by appropriately documented coding.
4. Tubing shall be neatly tied and supported within the enclosure. Tubing bridging cabinets and doors or moveable devices shall be of sufficient length to avoid tension and excessive stress. Tubing shall be protected against abrasion. Tubing serving devices on doors shall be fastened along hinges.

Reason: The code needs to provide specifics as to what surface burning characteristics the tubing needs to meet, and what test standard to use in listing the tubing. Control air tubing is similar to pneumatic tubing, whose listing requirements are specified in Section 602.2.1.3.

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

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

ICCFILENAME: EUGENE-F8-909.13.1.DOC

F141–09/10
909.19 (IBC [F] 909.19)

Proponent: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Revise as follows:

909.19 (IBC [F] 909.19) System acceptance. Buildings, or portions thereof, required by this code to comply with this section shall not be issued a certificate of occupancy until such time that the fire code official determines that the provisions of this section have been fully complied with and that the fire department has received satisfactory instruction on the operation, both automatic and manual, of the system and a written maintenance program complying with the requirements of Section 909.20.1 has been submitted and approved.

> **Exception:** In buildings of phased construction, a temporary certificate of occupancy, as approved by the fire code official, shall be allowed provided that those portions of the building to be occupied meet the requirements of this section and that the remainder does not pose a significant hazard to the safety of the proposed occupants or adjacent buildings.

Reason: The maintenance requirements for a smoke control system are comprehensive and the International Fire Code specifies that:

> *909.20.1 Schedule. A routine maintenance and operational testing program shall be initiated immediately after the smoke control system has passed the acceptance tests. A written schedule for routine maintenance and operational testing shall be established..*

For this action to occur, the written schedule must be developed and approved prior to approval of the system. The coordination problem is that Section 909 matches between the two codes up to Section 909.19 and the requirement for the application of the maintenance document is only found in the fire code. Unfortunately, this causes designers and installers (and some code officials) to miss this requirement the maintenance plan that must take effect upon approval is often overlooked.

The purpose of this modification is to provide a simple pointer as a reminder.

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

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

ICCFILENAME: DAVIDSON-SHUMAN-F15-909.19.DOC

F142–09/10
909.20

Proponent: Vickie Lovell, Representing National Energy Management Institute

Add new text as follows:

909.20 Maintenance. Smoke control systems shall be maintained to ensure to a reasonable degree that the system is capable of controlling smoke for the duration required. The maintenance and testing of the smoke control system shall be supervised by personnel who have expertise in fire protection engineering, mechanical engineering and certified as air balancers, or are certified by a third party accreditation program for air testing, adjusting and air balancing and for inspection of smoke control systems. The system shall be maintained in accordance with the manufacturer's instructions and Sections 909.20.1 through 909.20.5.

Reason: The purpose of this addition is to further clarify the requirements of those supervising individuals who test and maintain smoke control systems. Third-party accreditation programs provide individuals with the needed expertise in fire-protection engineering, mechanical engineering, and air adjusting and balancing.

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

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

ICCFILENAME: LOVELL-F3-909.20

F143–09/10
910 (IBC [F] 910), 604.2.19 (New), Chapter 47 (IBC Chapter 35)

Proponent: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

1. Revise as follows:

SECTION 910 (IBC [F] 910)
SMOKE AND HEAT VENTS

910.1 (IBC [F] 910.1) General. Where required by this code or otherwise installed, smoke and heat vents, or mechanical smoke exhaust systems, and draft curtains shall conform to the requirements of this section.

Exceptions:

1. Frozen food warehouses used solely for storage of Class I and II commodities where protected by an approved automatic sprinkler system.
2. Where areas of buildings are equipped with early suppression fast-response (ESFR) sprinklers, automatic smoke and heat vents shall not be required within these areas.
3. Where areas of buildings are equipped with ESFR sprinklers, draft curtains shall not be provided within these areas. Draft curtains shall only be provided at the separation between the ESFR sprinklers and the conventional sprinklers.

910.2 (IBC [F] 910.2) Where required. Smoke and heat vents or mechanical smoke exhaust shall be installed in the roofs of one-story buildings or portions thereof occupied for the uses set forth in Sections 910.2.1 through 910.2.2.

910.3 (IBC [F] 910.3) Design and , installation and maintenance. The design and , installation and maintenance of smoke and heat vents, and draft curtains and mechanical exhaust systems shall be as specified in Sections 910.3.1 through 910.3.5.2 and Table 910.3 in accordance with NFPA 204.

~~**910.3.1 (IBC [F] 910.3.1) Design.** Smoke and heat vents shall be *listed* and *labeled* to indicate compliance with UL 793.~~

~~**910.3.2 (IBC [F] 910.3.2) Vent operation.** Smoke and heat vents shall be capable of being operated by *approved* automatic and manual means. Automatic operation of smoke and heat vents shall conform to the provisions of Sections 910.3.2.1 through 910.3.2.3.~~

~~**910.3.2.1 (IBC [F] 910.3.2.1) Gravity-operated drop out vents.** Automatic smoke and heat vents containing heat-sensitive glazing designed to shrink and drop out of the vent opening when exposed to fire shall fully open within 5 minutes after the vent cavity is exposed to a simulated fire represented by a time-temperature gradient that reaches an air temperature of 500°F (260°C) within 5 minutes.~~

~~**910.3.2.2 (IBC [F] 910.3.2.2) Sprinklered buildings.** Where installed in buildings equipped with an *approved automatic sprinkler system*, smoke and heat vents shall be designed to operate automatically.~~

~~**910.3.2.3 (IBC [F] 910.3.2.3) Nonsprinklered buildings.** Where installed in buildings not equippedwith an *approved automatic sprinkler system*, smoke and heat vents shall operate automatically by actuation of a heat-responsive device rated at between 100°F (56°C) and 220°F (122°C) above ambient.~~

~~**Exception:** Gravity-operated drop out vents complying with Section 910.3.2.1.~~

~~**910.3.3 (IBC [F] 910.3.3) Vent dimensions.** The effective venting area shall not be less than 16 square feet (1.5 m_2) with no dimension less than 4 feet (1219 mm), excluding ribs or gutters having a total width not exceeding 6 inches (152 mm).~~

~~**910.3.4 (IBC [F] 910.3.4) Vent locations.** Smoke and heat vents shall be located 20 feet (6096 mm) or more from adjacent *lot lines* and *fire walls* and 10 feet (3048 mm) or more from *fire barriers*. Vents shall be uniformly located within the roof in the areas of the building where the vents are required to be installed by Section 910.2, with consideration given to roof pitch, draft curtain location, sprinkler location and structural members.~~
~~**910.3.5 (IBC [F] 910.3.5) Draft curtains.** Where required by Table 910.3, draft curtains shall be installed on the underside of the roof in accordance with this section.~~

~~**Exception:** Where areas of buildings are equipped with ESFR sprinklers, draft curtains shall not be provided within these areas. Draft curtains shall only be provided at the separation between the ESFR sprinklers and the non-ESFR sprinklers.~~

~~**910.3.5.1 (IBC [F] 910.3.5.1) Construction.** Draft curtains shall be constructed of sheet metal, lath and plaster, gypsum board or other *approved* materials that provide equivalent performance to resist the passage of smoke. Joints and connections shall be smoke tight.~~

~~**910.3.5.2 (IBC [F] 910.3.5.2) Location and depth.** The location and minimum depth of draft curtains shall be in accordance with Table 910.3.~~

~~**910.4 (IBC [F] 910.4) Mechanical smoke exhaust.** Where *approved* by the *fire code official*, engineered mechanical smoke exhaust shall be an acceptable alternative to smoke and heat vents.~~

~~**910.4.1 (IBC [F] 910.4.1) Location.** Exhaust fans shall be uniformly spaced within each draft-curtained area and the maximum distance between fans shall not be greater than 100 feet (30 480 mm).~~

~~**910.4.2 (IBC [F] 910.4.2) Size.** Fans shall have a maximum individual capacity of 30,000 cfm (14.2 m^3/s). The aggregate capacity of smoke exhaust fans shall be determined by the equation:~~

~~$C = A \times 300$ **(Equation 9-4)**~~

~~where:~~
~~C = Capacity of mechanical ventilation required, in cubic feet per minute (m_3/s).~~
~~A = Area of roof vents provided in square feet (m_2) in accordance with Table 910.3.~~

~~**910.4.3 Operation.** Mechanical smoke exhaust fans shall be automatically activated by the *automatic sprinkler system* or by *heat detectors* having operating characteristics equivalent to those described in Section 910.3.2. Individual manual controls for each fan unit shall also be provided.~~

~~**TABLE 910.3 (IBC TABLE [F] 910.3)**~~
~~**REQUIREMENTS FOR DRAFT CURTAINS AND SMOKE AND HEAT VENTSa**~~

910.4 (IBC [F] 910.4) Activation. Smoke and heat vents or mechanical exhaust systems shall be manually activated from a listed or approved control panel installed in a location approved by the fire department.

~~**910.4.4**~~ **910.5 (IBC ~~[F] 910.4.4~~ [F] 910.4.5) Wiring and control.** Wiring for operation and control of smoke exhaust fans and for activation of smoke and heat vents shall be ~~connected ahead of the main disconnect~~ provided with an approved standby source complying with Section 604 and protected against exposure to temperatures in excess of 1,000°F (538°C) for a period of not less than ~~15 minutes~~ 1 hour. Controls shall be located so as to be accessible to the fire service from the exterior of the building and be protected against interior fire exposure by not less than 1-hour fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 712, or both

~~**910.4.5 Supply air.** Supply air for exhaust fans shall be provided at or near the floor level and shall be sized to provide a minimum of 50 percent of required exhaust. Openings for supply air shall be uniformly distributed around the periphery of the area served.~~

~~**910.4.6 Interlocks.** On combination comfort air-handling/smoke removal systems or independent comfort air-handling systems, fans shall be controlled to shut down in accordance with the *approved* smoke control sequence.~~

2. Add new text as follows:

604.2.19 Smoke exhaust and smoke and heat vents. In buildings and structures where standby power is required for the operation and control of smoke exhaust fans or for smoke and heat vents as required by Section 910.5.

3. Add new standard to Chapter 47/IBC Chapter 35 as follows:

NFPA
204-2010 Standard for Smoke and Heat Venting

Reason: Since the adoption of the 2000 International Fire and Building Codes, opponents of the Section 910 smoke and heat vents requirements have consistently submitted code change proposals to eliminate them from the code. The IFC committee has consistently turned down those submittals due to a lack of data indicating there was a reason to eliminate a necessary firefighter safety feature.

> ***IFC Fire Code Commentary:*** *The purpose of smoke and heat vents has historically been related to the needs of the fire department. More specifically, smoke and heat vents, when activated, have the potential effect of raising the height of the smoke layer and providing more tenable conditions in which to undertake fire-fighting activities.*

The original arguments against smoke and heat vents were that they interfered with the operation of the sprinkler systems. However, the reams of test report data submitted to the IFC Committee over the years did not support that position. In fact, the last full scale testing to occur, in Ghent, Belgium, documented there was a positive benefit to the use of smoke and heat vents with no negative impact on sprinkler systems performance e en when all of the smoke vents were opened simultaneously in a ganged operation or when the vents were open at the time the fire occurred.

As more and more code officials became educated on the details of the test data inaccurately being portrayed by the smoke and heat opponents over the years the argument shift to one of, “well, not all the vents open as expected after sprinkler activation so the smoke and heat vents should be removed”. This new reason ignores the fact that the smoke still needs to go somewhere and the code requires manual activation capabilities for the fire department to use to open the vents once they arrive.

It also introduces a concept that is troubling, i.e., smoke detection systems, sprinkler systems and fire hydrants, to name a few protective systems, do not always perform as expected, but we don’t simply eliminate them. Accepted practice is to identify any potential problems and if necessary improve the codes and standards to eliminate any deficiencies and to increase reliability.

The latest tactic is to misrepresent a NIOSH guidance documents addressing firefighter safety by claiming it tells fire departments to never put their personnel on the roofs of buildings. The document does not include that admonition, it advises fire scene commanders to use caution and not to risk a firefighter solely to protect property. It also makes it clear that one of the factors to include is if there is a life risk in the building.

While misapplying this NIOSH document the new argument is that when the fire service arrives at a building protected by an automatic fire suppression system they should just wait outside for 30 minutes or so and allow the sprinkler system to extinguish the fire and then they can simply perform mop up and overhaul activities. If only firefighting responsibilities were that simple. (It should be noted that in arguing this position they also intend to modify the intent of the fire code, i.e., that the smoke and heat vents are a firefighter safety feature).

We do not believe that a firefighter safety feature should be removed. Even when automatic sprinkler systems properly function a lot of heat and smoke is generated and the fire service needs a method to get that smoke and heat out to allow for safer access to the seat of the fire to complete extinguishment and then to ensure that the fire has been completely extinguished.

If there are no smoke and heat vents or a properly designed and installed smoke exhaust system, how does the fire service get the smoke out? Even using positive pressure ventilation you need to push it somewhere. Lacking smoke and heat vents or a properly designed smoke exhaust system the fire service is back to putting what limited manpower is available on the roof attempting to cut holes in it.

This code change proposal takes a different direction. Recognizing that some improvements are necessary to modernize the requirements of the International Fire and Building Codes and that the cookie cutter one size all approach is no longer the correct one based upon the advancement of design methods placed in the code for other smoke control systems. This proposal is to keep the requirements in the code for what buildings shall be provided with smoke and heat vents or mechanical exhaust and to then refer to NFPA 204 as the design, installation and maintenance standard.

This will provide a more balance approach by utilizing a much improved referenced standard to design the solution around the design of the building and the contents of the building. The same approach currently allowed for other types of smoke control systems and for the installation of automatic fire sprinkler systems protecting the same building and contents.

The NFPA 204 technical committee has faced the same arguments put forth to the IFC committee and rejected the elimination of smoke and heat vents from sprinklered buildings. Just as the IFC/IBC does for smoke control systems for high occupancy buildings, they simply advise the designer to document any reliance on sprinkler system fire control with an engineering analysis. (See Section 909.9.4 of the IFC and Chapter 11 of NFPA 204).

Another major benefit of this proposal is to take this discussion of vents versus no vents due to sprinkler system functioning off the table. It does that by switching to manual activation after fire department arrival which will be well after sprinkler system activation. It also does that by referencing a standard for the design, installation and maintenance of the smoke and heat vents or mechanical exhaust that is maintained by a balanced committee for this particular and specialized topic. If the committee that specializes in this topic does not see the need to eliminate the use of this important firefighter safety feature after looking at all of the information and issues presented to them, far more than the IFC committee has seen, why should the IFC committee see a need?

The specific changes are as follow:

910.1 was modified to add an exception 3 which simply relocates language for an exception for ESFR protected areas (See existing 910.3.5)

910.2 has been modified to identify that either smoke and heat vents or mechanical smoke exhaust shall be installed and the reference to one story buildings has been deleted. If the F or S occupancy is in a multi-story building the mechanical exhaust option can be used. The generation of smoke and heat does not have to be ignored.

910.3 was modified to add "maintenance" to ensure the smoke and heat vents or mechanical smoke exhaust is maintained and the reference to NFPA 204 as the design, installation and maintenance standard has been added.

Sections 910.3.1 through 910.4.3 have been deleted as no longer needed due to the reference to NFPA 204. This eliminates the cookie cutter approach to the installations that the IFC uses as one size fits all.

A new Section 910.4 has been added to specify that either smoke and heat vents or mechanical smoke exhaust shall be manually activated from a listed or approved control panel and the panel must be located as approved by the fire department. This eliminates any concern over smoke removal activating before the sprinkler system operates and allows the fire department to activate the smoke removal without placing manpower on the roof.

Section 910.4.4 has been renumbered as 910.5 and the requirement to connect the power ahead of the main disconnect has been deleted in favor of installing an approved standby power source as is done for ALL other fire protection systems. The protection of the wiring has been increased from 15 minutes to 1 hour to correlate to the 1 hour protection the code already provides for the location of the control panel. Why would we provide 1 hour protection for the control panel but let the wiring burn up in 15 minutes? This also correlates to the fact that we expect the smoke removal to be available to the fire department for firefighting operations which will take more than 15 minutes.

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

Analysis: Review of proposed new standard NFPA 204-2010 indicated that, in the opinion of ICC Staff, the standard did comply with ICC standards criteria.

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

ICCFILENAME: DAVIDSON-SHUMAN-F19-910.DOC

F144–09/10

910 (IBC [F] 910), 2306, Chapter 47 (IBC Chapter 35)

Proponent: Paul K. Heilstedt, PE, FAIA, Chair, representing ICC Code Technology Committee (CTC)

1. Revise as follows:

SECTION 910
SMOKE AND HEAT VENTS

910.1 (IBC [F] 910.1) General. Where required by this code ~~or otherwise installed~~, smoke and heat vents and draft curtains or mechanical smoke ~~exhaust~~ removal systems~~, and draft curtains~~ shall conform to the requirements of this section. The provisions of Section 910.3 shall only apply to buildings or portions thereof, which are not protected by an automatic sprinkler system. The provisions of Section 910.4 shall apply to buildings or portions thereof which are protected by an automatic sprinkler system in accordance with Section 903.3.1.1.

~~**Exceptions:**~~

1. ~~Frozen food warehouses used solely for storage of Class I and II commodities where protected by an approved automatic sprinkler system.~~
2. ~~Where areas of buildings are equipped with early suppression fast-response (ESFR) sprinklers, automatic smoke and heat vents shall not be required within these areas.~~

910.2 (IBC [F] 910.2) Where required. Smoke and heat vents and draft curtains or a smoke removal system shall be ~~installed in the roofs of one-story buildings or portions thereof occupied for the uses set forth in Sections 910.2.1 through 910.2.3.~~ provided as required by Sections 910.2.1 through 910.2.3

910.2.1 (IBC [F] 910.2.1) Group F-1 or S-1. ~~Buildings and portions thereof used as~~ A mechanical smoke removal system shall be installed in one story buildings or portions thereof used as a Group F-1 or S-1 occupancy exceeding 50,000 square feet. ~~having more than 50,000 square feet (4645 m^2) in undivided area.~~

~~**Exception:** Group S-1 aircraft repair hangars.~~

910.2.2 (IBC [F] 910.2.2) Nonsprinklered high-piled combustible storage. ~~.~~ Smoke and heat vents and draft curtains shall be installed in one story buildings or portions thereof containing high-piled combustible storage ~~stock~~ which is not protected by an automatic sprinkler system ~~or rack storage in any occupancy group~~ in accordance with Section 2306.7.

910.2.3 (IBC [F] 910.2.3) Sprinklered high-piled combustible storage. A mechanical smoke removal system shall be installed in one story buildings or portions thereof containing high-piled combustible storage which is protected by an automatic sprinkler system in accordance with Section 413 and the *International Fire Code*.

910.3 (IBC [F] 910.3) Design and installation. The design and installation of smoke and heat vents and draft curtains in buildings which are not protected by an automatic sprinkler system shall be as specified in Sections 910.3.1 through 910.3.5.2 and Table 910.3. in accordance with NFPA 204 and this section.

TABLE 910.3 (IBC [F] TABLE 910.3)
REQUIREMENTS FOR DRAFT CURTAINS AND SMOKE AND HEAT VENTS[a]
(Delete table and notes in their entirety)

910.3.1 (IBC [F] 910.3.1) Smoke boundary layer. Smoke and heat vents and draft curtain installations shall be designed to maintain the elevation of the smoke boundary layer as defined by NFPA 204 a minimum of 6 feet above the elevation of the means of egress for a period of 20 minutes after effective ignition.

910.3.1 (IBC [F] 910.3.1) Design. **910.3.2 (IBC [F] 910.3.2) Listing and labeling.** Smoke and heat vents shall be listed and labeled to indicate compliance with UL 793 or FM 4430..

910.3.2 (IBC [F] 910.3.2) Vent operation. Smoke and heat vents shall be capable of being operated by approved automatic and manual means. Automatic operation of smoke and heat vents shall conform to the provisions of Sections 910.3.2.1 through 910.3.2.3.

910.3.2.1 (IBC [F] 910.3.2.1) Gravity-operated drop-out vents. Automatic smoke and heat vents containing heat-sensitive glazing designed to shrink and drop out of the vent opening when exposed to fire shall fully open within 5 minutes after the vent cavity is exposed to a simulated fire, represented by a time-temperature gradient that reaches an air temperature of 500°F (260°C) within 5 minutes.

910.3.2.2 (IBC [F] 910.3.2.2) Sprinklered buildings. Where installed in buildings provided with an approved automatic sprinkler system, smoke and heat vents shall be designed to operate automatically.

910.3.2.3 (IBC [F] 910.3.2.3) Nonsprinklered buildings. Where installed in buildings not provided with an approved automatic sprinkler system, smoke and heat vents shall operate automatically by actuation of a heat-responsive device rated at between 100°F (38°C) and 220°F (104°C) above ambient.

Exception: Gravity-operated drop-out vents complying with Section 910.3.2.1

910.3.3 (IBC [F] 910.3.3) Vent dimensions. The effective venting area shall not be less than 16 square feet (1.5 m^2) with no dimension less than 4 feet (1219 mm), excluding ribs or gutters having a total width not exceeding 6 inches (152 mm).

910.3.4 (IBC [F] 910.3.4 910.3.3 (IBC [F] 910.3.3 Vent locations. Smoke and heat vents shall be located 20 feet (6096 mm) or more from adjacent lot lines and fire walls and 10 feet (3048 mm) or more from fire barriers. Vents shall be uniformly located within the roof in the areas of the building where the vents are required to be installed by Section 910.2 with consideration given to roof pitch, draft curtain location, sprinkler location and structural members.

910.3.5 (IBC [F] 910.3.5) 910.3.4 (IBC [F] 910.3.4 Draft curtains. Where required by Table 910.3 NFPA 204, draft curtains shall be installed on the underside of the roof in accordance with this section.

Exception: Where areas of buildings are equipped with ESFR sprinklers, draft curtains shall not be provided within these areas. Draft curtains shall only be provided at the separation between the ESFR sprinklers and the non ESFR sprinklers.

910.3.5.1 (IBC [F] 910.3.5.1 910.3.4.1 (IBC [F] 910.3.4.1) Construction. Draft curtains shall be constructed of sheet metal, lath and plaster, gypsum board or other approved materials which provide equivalent performance to resist the passage of smoke. Joints and connections shall be smoke tight.

910.3.5.2 (IBC [F] 910.3.5.2) Location and depth. The location and minimum depth of draft curtains shall be in accordance with Table 910.3.

910.4 (IBC [F] 910.4) Mechanical smoke exhaust. Where approved by the fire code official, engineered mechanical smoke exhaust shall be an acceptable alternate to smoke and heat vents.

[F] 910.4. Mechanical smoke removal system. Where required by Sections 910.2.1 and 910.2.3, a mechanical smoke removal system shall be provided in accordance with this section.

Exception: Buildings or portions thereof which are protected by ESFR sprinklers.

~~**910.4.1 (IBC [F] 910.4.1) Location.** Exhaust fans shall be uniformly spaced within each draft-curtained area and the maximum distance between fans shall not be greater than 100 feet (30 480 mm).~~

910.4.1 (IBC [F] 910.4.1) Exhaust fan number and spacing. A minimum of two exhaust fans shall be provided. The spacing between exhaust inlets shall be a minimum of 40 feet and not exceed 100 feet.

~~**910.4.2 (IBC [F] 910.4.2) Size.** Fans shall have a maximum individual capacity of 30,000 cfm (14.2 m3/s). The aggregate capacity of smoke exhaust fans shall be determined by the equation:~~

~~$C = A \times 300$ **(Equation 9-10)**~~

~~where:~~
~~C = Capacity of mechanical ventilation required, in cubic feet per minute (m3/s).~~
~~A = Area of roof vents provided in square feet (m2) in accordance with Table 910.3.~~

910.4.2 (IBC [F] 910.4.2) Exhaust fan construction. Exhaust fans which are part of the smoke removal system shall be rated for operation at ambient temperatures. Exhaust fan motors shall be located outside of the exhaust air stream.

910.4.2 (IBC [F] 910.4.3) System design criteria. The mechanical smoke removal system shall be sized to exhaust the building at a minimum rate of 4 air changes per hour based upon the volume of the building or portion thereof without contents. The capacity of each exhaust fan shall not exceed 30,000 cubic feet per minute. Adequate make-up air shall be available and approved.

~~**910.4.3 (IBC [F] 910.4.3) Operation.** Mechanical smoke exhaust fans shall be automatically activated by the automatic sprinkler system or by heat detectors having operating characteristics equivalent to those described in Section 910.3.2. Individual manual controls of each fan unit shall also be provided.~~

910.4.4 (IBC [F] 910.4.4) Activation. The mechanical smoke removal system shall be activated by manual controls. The mechanical smoke removal system shall not be automatically activated.

910.4.5 (IBC [F] 910.4.5) Manual control location. Manual controls shall be located so as to be accessible to the fire service from the exterior of the building and be protected against interior fire exposure by not less than 1-hour fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 712, or both.

~~**[F] 910.4.4 Wiring and control.** Wiring for operation and control of smoke exhaust fans shall be connected ahead of the main disconnect and protected against exposure to temperatures in excess of 1,000°F (538°C) for a period of not less than 15 minutes. Controls shall be located so as to be immediately accessible to the fire service from the exterior of the building and protected against interior fire exposure by not less than 1-hour fire barriers constructed in accordance with Section 706 or horizontal assemblies constructed in accordance with Section 711, or both.~~

910.4.6 (IBC [F] 910.4.6) Wiring and control. Wiring for the operation and control of smoke removal system fans shall be connected ahead of the main disconnect and be protected by materials with a finish rating of 30 minutes.

~~**910.4.5 (IBC [F] 910.4.5) Supply air.** Supply air for exhaust fans shall be provided at or near the floor level and shall be sized to provide a minimum of 50 percent of required exhaust. Openings for supply air shall be uniformly distributed around the periphery of the area served.~~

~~**910.4.6 (IBC [F] 910.4.6) Interlocks.** In combination comfort air-handling/ smoke removal systems or independent comfort air-handling systems, fans shall be controlled to shut down in accordance with the approved smoke control sequence.~~

910.4.7 (IBC [F] 910.4.7) Interlocks. Where building air-handling and smoke removal systems are combined or where independent building air-handling systems are provided, fans shall automatically shut down in accordance with the *International Mechanical Code*. The manual controls provided for the smoke removal system shall have the cability to override the automatic shutdown of fans that are part of the smoke removal system.

TABLE 2306.2
GENERAL FIRE PROTECTION AND LIFE SAFETY REQUIREMENTS

COMMODITY CLASS	SIZE OF HIGH-PILED STORAGE AREA[a] (square feet) (see Sections 2306.2 and 2306.4)	ALL STORAGE AREAS (See Sections 2306, 2307 and 2308)[b]				
		Automatic fire-extinguishing system (see Section 2306.4)	Fire detection system (see Section 2306.5)	Building access (see Section 2306.6)	Smoke and heat ~~removal~~ venting (see Section 2306.7)	~~Draft curtains (see Section 2306.7)~~
I-IV	0-500	Not Required[a]	Not Required	Not Required[e]	Not Required	~~Not Required~~
	501-2,500	Not Required[a]	Yes[i]	Not Required[e]	Not Required	~~Not Required~~
	2,501-12,000 Public accessible	Yes	Not Required	Not Required[e]	Not Required	~~Not Required~~
	2,501-12,000 Nonpublic accessible (Option 1)	Yes	Not Required	Not Required[e]	Not Required	~~Not Required~~
	2,501-12,000 Nonpublic accessible (Option 2)	Not Required[a]	Yes	Yes	Yes	~~Yes~~[j]
	12,001-20,000	Yes	Not Required	Yes	Yes[j]	~~Not Required~~
	20,001-500,000	Yes	Not required	Yes	Yes[l]	~~Not required~~
	Greater than 500,000 ~~g~~ d	Yes	Not required	Yes	Yes[l]	~~Not required~~
High hazard	0-500	Not Required[a]	Not Required	Not Required[e]	Not Required	~~Not Required~~
	501-2,500 Public accessible	Yes	Not Required	Not Required[e]	Not Required	~~Not Required~~
	501-2,500 Nonpublic accessible (Option 1)	Yes	Not Required	Not Required[e]	Not Required	~~Not Required~~
	501-2,500 Nonpublic accessible (Option 2)	Not Required[a]	Yes	Yes	Yes	~~Yes~~[j]
	2,501-300,000	Yes	Not required	Yes	Yes[j]	~~Not required~~
	300,001-500,000 ~~g~~ d, h	Yes	Not required	Yes	Yes[l]	~~Not required~~

(Portions of table not shown remain unchanged)

For SI: 1 foot = 304.8 mm, 1 cubic foot = 0.02832 m^3 , 1 square foot = 0.0929 m^2 .

a. When automatic sprinklers are required for reasons other than those in Chapter 23, the portion of the sprinkler system protecting the high-piled storage area shall be designed and installed in accordance with Sections 2307 and 2308.
b. For aisles, see Section 2306.9.

c. Piles shall be separated by aisles complying with Section 2306.9.
d. For storage in excess of the height indicated, and high hazard storage areas greater than 300, 000 square feet, ~~special fire protection~~ an approved engineering design such as fire protection of structural elements and enhanced fire suppression shall be provided ~~in accordance with Note g when required by the fire code official~~. See also Chapters 28 and 34 for special limitations for aerosols and flammable and combustible liquids, respectively.
e. Section 503 shall apply for fire apparatus access.
f. For storage exceeding 30 feet in height, Option 1 shall be used.
~~g. Special fire protection provisions including, but not limited to, fire protection of exposed steel columns; increased sprinkler density; additional in-rack sprinklers, without associated reductions in ceiling sprinkler density; or additional fire department hose connections shall be provided when required by the fire code official.~~
h. High-piled storage areas shall not exceed 500,000 square feet. A 2-hour fire wall constructed in accordance with the International Building Code shall be used to divide high-piled storage exceeding 500,000 square feet in area.
i. Not required when an automatic fire-extinguishing system is designed and installed to protect the high-piled storage area in accordance with Sections 2307 and 2308.
j. Smoke and heat venting shall not be ~~Not~~ required when storage areas are protected by early suppression fast response (ESFR) sprinkler systems installed in accordance with NFPA 13. Where a standard sprinkler system is installed in these locations, a mechanical smoke removal system shall be provided in accordance with Section 910.4. See Section 2306.7.

2306.7 Smoke and heat ~~removal~~ venting. Where smoke and heat ~~removal~~ venting ~~are~~ is required by Table 2306.2 in buildings not protected by an automatic sprinkler system, smoke and heat vents and draft curtains shall be provided in accordance with Section 910. Smoke and heat venting shall not be required where storage areas are protected by early suppression fast response (ESFR) sprinkler systems installed in accordance with NFPA 13. Where Table 2306.2 requires smoke and heat venting in a building with a standard sprinkler system, a mechanical smoke removal system shall be provided in accordance with Section 910.4. Where draft curtains are required by Table 2306.2, they shall be provided in accordance with Section 910.3.4.

2. Add new standards to Chapter 47 (IBC Chapter 35) as follows:

FM
4430-07 Approval Standard for Heat and Smoke Vents

NFPA
204-2010 Standard for Smoke and Heat Venting

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. Since its inception in April/2005, the CTC has held seventeen meetings - all open to the public.

This proposed change is a result of the CTC's investigation of the area of study entitled "Balanced Fire Protection – Roof vents". The scope of the activity is noted as:

Review the current IBC/IFC requirements for smoke/heat vents and draft curtains relative to balanced fire protection**.**

The purpose of this code change is to update the provisions which mandate roof vents in one-story industrial and storage buildings. The code change will delete the specification-oriented provisions for roof vents and draft curtains for unsprinklered buildings and substitute a reference to NFPA 204. The code change will further require that a manually-operated mechanical smoke removal system be provided for large one-story industrial and storage buildings protected by a sprinkler system in lieu of the requirements for roof vents and draft curtains.

The first issue assigned by the ICC Board of Directors to the Code Technology Committee (CTC) in 2005 was the issue of "balanced" fire protection. As part of the CTC's review of the "balanced" fire protection issue, the CTC formed a Study Group to review the issue of whether or not smoke/heat vents were necessary in large buildings protected by a sprinkler system.

After reviewing the available research on the interaction of standard sprinklers and roof vents (NISTIR 6196-1), it was determined that individually-activated automatic roof vents are unlikely to activate automatically in buildings protected by standard spray sprinklers (provided that the sprinkler system is adequate for the hazard protected and is operational). Given this determination, it was concluded that the performance of individually-activated automatic roof vents is essentially the same as manually-operated roof vents in buildings protected by a sprinkler system.

The explanatory information provided in NFPA 204 indicates that the capabilities of roof vents to perform their function are dependent upon the depth of the smoke layer which develops and the temperature differential between the smoke layer and ambient temperature. Given that standard spray sprinklers are highly efficient in reducing ceiling temperatures due to the finely divided water spray produced by these types of sprinklers, the ceiling temperatures produced even in "high challenges" fires are rapidly reduced and, after about 10 minutes of sprinkler discharge, return to near ambient and continue to drop with additional time. Based upon this, it can be concluded that roof vents which are manually opened 10 minutes or more after sprinkler activation will not provide effective venting for the building.

Where the smoke layer temperature differentials are less than 110^{o}C (198^{o}F), NFPA 204 recommends that a powered (mechanical) exhaust system be provided in lieu of providing roof vents. Based upon the recommendations contained in NFPA 204, the provisions for providing roof vents have been deleted and a requirement for a manually-operated mechanical smoke removal system has been substituted.

The proposal requires that the manually-operated mechanical smoke removal system be sized to provide a minimum of 6 air changes per hour. Since the use of roof vents for the purpose of providing venting in sprinklered buildings has been acceptable for over 25 years, the sizing of the mechanical smoke removal system has been determined based upon the venting capabilities of roof vents at a time equal to the typical fire department response time, 10 minutes and beyond. Given that opened roof vents will provide little actual venting capability after the sprinkler system

has been discharging water spray for 10 minutes, providing a mechanical smoke removal system which provides a minimum of 4 air changes an hour will be a substantial improvement over the presently acceptable venting capabilities for sprinklered buildings required by the IBC/IFC. The 4 air changes were viewed as a reasonable value when compared against the BOCA National Building Code which required 2 and the Uniform Building Code which required 6.

It should be noted that this code change proposal permits the mechanical smoke removal system to designed to operate at ambient temperatures. The rationale for this provision is that the ceiling temperatures throughout the building will be returned to close to ambient at between 10 and 15 minutes after the first sprinkler activates. Given that the typical response time for fire departments is roughly 10 minutes, and the ceiling temperatures expected after 10 minutes, there is no need to design the mechanical system to withstand temperatures higher than ambient.

In the opinion of the Study Group which has developed this code change proposal, the proposal is a vast improvement over the existing provisions for roof venting presently contained in the IBC/IFC.

It should be noted that simply making a reference to NFPA 204 as a substitute for the present specification-oriented provisions for roof vents/draft curtains contained in the IBC/ IFC is not an option because the current edition of NFPA 204 does not contain specific design provisions for the design of roof vent systems in buildings protected by a standard sprinkler system. Without specific provisions for roof vent system in sprinklered buildings, the requirements for roof vent systems in sprinklered buildings cannot be enforced in a uniform manner in all jurisdictions which utilize the IBC/IFC.

It should also be noted that the NFPA 204 committee is presently working developing provisions which address the design of roof venting systems in sprinklered buildings; however, these provisions have been under development for more than 30 years. It is the Study Group's opinion that the IBC/IFC should not be written based upon the assumption that the NFPA 204 committee will be able to develop provisions for the design of venting systems anytime in the near future.

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

Analysis: A review of the standard proposed for inclusion in the code, FM 4430-07, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009. Review of proposed new standard NFPA 204-2010 indicated that, in the opinion of ICC Staff, the standard did comply with ICC standards criteria.

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

ICCFILENAME: HEILSTEDT-F1-910.1.DOC

F145–09/10
910.3.5.2.1 (New) [IBC [F] 910.3.5.2.1 (New)]

Proponent: Richard Davis, FM Global

Add new text as follows:

910.3.5.2.1 (IBC [F] 910.3.5.2.1) Aisle location. Draft curtains located in high-piled storage areas classified as Class I-IV and High Hazard in sprinklered buildings shall be located over an aisle space. The distance between the face of storage and the draft curtain on both sides of the draft curtain shall not be less than 0.75 times the spacing between sprinklers in the direction perpendicular to the draft curtain.

Reason: If draft curtains are not located over sufficiently large aisle spaces, they can have a detrimental effect on fire control by sprinklers. Draft curtains can prevent pre-wetting of storage adjacent to the area of fire origin, and can delay actuation of sprinklers on the opposite side of the draft curtain with respect to the fire origin. Pre-wetting of adjacent storage is important in establishing fire control by sprinklers in storage areas. The operation of an excessive number of sprinklers, potentially depleting the water supply, can result. This has been substantiated by tests done at FM Global Research (Joan Troup). Additional discussion is provided in Annex F of NFPA 204.

Cost Impact: The code change proposal will slightly increase costs based on the current requirements of the code, because it will result in an aisle space that is likely wider than it would be otherwise

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

ICCFILENAME: DAVIS-F1-910.3.5.3.DOC

F146–09/10
910.5 (New) [IBC ([F] 910.5 (New)], Chapter 47

Proponent: Justin H. Beal, representing the City of Fresno, CA, Fire Department

1. Add new text as follows:

910.5 (IBC [F] 910.5) Maintenance. Smoke and heat vents and mechanical smoke exhaust systems shall be maintained in an operative condition in accordance with NFPA 204. Fusible links shall be promptly replaced whenever fused, damaged or painted. Smoke and heat vents and mechanical smoke exhaust systems shall not be modified.

2. Add new standard to Chapter 47 as follows:

NFPA	
204-2007	Standard for Smoke and Heat Venting

Reason: The maintenance of heat and smoke vents and mechanical smoke exhaust systems is not clearly addressed within the model International Fire Code. Installation and design criteria for smoke and heat vents can be found in I.F.C. section 910.3.1 (U.L. 793), however, maintenance provisions for these systems should be included within section 910 to provide clarity for the end user of the code. This proposal incorporates National Fire Protection Association Standard 204, Standard for Smoke and Heat Venting, 2007 edition, as the referenced standard for the maintenance of smoke and heat vents and mechanical smoke exhaust systems.

Routine inspection, testing and maintenance of these devices is essential for several reasons: These devices are typically only found in the largest commercial structures, and within these structures, the amount of fire loading is usually very high, to include high piled combustible storage.

Ensuring that these devices are inspected, tested and maintained in proper working order by the building owner (as specified in the new referenced standard) will have several positive effects for firefighter safety. These benefits include: easy identification of the location of the fire within the structure, the release of excess heat within the structure decreasing fire severity, increased visibility for firefighters within the structure, and the reduction of toxic products of combustion within the structure.

Additionally, the maintenance of these devices will have a mitigating effect on damage to the structure and/or its contents should a fire occur. These include: decreased likelihood of structural failure from heat retained within the structure and reduced damage to the structure and stored materials from smoke.

Finally, these devices are considered “fire protection systems” as noted in the I.F.C. section 902.1, and as such, a provision requiring specified inspection, testing and maintenance intervals via a referenced standard should be included within the body of the code.

The language of this section has been developed to follow (and is substantially similar to, and consistent with) the format found within the International Fire Code, Section 703.2.

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

Analysis: Review of proposed new standard NFPA 204-2007 indicated that, in the opinion of ICC Staff, the standard did comply with ICC standards criteria.

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

ICCFILENAME: BEAL-F1-910.5.DOC

F147–09/10
912.4 (IBC [F] 912.4)

Proponent: Joshua D. Smith, New York State Department of State, Office of Fire Prevention and Control

Revise as follows:

912.4 ~~Signs~~ Markings. A metal sign with raised letters at least 1 inch (25 mm) in size shall be mounted on all fire department connections ~~serving automatic sprinklers, standpipes or fire pump connections~~ to indicate their function. The caps of fire department connections shall also be color-coded to indicate their function. ~~Such signs shall read: AUTOMATIC SPRINKLERS or STANDPIPES or TEST CONNECTION or a combination thereof as applicable.~~ Where the fire department connection does not serve the entire building, a sign shall be provided indicating the portions of the building served. The signs and the caps shall be marked as follows:

1. For a connection serving only a standpipe the sign shall read STANDPIPE and the cap shall be colored red.
2. For a connection serving a combination automatic sprinkler and standpipe system the sign shall read COMBINATION STANDPIPE AND SPRINKLER and the cap shall be colored yellow. If the automatic sprinkler system only covers a portion of the building the sign shall also indicate where the protected areas are located in the building.
3. For a connection serving an automatic sprinkler system only the sign shall read SPRINKLER or AUTOMATIC SPRINKLER and the cap shall be colored green. If the automatic system only covers a portion of the building the sign shall also indicate where the protected areas are located in the building.
4. For a connection serving a systems other than an automatic sprinkler system the sign shall read NON-AUTOMATIC SPRINKLER and the cap shall be colored silver.
5. Test connections shall have signs that read TEST CONNECTION and the caps shall be colored black.

Reason: There are often signs installed for fire department connections that are often a single color, such as chrome or brass signs, that are not easily read from the point where a fire apparatus will be able to first see the connection. The color coding of the caps will make identifying the function of the fire department connection more easily discernable from a greater distance for fire apparatus fire fighters.

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

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

ICCFILENAME: SMITHJ-F1-912.4.DOC

F148–09/10
915 (New) [IBC [F] 916 (New)]; IFGC 410.4 (New)

Proponent: Ronald Paskiewicz, President, Craft-Weld Enterprises, Inc., representing himself and Craft-Weld, for U.S. Patent No. 6,199,573 Gas Flow Arrestor (GFA) system

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 – IFC

Add new text as follows:

SECTION 915 (IBC 916)
AUTOMATIC FUEL GAS SERVICE SHUT OFF

915.1 Automatic fuel gas shut-off. Each fuel gas service to a building shall be equipped with an approved, fire alarm activated automatic fuel gas shut-off device installed between the gas service meter and the building or, where there is no gas service meter, within 2 feet (610 mm) of where the gas service pipe enters the building. Where no fire alarm system is installed, the automatic fuel gas shut-off device shall be activated by an approved smoke detector equipped with an approved heat sensor. The device shall stop the flow of fuel gas to the building upon activation by the fire alarm system or by activation of the heat sensor in the smoke detector.

915.2 Protection of non-metered branch services. Where a metered fuel gas service serves more than one building, or a complex of buildings, or a building that is subdivided into fire areas, each of which is served by a separate branch line from the metered gas service main, each such branch line shall be protected by an approved automatic fuel gas shut-off device activated in accordance with Section 915.1and installed within 2 feet (610 mm) of the building at the fuel gas service entrance.

915.3 Protection of branch lines to mechanical and electrical equipment. Branch lines to rooftop heating, ventilating and air conditioning units, and to pad-mounted emergency generators shall be protected by heat detector actuated automatic fuel gas shut-off systems.

PART II – IFGC

Add new text as follows:

410.4 Automatic fuel gas shut-off. An automatic fuel gas shut-off device shall be provided for buildings in accordance with Section 915 of the *International Fire Code*.

Reason: These requirements introduce a requirement for fire alarm actuated automatic gas shut-off valves at all metered fuel gas services to buildings or separate subdivisions of buildings, for example, a commercial mall or plaza, or an office building where each tenant's service is separately metered, or an industrial "incubator" complex of small leased spaces on separate meters. At the same time, 915.2 provides for the many situations where a single utility company meter serves an entire complex of buildings and subdivisions of these buildings, such as office campuses, large industrial complexes, military bases, airports and college and university campuses. and branch mains and branch lines of various sizes serve each building, and separate parts of these buildings, where fire alarm actuated automatic gas shut-off valves, or gas flow arrestors, on each of the individual branch mains or branch lines will protect the building that main or branch line serves without automatically shutting off gas services to all of the other buildings.

Cost Impact: The code change will only very slightly increase the cost of construction. Protection of each service or branch service can cost as little as a few hundred dollars, but even the most complex and sophisticated systems for the largest installations will cost no more than a few thousand dollars. Any increase in cost will be recovered within one to at the most three years in the reduction of insurance premiums, this on the authority of several major insurance companies that are poised to reduce the cost of their policies to insured who have installed GFA's.

PART I – IFC

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

PART II – IFGC

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

ICCFILENAME: PASKIEWICZ-F1-915

F149–09/10
1030.2

Proponent: John Woestman, The Kellen Company, representing the Door Safety Council (DSC)

Revise as follows:

1030.2 Reliability. Required exit accesses, exits ~~or~~ and exit discharges shall be continuously maintained free from obstructions or impediments to full instant use in the case of fire or other emergency when the building area~~s~~ served by ~~such exits~~ the means of egress ~~are~~ is occupied. Security devices affecting means of egress shall be subject to approval of the fire code official.

Reason: This proposal clarifies and improves enforceability of this paragraph of the code. One of the most common violations of the fire code is means of egress that have impediments to full instant use.

This proposal revises the code to more accurately reflect the intent of the code in that all three of the critical parts of the means of egress are required to meet the "full instant use" reliability requirements. Without this code change, it could be argued that this paragraph of the code may be satisfied if only one of the three separate and distinct parts of a means of egress is maintained free from obstructions and impediments to full instant use.

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

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

ICCFILENAME: WOESTMAN-F4-1030.2.DOC

F150–09/10
1030.2, 1030.2.1 (New)

Proponent: John Woestman, The Kellen Company, representing the Door Safety Council (DSC)

Revise as follows:

1030.2 Reliability. Required exit accesses, exits or exit discharges shall be continuously maintained free from obstructions or impediments to full instant use in the case of fire or other emergency when the areas served by such exits are occupied. Security devices affecting means of egress shall be subject to approval of the fire code official.

A building is regarded as occupied when it is open for use, open to the public, or when more than 10 persons are present within the building.

1030.2.1 In occupancy Groups A, B, E, and M, when the building is regarded as not occupied and means of egress doors are locked, individuals in the building shall be able to unlock means of egress doors for emergency egress.

Reason: This proposal introduces to the IFC a description of occupancy consistent with the updated NFPA 101 Life Safety Code and, for occupancy groups A, B, E, & M, adds enforceable language that addresses the challenge of ensuring reliable emergency escape while at the same time providing for occupant and property protection and security.

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

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

ICCFILENAME: WOESTMAN-F3-1030.2-2.DOC

F151–09/10
1030.2, 1030.2.1, 1030.6, 1030.9 (New)

Proponent: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

1. Revise as follows:

1030.2 Reliability. Required exit accesses, exits or exit discharges shall be continuously maintained free from obstructions or impediments to full instant use in the case of fire or other emergency when the areas served by such exits are occupied. An exit or exit passageway shall not be used for any purpose other than as a means of egress.

1030.2.1 Security devices and egress locks. Security devices affecting means of egress shall be subject to approval of the fire code official. Special locking arrangements including, but not limited to access-controlled egress doors, security grills, locks and latches, and delayed egress locks shall be installed and maintained as required by this chapter.

1030.6 Finishes, furnishings and decorations. Means of egress doors shall be readily maintained in such a manner as to be distinguishable from the adjacent construction and finishes such that the doors are easily recognizable as doors. Furnishings, decorations or other objects shall not be placed so as to obstruct exits, access thereto, egress therefrom, or visibility thereof. Hangings and draperies shall not be placed over exit doors or otherwise be located to conceal or obstruct an exit. Mirrors shall not be placed on exit doors. Mirrors shall not be placed in or adjacent to any exit in such a manner as to confuse the direction of exit.

2. Add new text as follows:

1030.9 Floor identification signs. The floor identification signs required by Sections 1022.8 and 4604.22 shall be maintained in an approved manner.

Reason: The proposed modification Section 1030.2 has taken language that currently exists in Sections 1020.1 and 1023.1 and added it to this section since the requirement is one that not only applies at the time of construction, but must be maintained for the life of the building or structure.

> *1020.1 General. Exits shall comply with Sections1020 through 1026 and the applicable requirements of Section1003 through 1013. An exit shall not be used for any purpose that interferes with its function as a means of egress. Once a given level of exit protection is achieved, such level of protection shall not be reduced until arrival at the exit discharge.*
>
> *1023.1 Exit passageway. Exit passageways serving as an exit component in a means of egress system shall comply with the requirements of this section. An exit passageway shall not be used for any purpose other than as a means of egress.*

The last sentence of Section 1030.2 addressing "security" is a special topic and has been separated out and designated as 1030.2.1. Language has been added to make it clear any of a number of methods used to control the use of or secure egress doors must be done in compliance with Chapter 10, which has specific provisions governing the installations when approved.

The proposed change to 1030.6 takes a restriction found in Section 1008.1 that equally applies to new construction, but also must be addressed through the life of the building or structure. It is not uncommon for a building owner to refinish the inside of an occupancy and paint or otherwise apply a matching finish to a door and the surrounding wall making the door indistinguishable. This commonly occurs with murals that are painted on walls of corridors.

> 1008.1 Doors. Means of egress doors shall meet the requirements of this section. Doors serving a means of egress system shall meet the requirements of this section and Section 1017.2. Doors provided for egress purposes in numbers greater than required by this code shall meet the requirements of this section.
>
> Means of egress doors shall be readily distinguishable from the adjacent construction and finishes such that the doors are easily recognizable as doors. Mirrors or similar reflecting materials shall not be used on means of egress doors. Means of egress doors shall not be concealed by curtains, drapes, decorations or similar materials.

A new Section 1030.9 is proposed which references the language found in existing Section 1022.8. The requirement for the maintenance of signs designating floor levels in interior stairway exit enclosures has equal importance in existing buildings.

Cost Impact: The code change proposal will not increase the cost of construction other than the signs needed for compliance with proposed Section 1028.8.

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

ICCFILENAME: DAVIDSON-SHUMAN-F3-1030.2.DOC

F152–09/10
1206.2, 1206.2.1 (New), 1206.3, 1206.4

Proponent: David W. Dawson, R. R. Street & Co. Inc.

1. Revise as follows:

1206.2 ~~Type~~ Class I solvents. The maximum quantity of ~~Type I~~ Class I solvents permitted at any work station shall be 1 gallon (4 L). ~~Class I solvents shall be stored in approved safety cans or in sealed DOTn-approved metal shipping containers of not more than 1-gallon (4 L) capacity. Dispensing shall be from approved safety cans.~~ Spotting or pre-spotting shall be permitted to be conducted with Class I solvents where they are stored in and dispensed from approved safety cans or in sealed DOT-approved shipping containers of not more than 1 gallon (4 L) capacity.

2. Add new text as follows:

1206.2.1 Spotting and pre-spotting. Spotting and pre-spotting shall be permitted to be conducted with Class I solvents where dispensed from plastic containers of not more than 1 pint (0.5 L) capacity.

3. Revise as follows:

1206.3 ~~Type~~ Class II and III solvents. Scouring, brushing, and spotting and pretreating shall be permitted to be conducted with Class II or III solvents. The maximum quantity of ~~Type~~ Class II or III solvents permitted at any work station shall be 1 gallon (4 L). In other than Group H-2 occupancy, the aggregate quantities of solvents shall not exceed the maximum allowable quantity per control area for use-open system.

1206.4 Type IV systems. Flammable and combustible liquids used for spotting operations shall be stored in approved safety cans or in sealed DOT~~n~~-approved ~~metal~~ shipping containers of not more than 1 gallon (4 L) in capacity. ~~Dispensing shall be from approved safety cans.~~ Aggregate amounts shall not exceed 10 gallons (38 L).

Reason: The purpose of the change is to revise outdated material. The proposed wording is intended to recognize the wide use of DOT-approved plastic containers to ship and store chemicals used in dry cleaning plants, including spotting chemicals. Use of these containers is permitted by OSHA for the storage of flammable and combustible liquids under conditions described in OSHA Directive STD 01-05-014. Equivalent changes have been made to NFPA 32.

Bibliography: 29 CFR 1910.106 Flammable and combustible liquids; OSHA Directive STD-01-05-014; NFPA 32.

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

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

ICCFILENAME: DAWSON-F2-1206.2.DOC

F153–09/10
1208.2

Proponent: David W. Dawson, R. R. Street & Co. Inc., representing Textile Care Allied Trades Association (TCATA) and Drycleaning and Laundry Institute (DLI).

Revise as follows:

1208.2 Automatic sprinkler system. An automatic sprinkler system shall be installed in accordance with Section 903.3.1.1 throughout dry cleaning plants containing Type II, Type III-A or Type III-B dry cleaning systems.

Exceptions:

1. An automatic sprinkler system shall not be required in Type III-A dry cleaning plants where the aggregate quantity of Class III-A solvent in dry cleaning machines and storage does not exceed 330 gal (1250 L) and dry cleaning machines are equipped with a feature that will accomplish any one of the following:

    1.1. Prevent oxygen concentrations from reaching 8 percent or more by volume.
    1.2. Keep the temperature of the solvent at least 30ºF (16.7ºC) below the flash point.

1.3. Maintain the solvent vapor concentration at a level lower than 25 percent of the lower explosive limit (LEL).

1.4. Utilize equipment approved for use in Class I, Division 2 hazardous locations in accordance with NFPA 70.

1.5. Utilize an integrated automatic fire-extinguishing system complying with Section 4.6 of NFPA 32.

2. An automatic sprinkler system shall not be required in Type III-B dry cleaning plants where the aggregate quantity of Class III-B solvent in dry cleaning machines and storage does not exceed 3300 gal (12,490 L).

Reason: The purpose of this proposed code change is to eliminate the overly restrictive requirements for automatic sprinkler systems in dry cleaning facilities using modern dry cleaning equipment. Modern Type IIIA dry cleaning machines have intrinsic safety features that prevent fires from starting within the dry cleaning machine. It is preferable to prevent fires from starting in the first place, rather than extinguishing ones that have already started. NFPA 32 already allows these safety features to be used in lieu of automatic sprinkler systems.

Bibliography: NFPA 32

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

Analysis: The action on this proposal should be consistent with the action on Code Change F154-09/10.

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

ICCFILENAME: DAWSON-F1-1208.2.DOC

F154–09/10
1208.2

Proponent: Howard Hardy, South Metro Fire Rescue Authority, representing Fire Marshal's Association of Colorado

Revise as follows:

1208.2 Automatic sprinkler system. An automatic sprinkler system shall be installed in accordance with Section 903.3.1.1 throughout dry cleaning plants containing Type II, Type III-A or Type III-B dry cleaning systems.

Exception: Sprinklers shall be permitted to be omitted in dry cleaning plants complying with the exceptions in NFPA 32.

Reason: The purpose of this code change proposal is to clarify conflicting requirements between the International Fire Code and NFPA 32. The International Fire Code indicates that the installation of drycleaning systems is to be in accordance with the requirements of NFPA 32 The construction provisions of NFPA 32 addresses the installation of automatic sprinklers and allows several exceptions that would not require the installation of automatic sprinklers in type II, IIIA and IIIB drycleaning plants. The exceptions in NFPA 32 are based on providing equivalent levels of protection in drycleaning plants with limited quantities of solvents in use and storage. The International Fire Code currently allows no exception to providing automatic sprinkler systems throughout type II and III drycleaning plants. This requirement is in conflict with the requirements of NFPA 32. The exceptions in NFPA 32 are similar to provisions in the International Fire Code allowing alternative automatic fire extinguishing systems, such as for commercial cooking operations, where the specific hazard is addressed rather than requiring automatic sprinklers in the entire occupancy.
We are seeing a trend to change current type IV drycleaning plants to type III drycleaning plants to eliminate the use of existing type IV solvents that are serious health hazards. It causes extreme financial hardship to business owners when they are required to provide automatic sprinkler systems to their occupancy due to a change in the type of plant and are not allowed to utilize any of the exceptions currently allowed in NFPA 32 for alternative protection. The typical small drycleaning establishment normally has minimal equipment and chemicals and is no more and often less hazardous than other occupancies that do not require automatic sprinkler systems. It seems unreasonable to require sprinklers throughout when they change the type of plant by installing a new drycleaning machine that provides adequate safety for the drycleaning machine.

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

Analysis: The action on this proposal should be consistent with the action on Code Change F153-09/10.

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

ICCFILENAME: HARDY-F2-1208.2.DOC

F155–09/10
1501.1, 1501.2; IBC [F] 416

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

1. Revise IFC as follows:

1501.1 Scope. This chapter shall apply to locations or areas where any of the following activities are conducted:

1. The application of ~~flammable or combustible paint, varnish, lacquer, stain, fiberglass resins or other flammable or combustible liquid applied~~ flammable finishes to articles or materials by means of spray apparatus ~~in continuous or intermittent processes~~.
2. ~~Dip-tank operations in which articles or materials are passed through contents of tanks, vats or containers of flammable or combustible liquids, including coating, finishing, treatment and similar processes.~~ The application of flammable finishes by dipping or immersing articles or materials into the contents of tanks, vats or containers of flammable or combustible liquids for coating, finishing, treatment or similar processes.
3. The application of flammable finishes by applying combustible powders to articles or materials utilizing ~~when applied by~~ powder spray guns, electrostatic powder spray guns, fluidized beds or electrostatic fluidized beds.
4. Floor surfacing or finishing operations using Class I or II liquids in areas exceeding 350 square feet (32.5 m^2).
5. The application of flammable finishes consisting of dual-component coatings or Class I or II liquids when applied by brush or roller in quantities exceeding 1 gallon (4 L).
6. ~~Spraying and dipping operations.~~

1502.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

FLAMMABLE FINISHES. ~~Material coatings~~ Coatings to articles or materials in which the material being applied is a flammable liquid, combustible liquid, combustible powder, fiberglass resin or flammable or combustible gel coating.

2. Revise IBC as follows:

SECTION 416
SPRAY APPLICATION OF FLAMMABLE FINISHES

[F] 416.1 General. The provisions of this section shall apply to the construction, installation and use of buildings and structures, or parts thereof, for the spraying of flammable ~~paints, varnishes and lacquers~~ finishes ~~or other flammable materials or mixtures or compounds used for painting, varnishing, staining or similar purposes~~. Such construction and equipment shall comply with the International Fire Code.

[F] 416.2 Spray rooms. (No change to current text.)

[F] 416.2.1 Surfaces. (No change to current text.)

[F] 416.2.2 Ventilation. Mechanical ventilation and interlocks with the spraying operation shall be in accordance with the International Fire Code.

[F] 416.3 Spraying spaces. (No change to current text.)

[F] 416.3.1 Surfaces. (No change to current text.)

[F] 416.4 Spray booths. (No change to current text.)

[F] 416.5 Fire protection. An automatic fire-extinguishing system shall be provided in all spray~~, dip and immersing spaces and storage~~ rooms and shall be installed in accordance with Chapter 9.

Reason: Item 1 – IFC: The revisions in this section are intended to clarify the application of Chapter 15. There is no change in application of this Chapter or the requirements therein.

First, the Scope is revised using the defined term of "flammable finishes".
1. Item #1 covers spray operations
2. Item #2 covers dipping operations
3. Item #3 covers electrostatic and fluidized beds

4. Item #4 specifies the limitation of Class I or II liquids when conducting floor surfacing
5. Item #5 covers dual-component coatings
6. Item #6 is deleted since it is covered in Items #1 and #2.

Second, the definition of "flammable finishes" is revised to include the coatings that are already regulated in Chapter 15.

These revisions are essentially editorial changes that will add clarity in the application of Chapter 15.

Item 2 – IBC: This proposal is designed to correlate the requirements for spray operations found in the IBC and the IFC.

Section 416 is revised to specify spray application of materials. This is consistent with the wording in Section 416.1 which limits the application of these requirements to spray operations.

Section 416.1 is revised to provide consistency with the scope in IFC Section 1501.1. This revision will include all of the operations that would be regulated within a spray room or spray booth.

Section 416.2.2 is added to reference the IFC which contains requirements for ventilation velocities and for interlocking the ventilation system with the spraying apparatus.

Section 416.5 is revised to be consistent with IFC Section 1505.4. A fire extinguishing system is not required for all dipping operations. For example, when using dip tanks of less than 150 gallons, a fire extinguishing system is an optional method of protection.

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

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

ICCFILENAME: LARIVIERE-F17-1501.1-G2-IBC416.DOC

F156–09/10
1504.6.1.2.1

Proponent: Geoff Raifsnider, Global Finishing Solutions, representing self

Revise as follows:

1504.6.1.2.1 Interlocks. The spraying apparatus, drying apparatus and ventilating system for the spray booth or spray room shall be equipped with interlocks arranged to:

1. Prevent operation of the spraying apparatus while drying operations are in progress.
2. Prevent operation of the drying appratus until a timed purge of spray vapors from the spray booth or spray room is complete. This purge time shall be based upon introducing at least 4 standard cubic feet of fresh air per cubic foot of spray booth or spray room volume. ~~Purge spray vapors from the spray booth or spray room for a period of not less than 3 minutes before the drying apparatus is rendered operable.~~
3. Have the ventilating system maintain a safe atmosphere within the spray booth or spray room during the drying process and automatically shut off drying apparatus in the event of a failure of the ventilating system.
4. Shut off the drying apparatus automatically if the air temperature within the booth exceeds 200°F (93°C).

Reason: Although "not less than" implies that the value could be more, the current language does not state how the value is calculated. The proposed language clarifies how to calculate the purge time and bases it upon the amount of fresh air introduced. This proposal also eliminates the 3 minute minimum. There are applications where the delay in proceeding to curing can affect the quality of the product finish. In these applications the heating apparatus is often the same industrial heater that maintains the temperature during painting and the apparatus is outside the spray area and not subject to exposure to overspray. It should be acceptable to have a design where the purge time is a function of air flow.

Cost Impact: Any additional cost would be justified based upon the importance of the reduced purge time to achieve the quality of the product. This additional cost may be offset by the reduction in operating cost.

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

ICCFILENAME: RAIFSNIDER-F2-1504.6.1.2.1.DOC

F157–09/10
1504.7.3

Proponent: Geoff Raifsnider, Global Finishing Solutions, representing self

Revise as follows:

1504.7.3 Air velocity. Ventilation systems shall be designed, installed and maintained to be capable of confining and removing overspray and vapors. The vapor concentration in the exhaust air stream shall be less than 25 percent of the lower flammable limit. ~~such that the average air velocity over the open face of the booth, or booth cross section in the direction of airflow during spraying operations, shall not be less than 100 feet per minute (0.51 m/s).~~

Reason: This proposal eliminates the 100 fpm minimum air velocity. The proposed language removes the specific value while still stating the required performance. There are many types of booths and rooms in which the 100 fpm value would be detrimental to the quality of the product and is well in excess of the minimum dilution air needed to keep the space and exhaust below 25% of the LFL. This extra air also increases the operating costs. The air velocities for a specific spray booth or spray room should be specific to the individual design that accomplishes the desired performance (ie. 25% LFL or containment of overspray at openings). Chapter 13.75 of Industrial Ventilation – A Manual of Recommended Practice 26th Edition Published by ACGIH, lists many air velocity ranges for various painting operations, some above and some below 100 fpm. This publication could be included in the standard as reference material.

Cost Impact: The code change proposal would decrease the construction and operating costs.

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

ICCFILENAME: RAIFSNIDER-F1-1504.7.3.DOC

F158–09/10
1701.1, 1702.1, 1703.1, 1703.2, 1703.3, 1703.3.2, 1703.4

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

Revise as follows:

CHAPTER 17
FUMIGATION AND ~~THERMAL~~ INSECTICIDAL FOGGING

1701.1 Scope. Fumigation and ~~thermal~~ insecticidal fogging operations within structures shall comply with this chapter.

1702.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

~~THERMAL~~ INSECTICIDAL FOGGING. The utilization of insecticidal liquids passed through ~~thermal~~ fog-generating units where, by means of ~~heat,~~ pressure and turbulence, with or without the application of heat, such liquids are transformed and discharged in the form of fog or mist blown into an area to be treated.

1703.1 General. Structures in which fumigation and ~~thermal~~ insecticidal fogging operations are conducted shall comply with the fire protection and safety requirements of Sections 1703.2 through 1703.7.

1703.2 Sources of ignition. Fires, open flames and similar sources of ignition shall be eliminated from the space under fumigation or ~~thermal~~ insecticidal fogging. Heating, where needed, shall be of an *approved* type.

1703.3 Notification. The *fire code official* and fire chief shall be notified in writing at least 24 hours before the structure is to be closed in connection with the utilization of any toxic or flammable fumigant. Notification shall give the location of the enclosed space to be fumigated or fogged, the occupancy, the fumigants or insecticides to be utilized, the *person* or *persons* responsible for the operation, and the date and time at which the operation will begin. Notice of any fumigation or ~~thermal~~ insecticidal fogging shall be served with sufficient advance notice to the occupants of the enclosed space involved to enable the occupants to evacuate the premises.

1703.3.2 Breathing apparatus. *Persons* engaged in the business of fumigation or ~~thermal~~ insecticidal fogging shall maintain and have available *approved* protective breathing apparatus.

1703.4 ~~Thermal insecticidal~~ Insecticidal fogging liquids. ~~Thermal insecticidal~~ Insecticidal fogging liquids with a *flash point* below 100ºF (38ºC) shall not be utilized.

Reason: IFC Chapter 17 regulates fumigation and thermal insecticidal fogging, but fails to regulate insecticidal fogging operations that do not involve the application of heat, known as "cold fogging". Cold fogging is an insecticidal fogging technique in common use, and the ignitable vapors generated by the fogging operations pose explosion hazards equivalent to thermal insecticidal fogging.

The definition of "insecticidal fogging" is revised to include those operations where the product is heated and where it is not heated. In this manner, the definition will cover all insecticidal fogging operations.

The chapter title, scope, and Sections 1701.1, 1702.1, 1703.1, 1703.2, 1703.3, 1703.3.2 and 1703.3.4 of the chapter are proposed to be amended to reflect that the chapter also regulates cold fogging operations.

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

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

ICCFILENAME: LARIVIERE-F26-CHAPTER 17-2.DOC

F159–09/10

1701.1, 1703.1, 1703.2.1, 1703.2.2 (New), 1703.2.3 (New), 1703.3, 1703.3.1, 1703.3.3, 1703.3.4 (New), 1703.3.5 (New), 1703.5, 1703.5.1 (New)

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

1. Revise as follows:

1701.1 Scope. Fumigation and thermal insecticidal fogging operations within buildings, structures and spaces shall comply with this chapter.

1703.1 General. ~~Structures~~ Buildings, structures and spaces in which fumigation and thermal insecticidal fogging operations are conducted shall comply with the fire protection and safety requirements of Sections 1703.2 through 1703.7.

1703.2.1 Electricity. ~~Electricity shall be shut off~~ Electricity in any part of the building, structure or space where operation of switches or electrical devices, equipment or systems could serve as a source of ignition shall be shut off.

> **Exception:** Circulating fans that have been specifically designed for utilization in hazardous atmospheres and installed in accordance with NFPA 70.

2. Add new text as follows:

1703.2.2 Electronic devices. Electronic devices, including portable equipment and cellular phones, shall be shut off. Telephone lines shall be disconnected from telephones.

1703.2.3 Duration. Sources of ignition shall be shut off during the fumigation activity and remain shut off until the ventilation required in Section 1703.6 is completed.

3. Revise as follows:

1703.3 Notification. The *fire code official* and fire chief shall be notified in writing at least ~~24~~ 48 hours before the building, structure or space is to be closed in connection with the utilization of any toxic or flammable fumigant. Notification shall give the location of the enclosed space to be fumigated or fogged, the occupancy, the fumigants or insecticides to be utilized, the *person* or *persons* responsible for the operation, and the date and time at which the operation will begin. ~~Notice~~ Written notice of any fumigation or thermal insecticidal fogging operation shall be ~~served with sufficient advance notice to the occupants of the enclosed space involved to enable the occupants to evacuate the premises~~ given to all affected occupants of the building, structure or space in which such operations are to be conducted with sufficient advance notice to allow the occupants to evacuate the building, structure or space. Such notice shall inform the occupants as to the purposes, anticipated duration and hazards associated with the fumigation or insecticidal operation.

1703.3.1 Warning signs. *Approved* warning signs indicating the danger, type of chemical involved and necessary precautions shall be posted on all doors and entrances to the ~~premises~~ affected building, structure or space and upon all gangplanks and ladders from the deck, pier or land to ~~the~~ a ship. Such notices shall be printed in red ink on a white

background. Letters in the headlines shall be at least 2 inches (51 mm) in height and shall state the date and time of the operation, the name and address of the person, the name of the operator in charge, and a warning stating that the ~~occupied premises~~ affected building, structure or space shall be vacated at least 1 hour before the operation begins and shall not be reentered until the danger signs have been removed by the proper authorities.

1703.3.3 Watch personnel. During the period fumigation is in progress, except when fumigation is conducted in a gas-tight vault or tank, a ~~capable, alert watcher~~ responsible watchperson shall remain on duty at the entrance or entrances to the enclosed fumigated space until after the fumigation is completed and the ~~premises~~ building, structure or space is properly ventilated and safe for occupancy. Sufficient watchers shall be provided to prevent *persons* from entering the enclosed space under fumigation without being observed.

4. Add new text as follows:

1703.3.4 Evacuation during fumigation. Occupants of the building, structure or space to be fumigated, except the personnel conducting the fumigation, shall be evacuated from such building, structure or space prior to commencing fumigation operations.

1703.3.5 Evacuation during insecticidal fogging operations. Occupants in the building, structure or space to be fogged, except the personnel conducting the insecticidal fogging operations, shall be evacuated from such building, structure or space prior to commencing fogging operations.

5. Revise as follows:

1703.5 Sealing of buildings, structures and spaces. Paper and other similar materials that do not meet the flame propagation performance criteria of NFPA 701 shall not be used to wrap or cover a building, structure or space in excess of that required for the sealing of cracks, casements and similar openings.

6. Add new text as follows:

1703.5.1 Maintenance of openings. All openings to the building, structure or space to be fumigated or fogged shall be kept securely closed during such operation.

Reason: Chapter 17 regulates fumigation and fogging operations. This proposal is designed to provide additional clarification for application of the requirements.

Sections 1703.2 through 1703.2.3 are amended to clarify the intent of the code requirement to "shut off electricity", and to prohibit other ignition sources associated with portable electronic devices. Additionally, the proposal will specify that the devices need to remain shut off until the ventilation operation is completed.

Section 1703.3 is amended to require that the notification to the fire code official and fire chief when toxic or flammable fumigants are to be used be made 48 hours not 24 hours prior to such operation being conducted, and that the notification given to occupants of an effected building, structure or space be in writing.

Sections 1703.3.4 and 1703.3.5 are added and intend to specify the obvious intent of the chapter, but which is not currently stated. The building, structure or space undergoing fumigation or insecticidal fogging operations must be evacuated during such operations.

Section 1703.3.1 is amended to reflect that warning signs are required to be posted at all entrances to an effected building, structure or space, and not as the code currently requires, at the entrance to the premises.

Finally, Section 1703.5.1, a proposed new section, is added to require that openings to the effected building, structure or spaces undergoing fumigation or fogging operations be maintained closed.

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

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

ICCFILENAME: LARIVIERE-F25-CHAPTER 17.DOC

F160–09/10
1803.10.1.2, Chapter 47

Proponent: Bob Eugene, Underwriters Laboratories, Inc.

1. Revise as follows:

1803.10.1.2 Combustible tools. Where the horizontal surface of a combustible tool is obstructed from ceiling sprinkler discharge, automatic sprinkler protection that covers the horizontal surface of the tool shall be provided.

Exceptions:

1. An automatic gaseous fire-extinguishing local surface application system shall be allowed as an alternative to sprinklers. Gaseous-extinguishing systems shall be actuated by infrared (IR) or ultraviolet/infrared (UVIR) optical detectors.
2. Tools constructed of materials that are listed as Class 1 or Class 2 in accordance with UL 2360 and ~~or~~ approved for use without internal fire extinguishing system protection.

2. Add new standard to Chapter 47 as follows:

UL

2360-00	Standard for Test Methods for Determining the Combustibility Characteristics of Plastics Used in Semi-Conductor Tool Construction – with revisions through June 2008

Reason: The code currently indicates that these materials need to be listed for use without internal fire extinguishing system protection, but does not describe the test standard to be used, or a specific Classification or rating that the code user can reference to easily determine compliance.

UL 2360 is an ANSI approved American national standard that includes the test methods for measuring the fire performance of sheet plastics used in semi-conductor wet bench tool construction using small scale and large scale tests. Plastic materials that are classified as Class 1 or Class 2 in accordance with UL 2360 demonstrate limited fire propagation without the use of fire sprinklers, which is the level of protection currently required in this section.

This proposal assist the code user in determining compliance with this section by identifying the nationally recognized standard used to List (Classify) these materials, and the Class ratings that correspond with materials certified for use without internal fire extinguishing system protection. Including the Class ratings in the code eliminates the need to also indicate that these materials must be approved for use without internal fire extinguishing system protection.

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

Analysis: A review of the standard(s) proposed for inclusion in the code, UL 2360-00, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009.

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

ICCFILENAME: EUGENE-F3-1803.10.1.2.DOC

F161–09/10
1803.10.4.1 (IBC [F] 415.8.11.2); IMC 510.7

Proponent: Patrick A. McLaughlin, McLaughlin & Associates, representing The Semiconductor Industry Association

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 – IFC

Delete without substitution:

~~**1803.10.4.1 (IBC [F]415.8.11.2) Metallic and noncombustible non metallic exhaust ducts.** An approved automatic sprinkler system shall be provided in metallic and noncombustible nonmetallic exhaust ducts when all of the following conditions apply:~~

~~1. When the largest cross-sectional diameter is equal to or greater than 10 inches (254 mm).~~
~~2. The ducts are within the building.~~
~~3. The ducts are conveying flammable gases, vapors or fumes.~~

(Renumber subsequent sections)

PART II – IMC

Revise as follows:

510.7 Suppression required. Ducts shall be protected with an approved automatic fire suppression system installed in accordance with the *International Building Code*.

Exceptions:

1. An approved automatic fire suppression system shall not be required in ducts conveying materials, fumes, mists and vapors that are nonflammable and noncombustible and where flammable contaminant are diluted to below 25% of their lower flammability limit ~~under all conditions and at any concentrations~~.
2. An *approved* automatic fire suppression system shall not be required in ducts where the largest cross-sectional diameter of the duct is less than 10 inches (254 mm).
3. For laboratories, as defined in Section 510.1, automatic fire protection systems shall not be required in laboratory hoods or exhaust systems.

Reason: To clarify that automatic fire suppression is not required for diluted flammable contaminants. IMC Section 510.3 require that flammable contaminants be diluted below 25% of the lower flammability limit therefore it is not a hazardous exhaust system under Section 510.2 and a fire suppression system is not required. Even though a suppression system is not required, as presently written there has been misapplication of the provisions. The change to IFC 1803.10.4.1 is the corresponding Fire Code change.

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

Analysis for Part II: Current Section 510.3 of the IMC requires hazardous exhaust systems to operate at a dilution rate of 25% of the LFL. As revised, suppression will not be required in any case because the exception will always apply.

PART I – IFC

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

PART II – IMC

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

ICCFILENAME: MCLAUGHLIN-F8-1803.10.4.1.DOC

F162–09/10

1803.14.2; IBC [F] 415.8.2.6, 716.5.1; IMC [F] 502.10.2, 607.5.1

Proponent: Vickie Lovell representing 3M Company

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 – IFC

1. Revise as follows:

1803.14.2 Penetrations. Exhaust ducts penetrating fire ~~barrier~~ resistance rated assemblies shall be contained in a ~~shaft of equivalent~~ fire-resistance rated ~~resistive construction~~ enclosure that is a construction specifically evaluated for such purpose as follows:

1. A shaft constructed in accordance with International Building Code having a fire-resistance rating equal to the fire-resistance rating of the assembly penetrated, or
2. A field-applied duct enclosure protected with a through penetration firestop system classified in accordance with ASTM E814 having an "F" and "T" rating equal to the fire-resistance rating of the assembly penetrated. The protected duct assembly shall be tested and listed in accordance with ASTM E 2336, and installed in accordance with the manufacturer's instructions .

The surface of the duct shall be continuously covered on all sides from the point at which the duct enclosure penetrates a ceiling, wall or floor to the outlet terminal.

Exhaust ducts shall not penetrate fire walls. Fire dampers shall not be installed in exhaust ducts.

2. Revise IBC as follows:

[F] 415.8.2.6 Ventilation. Mechanical exhaust ventilation at the rate of not less than 1 cubic foot per minute per square foot [0.0051m3/(s m2)] of floor area shall be provided throughout the portions of the fabrication area where HPM are used or stored. The exhaust air duct system of one fabrication area shall not connect to another duct system outside that fabrication area within the building.

A ventilation system shall be provided to capture and exhaust gases, fumes and vapors at workstations.

Two or more operations at a workstation shall not be connected to the same exhaust system where either one or the combination of the substances removed could constitute a fire, explosion or hazardous chemical reaction within the exhaust duct system.

Exhaust ducts penetrating ~~occupancy separations~~ fire resistance rated-assemblies shall be contained in a ~~shaft of equivalent~~ fire-resistance- rated ~~construction~~ enclosure that is a construction specifically evaluated for such purpose as follows:

1. A shaft constructed in accordance with International Building Code having a fire-resistance rating equal to the fire-resistance rating of the assembly penetrated, or
2. A field-applied duct enclosure protected with a through penetration firestop system classified in accordance with ASTM E814 having an "F" and "T" rating equal to the fire-resistance rating of the assembly penetrated. The protected duct assembly shall be tested and listed in accordance with ASTM E 2336, and installed in accordance with the manufacturer's instructions .

The surface of the duct shall be continuously covered on all sides from the point at which the duct enclosure penetrates a ceiling, wall or floor to the outlet terminal.

Exhaust ducts shall not penetrate fire walls.

Fire dampers shall not be installed in exhaust ducts.

3. Revise IMC as follows:

[F] 502.10.2 Penetrations. Exhaust ducts penetrating fire ~~barrier~~ resistance rated-assemblies shall be contained in a ~~shaft of equivalent~~ fire-resistance rated ~~resistive construction~~ enclosure that is a construction specifically evaluated for such purpose as follows:

1. A shaft constructed in accordance with *International Building Code* having a fire-resistance rating equal to the fire-resistance rating of the assembly penetrated, or
2. A field-applied duct enclosure protected with a through penetration firestop system classified in accordance with ASTM E814 having an "F" and "T" rating equal to the fire-resistance rating of the assembly penetrated. The protected duct assembly shall be tested and listed in accordance with ASTM E 2336, and installed in accordance with the manufacturer's instructions .

The surface of the duct shall be continuously covered on all sides from the point at which the duct enclosure penetrates a ceiling, wall or floor to the outlet terminal. Exhaust ducts shall not penetrate ~~building separation~~ fire walls. Fire dampers shall not be installed in exhaust ducts.

PART II – IBC FIRE SAFETY

1. Revise IBC as follows:

716.5.1 Fire walls. Ducts and air transfer openings permitted in fire walls in accordance with Section 706.11 of the *International Building Code* shall be protected with *listed* fire dampers installed in accordance with their listing. Exhaust ducts for hazardous production materials (HPM) shall comply with Section 415.8.2.6.

2. Revise IMC as follows:

[B] 607.5.1 Fire walls. Ducts and air transfer openings permitted in fire walls in accordance with Section 706.11 of the *International Building Code* shall be protected with *listed* fire dampers installed in accordance with their listing. Exhaust ducts for hazardous production materials (HPM) shall comply with Section 502.10.2.

Reason: This additional text is intended to clarify what types of enclosures would be appropriate for protecting ducts through fire rated assemblies. Alternative enclosure methods should be made acceptable as an alternative to a shaft when appropriate. In all cases, the duct should be protected as through penetration through rated assemblies in accordance with Chapter 7 of the IBC. The language on fire walls and the added exception are extracted from Section 706.11 of the IBC. The IMC and IBC are currently conflicted about whether penetrations are allowed in fire walls. (See 607.5.1 and 502.10.2 in IMC and 706.11 in IBC). By incorporating this new language to the IMC, the two codes are brought into agreement. 607.5.1 is an editorial change to point to the correct section of the IMC.

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

PART I – IFC

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

PART II – IBC FIRE SAFETY

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

ICCFILENAME: LOVELL-F1-1803.14.2

F163–09/10
1803.16 (New), 1802.1, 3704.1.2, 3704.1.3

Proponent: Ron Fuhrhop, Praxair, Inc.

1. Add new text as follows:

1803.16 Sub-atmospheric Gas Systems (SAGS) Type 1 and Type 2. The storage and use of Sub-atmospheric Gas Systems (SAGS) shall be in accordance with Sections 1803.16.1 through 1803.16.1.3.

1803.16.1 General. Sub-atmospheric Gas Systems (SAGS) gas source packages shall meet all of the requirements for compressed gases and gases except as provided for in 1803.16.1.1 through 1803.16.1.3.

1803.16.1.1 Incompatible gases. Sub-atmospheric Gas Systems (SAGS) gas source packages with a water volume of 2.64 gallons (10 L) or less containing incompatible gases shall be permitted to occupy the same gas cabinet or exhausted enclosure.

1803.16.1.2 Ventilation. For Sub-atmospheric Gas Systems (SAGS), gas source packages, ventilation in gas cabinets and exhausted enclosures shall be sufficient to maintain vapors below 25 percent of LFL and below the IDLH concentration.

1803.16.1.3 Overpressure protection. The gas distribution system to which Sub-atmospheric Gas Systems (SAGS) are connected shall be equipped with an approved method of protection against components exceeding their pressure rating in the event of a failure in a SAGS.

1802.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

SUB-ATMOSPHERIC GAS SYSTEM (SAGS) Type 1. A gas source package that stores and delivers gas at sub-atmospheric pressure and includes a container (e.g., gas cylinder and outlet valve) that stores and delivers gas at a pressure of less than 14.7 psia at a package temperature of less than 110° F.

SUB-ATMOSPHERIC GAS SYSTEM (SAGS) Type 2. A gas source package that stores compressed gas and delivers gas sub-atmospherically and includes a container (e.g., gas cylinder and outlet valve) that stores gas at a pressure greater than 14.7 psia and delivers gas at a pressure of less than 14.7 psia at a package temperature of less than 110° F.

2. Revise as follows:

3704.1.2 Gas cabinets. Gas cabinets containing highly toxic or toxic *compressed gases* shall comply with Section 2703.8.6 and the following requirements:

1. The average ventilation velocity at the face of gas cabinet access ports or windows shall not be less than 200 feet per minute (1.02 m/s) with a minimum of 150 feet per minute (0.76 m/s) at any point of the access port or window.
2. Gas cabinets shall be connected to an exhaust system.
3. Gas cabinets shall not be used as the sole means of exhaust for any room or area.
4. The maximum number of cylinders located in a single gas cabinet shall not exceed three, except that cabinets containing cylinders not over 1 pound (0.454 kg) net contents are allowed to contain up to 100 cylinders.
5. Gas cabinets required by Section 3704.2 or 3704.3 shall be equipped with an *approved automatic sprinkler system* in accordance with Section 903.3.1.1. Alternative fire-extinguishing systems shall not be used.

   Exception: Sub-atmospheric Gas Systems (SAGS) Type 1 and Type 2 shall be in accordance with Section 1803.16.1.2

3704.1.3 Exhausted enclosures. 3704.1.3 Exhausted enclosures. Exhausted enclosures containing highly toxic or toxic *compressed gases* shall comply with Section 2703.8.5 and the following requirements:

1. The average ventilation velocity at the face of the enclosure shall not be less than 200 feet per minute (1.02 m/s) with a minimum of 150 feet per minute (0.76 m/s).
2. Exhausted enclosures shall be connected to an exhaust system.
3. Exhausted enclosures shall not be used as the sole means of exhaust for any room or area.
4. Exhausted enclosures required by Section 3704.2 or 3704.3 shall be equipped with an *approved automatic sprinkler system* in accordance with Section 903.3.1.1. Alternative fire-extinguishing systems shall not be used.

   Exception: Sub-atmospheric Gas Systems (SAGS) Type 1 and Type 2 shall be in accordance with Section 1803.16.1.2.

Reason: This code change proposal adds definitions and requirements to address the technology of sub-atmospheric gas systems (SAGS), which are not currently found in the code. This new language is proposed for Chapter 18, since SAGS's are exclusively used in Semiconductor Fabs.

A primary goal of SAGS is to improve safety by reducing the risk of a gas release. The risk is reduced, because SAGS only deliver gas when a vacuum is applied to the cylinder connection. In a SAGS, the cylinder valve can be opened, but no gas is released until the pressure downstream of the outlet connection is below atmospheric pressure. This is in contrast to a typical gas cylinder, which releases gas when the cylinder valve is opened. The semiconductor industry has used SAGS successfully for ten years.

1802.1: The proposed definitions are similar to the definitions in the 2009 Edition of NFPA 318, Standard for the Protection of Semiconductor Fabrication Facilities. However, one change was made (110 ^{o} F is referenced instead of NTP). To meet the SAGS definition in NFPA 318, the pressure in a SAGS container must be sub-atmospheric at or below NTP, which is a temperature of 70 ^{o} F. SAGS used in semiconductor tools are located in exhausted enclosures with internal temperatures of 86^{o} F to 104^{o} F (above 70^{o} F). SAGS stored outside may reach temperatures of 110^{o} F (above 70^{o} F). So, to meet this proposed definition for SAGS, the container pressure should be sub-atmospheric at temperatures up to 110^{o} F. If NTP is used as a reference, some Type 1 SAGS could go "above" atmospheric pressure under these normal storage and use conditions.

1803.16.1: All SAGS shall meet the requirements for gases and compressed gases set forth throughout the IFC & IBC, with the specific exceptions allowed in the new SAGS section. Treating SAGS as compressed gases or gases maintains risk-mitigating controls that are well-established in safety and fire protection standards.

1803.16.1.1: This section will allow the placement of SAGS containers with incompatible gases in the same exhausted enclosure, such as containers of arsine and boron trifluoride. IFC Section 1804.3.3 requires the separation of these containers. This separation does not reflect current industry practice and is not necessary with the enhanced safety provided by SAGS. It should be noted, this exception is limited to small cylinders of 10 L of water volume or less. This limits the quantity of material and covers current semiconductor tool applications where SAGS are used.

1803.16.1.2: Ventilation is still required for SAGS. Potential releases from SAGS are very small. For this reason lower ventilation rates are acceptable. The performance standard (maintain vapors below 25 percent of LFL and below IDLH) was used instead of velocity or other prescribed values.

1803.16.1.3: Overpressure protection is standard practice for piping systems. Since SAGS delivery piping systems normally operate in a vacuum, this requirement was added to clarify that overpressure condition could result from potential failure scenarios. There are several methods used today to address this issue. It is also a performance based requirement.

3704.1.2 and 3704.1.3: These additions eliminate a conflict in Chapter 37 that would be created by adopting the new language of 1803.16.1.2. They refer the code user back to Chapter 18 to determine exhaust requirements for SAGS.

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

Analysis: The action on this proposal should be consistent with the action on Code Change F164-09/10.

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

ICCFILENAME: FUHRHOP -F1-1802.1.DOC

F164–09/10
1803.16 (New), Chapter 47

Proponent: James McManus, ATMI, Inc.

1. **Add new text as follows:**

1803.16 Sub-atmospheric pressure gas systems. Sub-atmospheric pressure gas systems (SAGS) shall be in accordance with NFPA 318.

2. Add new standard to Chapter 47 as follows:

NFPA
318—09 Standard for the Protection of Semiconductor Fabrication Facilities

Reason: Sub-atmospheric pressure gas systems (SAGS) are the preferred method for storing and delivering the toxic and corrosive dopant gases used in ion implantation processes worldwide. Other uses include solar and electronics. SAGS operate by either removing pressure [Type 1] or internally controlling gas pressure [Type 2]. Both require a vacuum [sub-atmospheric condition, < 14.7 psia] before flow from a cylinder will occur. SAGS significantly reduce the risk associated with Hazardous Production Materials because they mitigate the likelihood and magnitude of a gas release and their use is becoming more common. As such, provisions regulating SAGS should be included in the code.

NFPA 318 already defines and addresses these systems so there is no reason to reinvent provisions for these systems. This proposal recommends that provisions for SAGS be adopted by reference as shown. It is the intent of this code change to adopt only the provisions relating to SAGS within NFPA 318. Those sections are: Section 3.3.28.5 for the definition, and Section 8.6.2 addressing uses and controls. It is not the intent of this proposal to adopt NFPA 318 in total. The charging statement of this proposal clearly indicates that only SAGS be in accordance with NFPA 318.

The definition and controls for use of SAGS are the work-product of a lengthy public debate and consensus building effort undertaken by knowledgeable ESH and risk management professionals. The NFPA 318 Technical Committee approved the language unanimously and it was adopted by a substantial majority at the NFPA annual meeting in June 2008.

Using the NFPA definition in section 3.3.28.5 incorporates language that most accurately defines SAGS and avoids possible conflicts that may be inadvertently introduced with alternative language.

Systems fitting this description include:
Sub-atmospheric Gas System. [Type 1/SAGS] A gas source container where the contents are at sub-atmospheric pressure [<14.7 psia] at NTP* [21ºC and 1 atmosphere]. Type 1/SAGS are not compressed gases.

Vacuum Initiated Gas Cylinder. [Type 2/SAGS] A compressed gas cylinder, modified internally using pressure and flow components to limit and control delivery pressure to sub-atmospheric pressure operation [<14.7 psia]. Today such systems are *designed to fail* in a closed [no-flow] position.

Section 8.6.2 contains requirements consistent with the risk reduction afforded by the SAGS technology. Local jurisdictions may, at their discretion, further modify the uses and controls based on existing ordinances or practice, or exceptions to the provisions could be added to this proposal.

Recognizing SAGS in the code helps officials and users ensure uniform application and understanding of this important risk reduction technology.

*NTP—see 2702.1

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

Analysis: A review of the standard(s) proposed for inclusion in the code, NFPA 318—09, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009. The action on this proposal should be consistent with the action on Code Change F163-09/10.

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

ICCFILENAME: MCMANUS-F1-1803.16.DOC

F165–09/10
1805.2.3.4, Tables 1804.2.2.1 (IBC [F] Table 415.8.2.1.1), 1805.2.2

Proponent: Patrick A. McLaughlin, McLaughlin & Associates, representing The Semiconductor Industry Association

Revise as follows:

1805.2.3.4 Pyrophoric solids, liquids and Class 3 water-reactive liquids. Pyrophoric liquids and Class 3 water-reactive liquids in containers greater than 0.5-gallon (2 L) but not exceeding 5.3-gallon (20 L) capacity and pyrophoric solids in containers greater than 4.4 lbs (2 kg) but not exceeding 44 pounds (20 kg) shall be allowed at workstations when located inside cabinets and the following conditions are met:

1. Maximum amount per cabinet: The maximum amount per cabinet shall be limited to 5.3 gallons (20L) of liquids and 44 pounds (20 kg) of total liquids and solids.
2. Cabinet construction: Cabinets shall be constructed in accordance with the following:
   2.1. Cabinets shall be constructed of not less than 0.097-inch (2.5 mm) (12 gage) steel.
   2.2. Cabinets shall be permitted to have self-closing limited access ports or noncombustible windows that provide access to equipment controls.
   2.3. Cabinets shall be provided with self- or manual-closing doors. Manual-closing doors shall be equipped with a door switch that will initiate local audible and visual alarms when the door is in the open position.
3. Cabinet exhaust ventilation system: An exhaust ventilation system shall be provided for cabinets and shall comply with the following:
   3.1. The system shall be designed to operate at a negative pressure in relation to the surrounding area.
   3.2. The system shall be equipped with a pressure monitor and a flow switch alarm monitored at the on-site *emergency control station*.
4. Cabinet spill containment: Spill containment shall be provided in each cabinet, with the spill containment capable of holding the contents of the aggregate amount of liquids in containers in each cabinet.
5. Valves: Valves in supply piping between the product containers in the cabinet and the workstation served by the containers shall fail in the closed position upon power failure, loss of exhaust ventilation and upon actuation of the fire control system.
6. Fire detection system: Each cabinet shall be equipped with an automatic fire detection system complying with the following conditions:
   6.1. Automatic detection system: UV/IR, highsensitivity smoke detection (HSSD) or other *approved d*etection systems shall be provided inside each cabinet.
   6.2. Automatic shutoff: Activation of the detection system shall automatically close the shutoff valves at the source on the liquid supply.
   6.3. Alarms and signals: Activation of the detection system shall initiate a local alarm within the *fabrication area* and transmit a signal to the *emergency control station*. The alarms and signals shall be both visual and audible.

TABLE 1804.2.2.1 (IBC [F] TABLE 415.8.2.1.1)
QUANTITY LIMITS FOR HAZARDOUS MATERIALS IN A SINGLE FABRICATION AREA IN GROUP H-5[a]

HAZARD CATEGORY	SOLIDS (pounds/square foot)	LIQUIDS (gallons/square foot)	GAS (cubic feet@NTP/square foot)
PHYSICAL-HAZARD MATERIALS			
Pyrophoric	~~Note b~~ 0.01	0.00125	Notes d and e

(Portions of table and footnotes not shown remain unchanged)

TABLE 1805.2.2
MAXIMUM QUANTITIES OF HPM AT A WORKSTATION[d]

HPM CLASSIFICATION	STATE	MAXIMUM QUANTITY
Pyrophoric	Liquid Solid	0.5 gallon [c, f] ~~See Table 1804.2.2.1~~ 4.4 pounds [c, f]

f. A maximum quantity of 5.3 gallons of liquids and 44 pounds of total liquids and solids shall be allowed at a workstation when conditions are in accordance with Section 1805.2.3.5.

(Portions of table and footnotes not shown remain unchanged)

Reason: This change would bring pyrophoric solid quantity limitations at workstations and in fabrication areas equal to equivalent mass limitations of pyrophoric liquids with the same controls. **S**olids are easier and safer to handle than a liquid because they do not have the potential to rapidly spread when a spill occurs. When this allowance was approved for liquids, solids were not included because they were not used in the process at that time.

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

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

ICCFILENAME: MCLAUGHLIN-F5-1805.2.3.4.DOC

F166–09/10
1805.2.3.4

Proponent: Patrick A. McLaughlin, McLaughlin & Associates, representing The Semiconductor Industry Association

Revise as follows:

1805.2.3.4 Pyrophoric liquids and Class 3 water-reactive liquids. Pyrophoric liquids and Class 3 water-reactive liquids in containers greater than 0.5-gallon (2 L) but not exceeding 5.3-gallon (20 L) capacity shall be allowed at workstations when located inside cabinets and the following conditions are met:

1. Maximum amount per cabinet: The maximum amount per cabinet shall be limited to 5.3 gallons (20L).
2. Cabinet construction: Cabinets shall be constructed in accordance with the following:
   2.1. Cabinets shall be constructed of not less than 0.097-inch (2.5 mm) (12 gage) steel.
   2.2. Cabinets shall be permitted to have self-closing limited access ports or noncombustible windows that provide access to equipment controls.
   2.3. Cabinets shall be provided with self- or manual-closing doors. Manual-closing doors shall be equipped with a door switch that will initiate local audible and visual alarms when the door is in the open position.
3. Cabinet exhaust ventilation system: An exhaust ventilation system shall be provided for cabinets and shall comply with the following:
   3.1. The system shall be designed to operate at a negative pressure in relation to the surrounding area.
   3.2. The system shall be equipped with ~~a pressure monitor and a flow switch alarm monitored~~ monitoring equipment to ensure exhaust flow and alarmed at the on-site *emergency control station*.
4. Cabinet spill containment: Spill containment shall be provided in each cabinet, with the spill containment capable of holding the contents of the aggregate amount of liquids in containers in each cabinet.
5. Valves: Valves in supply piping between the product containers in the cabinet and the workstation served by the containers shall fail in the closed position upon power failure, loss of exhaust ventilation and upon actuation of the fire control system.
6. Fire detection system: Each cabinet shall be equipped with an automatic fire detection system complying with the following conditions:
   6.1. Automatic detection system: UV/IR, highsensitivity smoke detection (HSSD) or other *approved d*etection systems shall be provided inside each cabinet.
   6.2. Automatic shutoff: Activation of the detection system shall automatically close the shutoff valves at the source on the liquid supply.
   6.3. Alarms and signals: Activation of the detection system shall initiate a local alarm within the *fabrication area* and transmit a signal to the *emergency control station*. The alarms and signals shall be both visual and audible.

Reason: Several commercially available bulk liquid pyrophoric cabinets are designed to meet the requirements of the IFC Chapter 18 section 1805.2.3.5 Pyrophoric Liquids and Class 3 water-reactive liquids. Typical pyrophoric cabinets are designed with nitrogen gas (N_2) fire protection systems to meet the requirements for pyrophoric liquids as outlined in Chapter 18 Table 1805.2.2 note d "Allowed only in workstations that are internally protected with an approved automatic fire-extinguishing or fire protection system complying with Chapter 9 and compatible with the reactivity of the materials in use at the workstation." In order for an N_2 fire suppression system to be effective it must displace the O_2 within the cabinet. In order to displace O_2 within the cabinet and still maintain at a negative exhaust pressure within the cabinet in relation to the surrounding area, these cabinets must be airtight. Airtight indicates that these cabinets will operate under static only, when exhaust is applied, however, there will be no exhaust flow because there is no mechanism for make-up air into the cabinet. Design criteria are currently specified for liquid pyrophoric cabinets on site to meet O_2 levels below 1% within 60 seconds during discharge of the N_2 fire suppression system, which again requires these cabinets to be airtight. The current exhaust flow within these cabinets with the doors closed is effectively zero and to low for commercially available exhaust flow meters to detect. Cabinet exhaust is monitored with an exhaust pressure switch to detect available exhaust static. Some facilities currently monitor cabinet exhaust static within cabinets with a Neo-Dyn pressure switch (part#142P80CC3443) or a Dwyer (part#1910-1) and alarm for exhaust static below 1" w.c. The installation of a flow switch in addition to the pressure switch is redundant to the pressure switch. The installation of a flow switch is also ineffective due to the zero exhaust flow condition based on the cabinet design. Therefore requirements for exhaust flow monitoring are being changed to a performance 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: MCLAUGHLIN-F6-1805.2.3.4-2.DOC

F167–09/10
1805.3.1 through 1805.3.4; IBC [F] 415.8.3

Proponent: Patrick A. McLaughlin, McLaughlin & Associates, representing The Semiconductor Industry Association

1. Revise as follows:

1805.3.1 Corridors and exit enclosures. Corridors and exit enclosures in new buildings or serving new fabrication areas shall not contain HPM, in quantities greater than the maximum allowable quantity per control area, except as permitted in exit corridors by section 415.8.6.3 of the *International Building Code*.

1805.3.2 Transport in ~~existing~~ corridors. Transport in corridors shall be in accordance with Sections 1805.3.2.1 through 1805.3.3.

1805.3.2.1 Fabrication area alterations. When existing fabrication areas are altered or modified in existing buildings, HPM is allowed to be transported in existing corridors when such corridors comply with Section 415.8.3 of the *International Building Code* and Section ~~Transport in corridors shall comply with section~~ 2703.10 of this Code.

1805.3.2.2 HPM transport in corridors. HPM in quantities equal to or less than the maximum allowable quantity per control area is allowed to be transported in corridors when the transportation is in accordance with Section 2703.10.

1805.3.3 Service corridors. When a new fabrication area is constructed, a service corridor shall be provided where it is necessary to transport HPM, in quantities greater than the maximum allowable quantity per control area, from a liquid storage room, HPM room, gas room, or from the outside of a building to the perimeter wall of a fabrication areas. Service corridors shall be designed and constructed in accordance with the International Building Code.

1805.3.4 Carts and trucks. Carts and trucks used to transport HPM in corridors and exit enclosures ~~in existing buildings~~ shall comply with section 2703.10.3.

2. Revise IBC Section [F] 415.8.3 as follows:.

[F] 415.8.3 Corridors. Corridors shall comply with Chapter 10 and shall be separated from fabrication areas as specified in section 415.8.2.2. Corridors shall not contain HPM and shall not be used for transporting such materials in quantities greater than the maximum allowable quantity per control area except through closed piping systems as provided in section 415.8.6.3

Exception: Where existing fabrication areas are altered or modified, HPM is allowed to be transported in existing *corridors,* subject to the following conditions:

1. Corridors. *Corridors* adjacent to the fabrication area where the *alteration* work is to be done shall comply with Section 1018 for a length determined as follows:
   1.1. The length of the common wall of the *corridor* and the fabrication area; and
   1.2. For the distance along the *corridor* to the point of entry of HPM into the *corridor* serving that fabrication area.
2. Emergency alarm system. There shall be an emergency telephone system, a local manual alarm station or other *approved* alarm-initiating device within *corridors* at not more than 150-foot (45 720 mm) intervals and at each *exit* and doorway. The signal shall be relayed to an *approved* central, proprietary or remote station service or the emergency control station and shall also initiate a local audible alarm.
3. Pass-throughs. Self-closing doors having a *fire protection rating* of not less than 1 hour shall separate pass-throughs from existing *corridors*. Pass-throughs shall be constructed as required for the *corridors* and protected by an *approved* automatic fire-extinguishing system.

Reason: Section 1805.3 places limitations on the use of egress corridors for chemical transport that when first required, the industry was heavily utilizing and dependant on chemical transport form the HPM storage area to the fabrication area. Due to the increased scale in these operations, bulk chemical delivery is more the standard and the transport of chemicals in carts is much more infrequent and volumes are smaller. In fact, small quantities from labs are the biggest issue for the industry. The current restriction limits facilities design flexibility and costs without adding to the safety of the occupants or emergency responders. The industry feels this requirement should be reevaluated. In addition, for non-H5 occupancies, chemical transport of hazardous materials is allowed by the requirements of 2703.10 in corridors or exit enclosures. By definition, Hazardous Materials include all materials that are defined by the code in Chapter 18 as HPM's. The non-H areas allow for transport of chemistries when conditions in 2703.10 are met as well as IBC 414.7.2. Areas that are not H Occupancy do not have the requirement to use service corridor for the transport of HPM.

The proposal would align transport of HPM's in corridors to the following restrictions (Summary of IFC 2703.10 and IBC 414.7.2)

- Emergency phone system, a local manual alarm, or an approved alarm initiating device at not more than 150 foot intervals.(IBC 414.7.2)
- Valve protection. (IFC 2703)
- Limitations on volumes . (IFC 2703)
  - Liquids in containers exceeding 5 gallons (19 L) in a corridor or exit enclosure shall be transported on a cart or truck.
  - Two hazardous material liquid containers, which are hand carried in acceptable safety carriers.
  - Not more than four drums not exceeding 55 gallons transported by suitable drum trucks.
  - Containers and cylinders of compressed gases, which are transported by approved hand trucks,
  - Containers and cylinders not exceeding 25 pounds, which are hand carried.
  - Solid hazardous materials not exceeding 100 pounds transported by approved hand trucks,
  - A single container not exceeding 50 pounds, which is hand carried.

Carts and trucks shall be designed to provide a stable base for the commodities to be transported and shall have a means of restraining containers, provided with a stops or speed-reduction devices, be compatible with the material transported, and be capable of containing a spill from the largest single container transported. (IFC 2703)

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

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

ICCFILENAME: MCLAUGHLIN-F4-1805.3.1.DOC

F168–09/10

2205.1, 2206.2, 2206.2.3, 2206.2.5, 2206.6.2, 2206.7.6, 2206.7.6.1, Table 2206.2.3

Proponent: Lynne M. Kilpatrick, Fire Department, City of Seattle WA, representing Washington State Association of Fire Marshals

Revise as follows:

2205.1 Tank filling operations for Class I, II or ~~III~~A liquids. Delivery operations to tanks for Class I, II or ~~IIIA~~ III liquids shall comply with Sections 2205.1.1 through 2205.1.3 and the applicable requirements of Chapter 34.

2206.2 Method of storage. *Approved* methods of storage for Class I, II and ~~IIIA~~ III liquid fuels at motor fuel-dispensing facilities shall be in accordance with Sections 2206.2.1 through 2206.2.5.

2206.2.3 Above-ground tanks located outside, above grade. Above-ground tanks shall not be used for the storage of Class I, II or ~~IIIA~~ III liquid motor fuels except as provided by this section.

1. Above-ground tanks used for outside, above-grade storage of Class I liquids shall be listed and labeled as protected above-ground tanks and shall be in accordance with Chapter 34. Such tanks shall be located in accordance with Table 2206.2.3.
2. Above-ground tanks used for outside, above-grade storage of Class II or IIIA liquids ~~are allowed to~~ shall be listed and labeled as protected above-ground tanks in accordance with UL 2085 and shall be installed in accordance ~~or, when approved by the fire code official, other above-ground tanks that comply~~ with Chapter 34. Tank locations shall be in accordance with Table 2206.2.3.

   Exception: Other aboveground tanks that comply with Chapter 34 when approved by the fire code official.

3. Tanks containing fuels shall not exceed 12,000 gallons (45 420 L) in individual capacity or 48,000 gallons (181 680 L) in aggregate capacity. Installations with the maximum allowable aggregate capacity shall be separated from other such installations by not less than 100 feet (30 480 mm).
4. Tanks located at farms, construction projects, or rural areas shall comply with Section 3406.2.
5. Above-ground tanks used for outside above-grade storage of Class IIIB liquid motor fuel shall be listed and labeled in accordance with UL 142 or listed and labeled as protected aboveground tanks in accordance with UL 2085 and shall be installed in accordance with Chapter 34. Tank locations shall be in accordance with Table 2206.2.3.

2206.2.5 Portable tanks. Where approved by the fire code official, portable tanks are allowed to be temporarily used in conjunction with the dispensing of Class I, II or ~~IIIA~~ III liquids into the fuel tanks of motor vehicles or motorized equipment on premises not normally accessible to the public. The approval shall include a definite time limit.

2206.6.2 Piping, valves, fittings and ancillary equipment for above-ground tanks for Class I, II and ~~IIIA~~ III liquids. Piping, valves, fittings and ancillary equipment for above-ground tanks storing Class I, II and ~~IIIA~~ III liquids shall comply with Sections 2206.6.2.1 through 2206.6.2.6.

2206.7.6 Fuel delivery nozzles. A listed automatic-closing- type hose nozzle valve with or without a latch-open device shall be provided on island-type dispensers used for dispensing Class I, II or ~~IIIA~~ III liquids.

Overhead-type dispensing units shall be provided with a listed automatic-closing-type hose nozzle valve without a latch-open device.

Exception: A listed automatic-closing-type hose nozzle valve with latch-open device is allowed to be used on overhead-type dispensing units where the design of the system is such that the hose nozzle valve will close automatically in the event the valve is released from a fill opening or upon impact with a driveway.

2206.7.6.1 Special requirements for nozzles. Where dispensing of Class I, II or ~~IIIA~~ III liquids is performed, a listed automatic-closing-type hose nozzle valve shall be used incorporating all of the following features:

1. The hose nozzle valve shall be equipped with an integral latch-open device.
2. When the flow of product is normally controlled by devices or equipment other than the hose nozzle valve, the hose nozzle valve shall not be capable of being opened unless the delivery hose is pressurized. If pressure to the hose is lost, the nozzle shall close automatically.

   Exception: Vapor recovery nozzles incorporating insertion interlock devices designed to achieve shutoff on disconnect from the vehicle fill pipe.

3. The hose nozzle shall be designed such that the nozzle is retained in the fill pipe during the filling operation.
4. The system shall include listed equipment with a feature that causes or requires the closing of the hose nozzle valve before the product flow can be resumed or before the hose nozzle valve can be replaced in its normal position in the dispenser.

TABLE 2206.2.3
MINIMUM SEPARATION REQUIREMENTS FOR ABOVE-GROUND TANKS

CLASS OF LIQUID AND TANK TYPE	INDIVIDUAL TANK CAPACITY (gallons)	MINIMUM DISTANCE FROM NEAREST IMPORTANT BUILDING ON SAME PROPERTY (feet)	MINIMUM DISTANCE FROM NEAREST FUEL DISPENSER (feet)	MINIMUM DISTANCE FROM LOT LINE THAT IS OR CAN BE BUILT UPON, INCLUDING THE OPPOSITE SIDE OF A PUBLIC WAY (feet)	MINIMUM DISTANCE FROM NEAREST SIDE OF ANY PUBLIC WAY (feet)	MINIMUM DISTANCE BETWEEN TANKS
Class I protected above-ground tanks	Less than or equal to 6,000	5	25[a]	15	5	3
	Greater than 6,000	15	25[a]	25	15	3
Class II and III protected above-ground tanks	Same as Class I	Same as Class I	Same as Class I [c]	Same as Class I	Same as Class I	Same as Class I
Tanks in vaults	0-20,000	0[b]	0	0 [b]	0	Separate compartment required for each tank
Other tanks	All	50	50	100	50	3

a. At fleet vehicle motor fuel-dispensing facilities, no minimum separation distance is required.
b. Underground vaults shall be located such that they will not be subject to loading from nearby structures, or they shall be designed to accommodate applied loads from existing or future structures that can be built nearby.
c. For Class IIIB liquids in protected above-ground tanks, no minimum separation distance is required.

Reason: An increasing number of facilities are establishing motor vehicle fuel-dispensing stations for dispensing B100/B99 biodiesel, a Class IIIB liquid, into motor vehicles. In many cases these fueling stations are not set up as traditional gas stations but rather they consist of a small stand alone fuel dispensing operation using a 500-3,000 gallon fuel tank located near a drive-through espresso stand or mini market. Chapter 22 has only minimal requirements for the installation of tanks and fueling operations for dispensing Class IIIB liquids into motor vehicles and it does not adequately address the potential hazards associated with this increasing trend. This proposal will add the following new requirements for dispensing Class IIIB liquids into motor vehicles:

1. Tanks for dispensing Class IIIB liquids into the fuel tanks of motor vehicles will need to be listed to UL 142 or UL 2085 to eliminate the common practice of dispensing directly from plastic IBC totes,
2. The driver or operator of the fuel delivery vehicle will be required to gauge the tank to determine how much fuel is needed before filling the tank,
3. An approved method of storage will have to be provided for the Class IIIB fuel in accordance with the MAQ allowed in Chapter 27 for storage in a single control area (13,200 gallons in an unsprinklered building and unlimited in a sprinklered building) when dispensing from tanks located inside buildings,
4. Fueling Class IIIB liquids into motor vehicles from portable tanks will only be allowed on a temporary basis,
5. Piping, valves, fittings and ancillary equipment will need to comply with the same requirements that currently apply to Class I, II and IIIA liquid fuel dispensing operations, including but not limited to, proper tank fill openings and connections, approved method to prevent overfilling and anti-siphon systems, and
6. Fuel delivery nozzles will be required to be the listed automatic-closing type.

Table 2206.2.3, which appears to already regulate Class IIIB liquids even though the corresponding Section 2206.2.3 makes reference only to Class II and IIIA liquids, has also been modified by adding a new footnote c. The footnote is added to eliminate the 50 foot separation that is required between protected (UL 2085) tanks containing Class IIIB liquids and the fuel dispenser. Note that even with this change Class IIIB liquids in non-protected tanks (UL 142) will be required to comply with Table 2206.2.3 requirements for "other tanks" which still requires a 50 foot separation between that tank and the dispenser.

We believe that these proposed changes provide for prudent controls for Class IIIB tank systems at motor vehicle fueling stations which currently are largely unregulated.

Cost Impact: Costs will increase because listed tanks are being required for Class IIIB liquids but there may be a cost savings where the 25-foot separation distance between Class IIIB tank and dispenser is eliminated.

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

ICCFILENAME: KILPATRICK-F1-2205.1.DOC

F169–09/10
2205.2.2

Proponent: Jeffrey M. Shapiro, PE, International Code Consultants, representing National Steel Tank Institute

Revise as follows:

2205.2.2 Repairs and service. The fire code official is authorized to require damaged or unsafe containment and dispensing equipment to be repaired or serviced in an approved manner ~~including, but not limited to, equipment that shows signs of physical damage, internal and external corrosion, leakage, brittleness, aging or undue wear and tear~~.

Reason: Section 2205.2.2 was added to the IFC last cycle. The beginning of the sentence provides a valuable code requirement authorizing the fire code official to require damaged or unsafe equipment to be fixed. The end of the sentence a subjective "laundry list" of conditions that may or may not warrant concern, depending on the severity, and it is unnecessary. For example, 1) Limited surface corrosion on steel tanks and equipment is common, and it does not necessarily represent an unsafe condition, 2) Aging equipment may or may not need attention simply because it's old, and 3) The phrase "undue wear and tear" is subjective and adds nothing.

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

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

ICCFILENAME: SHAPIRO-F2-2205.2.2.DOC

F170–09/10
2206.2.2

Proponent: Lynne M. Kilpatrick, Fire Department, City of Seattle WA, representing Washington State Association of Fire Marshals

Revise as follows:

2206.2.2 Above-ground tanks located inside buildings. Above-ground tanks for the storage of Class I, II and III~~A~~ liquid fuels are allowed to be located in buildings. Such tanks shall be located in special enclosures complying with Section 2206.2.6, or in a liquid storage room or a liquid storage warehouse complying with Chapter 34~~, or shall be listed and labeled as protected above-ground tanks~~.

Exceptions:

1. Protected aboveground tanks having an aggregate capacity not exceeding 1,500 gallons (454 L) storing Class I liquids in a room or rooms protected by an approved automatic sprinkler system complying with Section 903.3.1.1.
2. Protected aboveground tanks having an aggregate capacity not exceeding 3,000 gallons (908 L) storing Class II or IIIA liquids in a room or rooms protected by an approved automatic sprinkler system complying with Section 903.3.1.1.
3. Aboveground tanks other than protected aboveground tanks storing Class II and III liquids in accordance with the maximum allowable quantity per control area set forth in Table 2703.1.1(1).

Reason: Currently Section 2206.2.2 allows an unlimited quantity of Class I, II and IIIA liquids inside buildings for fueling motor vehicles provided the fuel is stored in a protected aboveground tank listed to UL 2085. This proposal attempts to establish reasonable limits for the aggregate quantity of fuel in protected aboveground tanks that can be installed inside buildings for fueling motor vehicles. The 3,000-gallon limit for Class II and IIIA liquids in Exception 2 is consistent with the maximum quantity currently allowed in Section 603.3.2.1 for protected aboveground tanks installed inside buildings supporting fuel-burning equipment. Exception 3 limits Class II and III liquids in tanks other than protected tanks to the MAQ per control area set forth in Chapter 27. Since there is no code precedent for limiting Class I flammable liquids in protected aboveground tanks inside buildings, Exception 1 of the proposal establishes a limit of 1,500 gallons. This quantity (1500 gallons) exceeds the 120 gallon MAQ (240 gallons in sprinklered buildings) established for Class I liquids but gives some 'credit' for installing a protected tank and is one-half the already accepted limit of 3,000 gallons for Class II and III-A liquids. It is necessary to approve this code change in order to establish some quantity limits for flammable and combustible liquids in protected aboveground tanks installed inside buildings used for fueling motor vehicles. Without this change, an unlimited quantity of Class I, II and IIIA liquids is allowed inside buildings in protected tanks not confined to a Group H occupancy or special enclosure.

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

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

ICCFILENAME: KILPATRICK-F2-2206.2.2.DOC

F171–09/10
2206.2.2, 2206.2.3

Proponent: Bob Eugene, Underwriters Laboratories, Inc.

Revise as follows:

2206.2.2 Above-ground tanks located inside buildings. Above-ground tanks for the storage of Class I, II and IIIA liquid fuels are allowed to be located in buildings. Such tanks shall be located in special enclosures complying with Section 2206.2.6, in a liquid storage room or a liquid storage warehouse complying with Chapter 34, or shall be listed and labeled as protected above-ground tanks in accordance with UL 2085.

2206.2.3 Above-ground tanks located outside, above grade. Above-ground tanks shall not be used for the storage of Class I, II or IIIA liquid motor fuels except as provided by this section.

1. Above-ground tanks used for outside, above-grade storage of Class I liquids shall be listed and labeled as protected above-ground tanks in accordance with UL 2085, and be in accordance with Chapter 34. Such tanks shall be located in accordance with Table 2206.2.3.
2. Above-ground tanks used for above-grade storage of Class II or IIIA liquids are allowed to be protected above-ground tanks or, when *approved* by the *fire code official*, other above-ground tanks that comply with Chapter 34. Tank locations shall be in accordance with Table 2206.2.3.

3. Tanks containing fuels shall not exceed 12,000 gallons (45 420 L) in individual capacity or 48,000 gallons (181 680 L) in aggregate capacity. Installations with the maximum allowable aggregate capacity shall be separated from other such installations by not less than 100 feet (30 480 mm).
4. Tanks located at farms, construction projects, or rural areas shall comply with Section 3406.2.

Reason: This proposal is to provide the fire code user with an easy reference to the appropriate Standard that is already referenced in Chapter 2 definitions and as used in Chapter 34 for Protected Above-ground Tanks without having to search through the code.

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

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

ICCFILENAME: EUGENE-F4-2206.2.2.DOC

F172–09/10

2206.7.1, 2206.7.5, 2206.7.5.1, 2206.7.6, 2206.7.7.1, 2206.7.9.1.1, 2206.7.9.2.1, 3403.6.2, 3403.6.9, 3404.2.7

Proponent: Brian Knapp, American Petroleum Institute

Revise as follows:

2206.7.1 Listed equipment. Electrical equipments, dispensers, hose, nozzles and submersible or subsurface pumps used in fuel-dispensing systems shall be listed or certified by the manufacturer for the fuel dispensed.

2206.7.5 Dispenser hose. Dispenser hoses shall be a maximum of 18 feet (5486 mm) in length unless otherwise *approved*. Dispenser hoses shall be listed and approved or certified by the manufacturer for the fuel dispensed. When not in use, hoses shall be reeled, racked or otherwise protected from damage.

2206.7.5.1 Breakaway devices. Dispenser hoses for Class I and II liquids shall be equipped with ~~a listed~~ an emergency breakaway device that is listed or certified by the manufacturer for the fuel dispensed and designed to retain liquid on both sides of a breakaway point. Such devices shall be installed and maintained in accordance with the manufacturer's instructions. Where hoses are attached to hose-retrieving mechanisms, the emergency breakaway device shall be located between the hose nozzle and the point of attachment of the hose-retrieval mechanism to the hose.

2206.7.6 Fuel delivery nozzles. ~~A listed~~ An automatic-closing-type hose nozzle valve, that must be listed or certified by the manufacturer for the fuel dispensed, with or without a latch-open device shall be provided on island-type dispensers used for dispensing Class I, II, or IIIA liquids.

Overhead-type dispensing units shall be provided with a ~~listed~~ automatic-closing-type hose nozzle valve without a latch-open device, that must be listed or certified by the manufacturer for the fuel dispensed,

Exception: A *listed* automatic-closing-type hose nozzle valve with latch-open device is allowed to be used on overhead-type dispensing units where the design of the system is such that the hose nozzle valve will close automatically in the event the valve is released from a fill opening or upon impact with a driveway.

2206.7.7.1 Leak detection. Where remote pumps are used to supply fuel dispensers, each pump shall have installed on the discharge side a ~~*listed*~~ leak detection device, that is listed or certified by the manufacturer for the fuel used, that will detect a leak in the piping and dispensers and provide an indication. A leak detection device is not required if the piping from the pump discharge to under the dispenser is above ground and visible.

2206.7.9.1.1 Dispensing devices. Dispensing devices incorporating provisions for vapor recovery shall be listed and labeled~~.~~, or certified by the manufacturer for the fuel dispensed. When existing listed or labeled dispensing devices are modified for vapor recovery, such modifications shall be listed by report by a nationally recognized testing laboratory~~.~~, or certified by the manufacturer for the fuel dispensed. The listing by report shall contain a description of the component parts used in the modification and recommended method of installation on specific dispensers. Such report shall be made available on request of the *fire code official*.

Means shall be provided to shut down fuel dispensing in the event the vapor return line becomes blocked.

2206.7.9.2.1 Equipment. Equipment in vapor-processing systems, including hose nozzle valves, vapor pumps, flame arresters, fire checks or systems for prevention of flame propagation, controls and vapor-processing equipment, shall be individually listed, or certified by the manufacturer, for the intended use in a specified manner.

Vapor-processing systems that introduce air into the underground piping or storage tanks shall be provided with equipment for prevention of flame propagation that has been tested and listed, or certified by the manufacturer, as suitable for the intended use.

3403.6.2 Design, fabrication and installation of piping systems and components. Piping system components shall be designed and fabricated in accordance with the applicable standard listed in Table 3403.6.2 and Chapter 27 of NFPA 30, except as modified by Section 3403.6.2.1.

Exception: Where piping system components are certified by the manufacturer for the fuel stored.

3403.6.9 Flexible joints. Flexible joints shall be listed and approved, or certified by the manufacturer for the fuel used, and shall be installed on underground liquid, vapor and vent piping at all of the following locations:

1. Where piping connects to underground tanks.
2. Where piping ends at pump islands and vent risers.
3. At points where differential movement in the piping can occur.

3404.2.7 Design, construction and general installation requirements for tanks. The design, fabrication and construction of tanks shall comply with NFPA 30. Each tank shall bear a permanent nameplate or marking indicating the standard used as the basis of design.

Exception: Where tanks are certified by the manufacturer for the fuel stored.

Reason: The requirement for a listing by an "approved testing laboratory, inspection agency or other organization concerned with current product evaluation" (IFC 202) can prove a considerable hindrance to the propagation of new fuels, such as biofuels. The most often used listing laboratory, UL, requires at least 18 months of testing prior to offering a listing which may not be feasible in light of federal regulations requiring new fuels in a certain time period. Moreover, as is the case with ethanol, blend levels may be adjusted in short time periods making the ICC requirement for a listing an inflexible barrier to fuel retailers. An alternate requirement must be found that ensures the protection of public safety while requiring less time to obtain. A manufacturer's certification has been one idea that has received some support among API members, but other alternatives should also be considered. API would encourage the ICC to allow for potential modifications of this requirement after the Code Development hearings when other potential alternatives may be presented and vetted.

Cost Impact: This proposal will not increase the cost of construction.

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

ICCFILENAME: KNAPP-F2-F11-COMBINED.DOC

F173–09/10
2206.8.1, 2206.8.2 (New), 2202.1

Proponent: Ken Boyce, Underwriters Laboratories, representing Doug Horne, Clean Vehicle Education Foundation; Wendy Clark, National renewable Energy Laboratory

1. Revise as follows:

2206.8.1 Approval of equipment. Dispensers, hoses, nozzles, breakaway fittings, swivels, flexible connectors or dispenser emergency shutoff valves, vapor recovery systems, leak detection devices and pumps used in alcohol blended fuel-dispensing systems shall be listed or approved for the specific purpose.

2. Add new text as follows:

2206.8.2 Material compatibility. Tanks and fluid handling components that contact alcohol blended fuels shall be fabricated from corrosion resistant materials that mitigate galvanic action and resist corrosion from internal and external sources. Dissimilar metallic parts that promote galvanic action shall not be joined.

(Renumber subsequent sections)

3. Revise definition as follows:

2202.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

ALCOHOL BLENDED FUELS. Alcohol blended fuels, including those containing nominally 85-percent ethanol 15-percent unleaded gasoline (E85), are flammable liquids consisting of ethanol or other alcohols blended greater than ~~15~~10-percent by volume.

Reason: This proposal updates E85 and other alcohol blended fuel dispensing requirements. Specifically, the proposal:

1. Revises the definition of alcohol blended fuels that was introduced into the 2006 IFC. The proposed revision clarifies that these are fuels containing between 10 and 85% ethanol by volume. Presently, gasoline blends containing up to 10% ethanol (also known as "gasohol") are permitted to be dispensed into conventional (non-flex fuel) vehicles, although there the possibility in the near-term that blends containing more that 10% ethanol may be permitted for conventional vehicles. Clarifying the limit from 15 to 10% is necessary and will help the IFC address potential near-term deployment of fuels with more ethanol.
2, Adds leak detection devices to the types of equipment specifically requiring approval for use with alcohol blended fuels. Practical experience has shown that leak detection equipment needs to be compatible for use with alcohol blended fuels or it may not be able to perform its intended function.
3. Adds a new section 2606.8.2 with requirements covering the compatibility of the fuel containment systems materials with the alcohol blended fuels. The wording for this section is similar to wording currently in Section 3403.6.5, which addresses external corrosion, not internal corrosion. Alcohols are polar compounds that exhibit increased moisture absorption, water solubility, polar solvency and solution conductivity relative to gasoline, and can cause increased corrosion.

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

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

ICCFILENAME: BOYCE-F1-2206.8.1.DOC

F174–09/10
2209

Proponents: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

1. Revise as follows:

2209.2.1 Approved equipment. Cylinders, containers and tanks; pressure relief devices, including pressure valves; hydrogen vaporizers; pressure regulators; and piping used for gaseous hydrogen systems shall be designed and constructed in accordance with ~~Section 3003, 3203 or NFPA 55~~ Chapters 30, 32 and 35.

2209.3 Location on property. In addition to the requirements of Section 2203.1, ~~Generation, compression, storage and~~ dispensing equipment shall be located in accordance with Sections 2209.3.1 through Section 2209.3.3.

2. Delete sections and table in their entirety without substitution:

~~**2209.3.1 Separation from outdoor exposure hazards.**~~

~~**TABLE 2209.3.1**~~
~~**MINIMUM SEPARATION FOR GASEOUS HYDROGEN**~~
~~**DISPENSERS, COMPRESSORS, GENERATORS AND STORAGE VESSELS**~~

~~**2209.3.1.1 Barrier wall construction–gaseous hydrogen.**~~
~~**2209.3.1.2 Location of equipment**~~.

3. Add new text as follows:

2209.3.1 Location of dispensing devices. Dispensing devices shall be located above ground. In addition to the requirements of Section 2203.1, dispensing shall be located in accordance with the following:

1. Ten feet (3048 mm) or more from the nearest public street or sidewalk.
2. Fifty feet (15,240 mm) from the nearest rail of any railroad main track.
3. Five feet or more from the nearest enclosing wall.

4. Dispensing equipment shall be allowed under weather protection in accordance with the requirements of Section 2704.13 and constructed in a manner that prevents the accumulation of hydrogen gas.

Exceptions:

1. Compression, storage or dispensing equipment shall be allowed in buildings in accordance with Section 2209.3.2.2.
2. Compression, storage and dispensing equipment shall be allowed in vaults in accordance with Chapter 30.

4. Revise as follows:

2209.3.2 Location of ~~dispensing~~ operations and equipment. Generation, compression, storage and dispensing equipment shall be located in accordance with Sections 2209.3.2.1 through 2209.3.2.6.3.

2209.3.2.1 Outdoors. Generation, compression, or storage ~~or dispensing~~ equipment shall be allowed outdoors in accordance with ~~Section 2209.3.1~~ Chapter 35.

5. Delete section in its entirety without substitution:

~~**2209.3.2.2 Weather protection**.~~

(Renumber remaining sections 2209.3.2.3 through 2209.3.2.4)

6. Revise as follows:

2209.3.2.~~5~~ 4 ~~Liquefied~~ Cryogenic fluid hydrogen storage. Storage of Cryogenic fluid hydrogen shall be in accordance with Chapters 32 and 35.

7. Delete sections in their entirety without substitution:

~~**2209.3.2.5.1 Location on property.**~~
~~**2209.3.2.5.1.1 Barrier wall construction–liquefied hydrogen.**~~
~~**2209.3.2.5.1.2 Location of equipment.**~~

(Renumber Sections 2209.3.2.6 through 2209.3.2.6.3)

~~**2209.5.4 Venting of hydrogen systems.**~~
~~**2209.5.4.1 Location of discharge.**~~
~~**2209.5.4.2 Pressure relief devices.**~~
~~**2209.5.4.2.1 Minimum rate of discharge.**~~
~~**2209.5.4.3 Vent pipe.**~~
~~**2209.5.4.3.1 Materials of construction.**~~
~~**2209.5.4.3.2 Structural support.**~~
~~**2209.5.4.3.3Obstructions.**~~
~~**2209.5.4.3.4 Height of vent and separation.**~~
~~**TABLE 2209.5.4.3.4**~~
~~**FIGURE 2209.5.4.3.4**~~
~~**2209.5.4.3.5 Maximum flow rate.**~~
~~**2209.5.4.3.6 Alternative venting systems.**~~
~~**TABLE 2209.5.4.3.6(1)**~~
~~**TABLE 2209.5.4.3.6(2)**~~

Reason: This proposal is intended to provide correlation with changes to Chapter 35 contained within a separate proposal that will update references to NFPA 55 to apply updated separation distances tables added to that standard. When the separation distances were added to Chapter 22 the proponents indicated in the written reason and in testimony that the distances provided were the best that could be developed at that time and that once better distances were determined through research and analysis the IFC would be updated. This proposal is one of several that fulfill that intent.

Section 2209 addresses issues specific to dispensing operations. Storage is addressed by Chapter 35 and 2209.3.2.1 and 2209.3.2.4 refers the code user to Chapters 30 and 35 for storage.

The change to 2209.2.1 eliminates an incorrect “or” phrase in applicability and replaces the language with references to the relevant chapters to correlate with references to each of the chapters found in the remaining portions of 2209.

Deleting the struck text from Section 2209.3 and 2209.5.4 clarifies applicability of Section 2209.

Replacing the current Section 2209.3.1 with the proposed text clarifies that the separation required is from the dispensing equipment and not from the storage system. The storage system separation distances are addressed in Chapter 35. The weather protection for equipment found at Section 2209.3.2.2 has been added to the new 2209.3.1 language for the dispenser.

Deleting Table 2209.3.1 and replacing it with the text proposed for 2209.3.1 correlates the IFC with NFPA 52 Table 9.3.1.4 in the 2010 edition per approved ROP-81. The two separation distances listed in the proposed text for 2209.3.1 are the only ones that need to be added to the requirements of 2203.1 in order to achieve correlation with NFPA 52 Table 9.3.1.4 (2010 edition per ROP-81). See below for an image of the draft NFPA 52 Table 9.3.1.4 for convenience. The 1st row in table establishes a separation distance requirement between dispensing equipment and buildings. This NFPA 52 requirement corresponds to the existing text in IFC 2203.1. The next two items are not currently in IFC and are added to 2209.3.1 by this proposal.

The remaining deletions are of language that is no longer required due to the application of modifications to Chapter 35 of the IFC and the updated reference to NFPA 55.

The change at 2209.3.2.5 is a terminology correlation that has already been made to Chapter 32,

Approval of this proposal will simplify the application of the IFC to the outdoor storage of hydrogen and continue the efforts of ICC to provide for improved levels of safety in the application of new hydrogen technology and hydrogen as an alternative fuel.

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

Analysis: The related code change proposal referred to in the first paragraph of the reason statement is F214-09/10. The action on this proposal should be consistent with the action on Code Change F176-09/10.

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

ICCFILENAME: DAVIDSON-SHUMAN-F18-2209.DOC

F175–09/10

2209.2.2, Table 2209.2.2 (New), Chapter 47

Proponent: Julie Cairns, CSA America, Inc., representing CSA America Automotive Technical Committee

1. Revise as follows:

2209.2.2 Listed equipment. Hoses, hose connections, compressors, hydrogen generators, dispensers, detection systems and electrical equipment used for hydrogen shall be *listed* for use with hydrogen <u>in accordance with the applicable standard in Table 2209.2.2.</u> Hydrogen motor fueling connections shall be *listed* and *labeled* for use with hydrogen.

<u>TABLE 2209.2.2</u>
<u>HYDROGEN HANDLING COMPONENT STANDARDS</u>

<u>HYDROGEN HANDLING COMPONENT</u>	<u>STANDARD</u>
<u>Compressed Hydrogen Dispensers</u>	<u>CSA America HGV 4.1</u>
<u>Hoses and Hose Assemblies for Gaseous Hydrogen Vehicles and Dispensing Systems</u>	<u>CSA America HGV 4.2</u>
<u>Breakaway Devices for Hoses Used in Compressed Hydrogen Vehicle Fueling Stations</u>	<u>CSA America HGV 4.4</u>
<u>Priority and Sequencing Equipment for Gaseous Hydrogen Dispensing Systems</u>	<u>CSA America HGV 4.5</u>
<u>Manually Operated Valves Used in Gaseous Hydrogen Vehicle Fueling Stations</u>	<u>CSA America HGV 4.6</u>
<u>Standard for Automatic Pressure Operated Valves for Use in Gaseous Hydrogen Vehicle Fueling Stations</u>	<u>CSA America HGV 4.7</u>
<u>Hydrogen Gas Vehicle Fueling Station Compressor</u>	<u>CSA America HGV 4.8</u>
<u>Fittings for Compressed Hydrogen Gas and Hydrogen Rich Gas Mixtures</u>	<u>CSA America HGV 4.10</u>

2. Add new standards to Chapter 47 as follows:

CSA America, Inc.
8501 E. Pleasant Valley Rd.
Cleveland, OH 44131

HGV 4.1	Compressed Hydrogen Dispensers
HGV 4.2	Hoses and Hose Assemblies for Gaseous Hydrogen Vehicles and Dispensing Systems
HGV 4.4	Breakaway Devices for Hoses Used in Compressed Hydrogen Vehicle Fueling Stations
HGV 4.5	Priority and Sequencing Equipment for Gaseous Hydrogen Dispensing Systems
HGV 4.6	Manually Operated Valves Used in Gaseous Hydrogen Vehicle Fueling Stations
HGV 4.7	Standard for Automatic Pressure Operated Valves for Use in Gaseous Hydrogen Vehicle Fueling Stations
HGV 4.8	Hydrogen Gas Vehicle Fueling Station Compressor
HGV 4.10	Fittings for Compressed Hydrogen Gas and Hydrogen Rich Gas Mixtures

Reason: The proposal is to reference CSA America documents used by industry for certification of the dispenser and related equipment.

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

Analysis: A review of the standard(s) proposed for inclusion in the code, CSA HGV 4.1, 4.2, 4.4, 4.5, 4.6, 4.7, 4.8 and 4.10, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009.

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

ICCFILENAME: CAIRNS-F1-2209.2.2

F176–09/10

2209.3, 2209.3.1, Table 2209.3.1, 2209.3.1.1

Proponent: Robert Boyd, LINDE North America, Inc., representing Hydrogen Industry Panel on Codes (HIPOC)

1. Revise as follows:

2209.3 Location on property. In addition to the requirements of Section 2203.1, ~~generation, compression, storage and~~ dispensing equipment shall be located in accordance with Section~~s~~ 2203 and Sections 2209.3.1 through Section 2209.3.3.

2. Delete and substitute as follows:

~~**2209.3.1 Separation from outdoor exposure hazards.** Generation, compression and dispensing equipment shall be separated from other fuels or equivalent risks to life, safety and buildings or public areas in accordance with Table 2209.3.1.~~

~~**Exception:** *Closed systems* with a hydrogen capacity of 3,000 cubic feet (85 m^3) or less at NTP.~~

2209.3.1 Location of dispensing operations and equipment. Dispensing operations and equipment shall be located above ground. In addition to the requirements of Section 2203.1, the point of transfer dispensing shall be located in accordance with the following:

1. Ten feet (3048 mm) or more from the nearest public street or sidewalk.
2. Ten feet (3048 mm from the nearest rail of any railroad track.
3. Dispensing equipment shall be allowed under weather protection in accordance with the requirements of Section 2704.13 and constructed in a manner that prevents the accumulation of hydrogen gas.

3. Delete section and table in their entirety without substitution:

~~**TABLE 2209.3.1**~~
~~**MINIMUM SEPARATION FOR GASEOUS HYDDROGEN DISPENSERS, COMPRESSORS, GENERATORS AND STORAGE VESSELS**~~
(Delete entire table and notes)

~~**2209.3.1.1 Barrier wall construction—gaseous hydrogen.** The outdoor separation shall be allowed to be reduced to 5 feet (1524 mm) where a 2-hour *fire barrier* interrupts the line of sight between equipment, other than dispensers, and the exposure within the radial distance as indicated by the tabular value. The height of the barrier shall be a minimum of 6 feet (1829 mm), but not less than 1.5 times the height of the equipment, measured vertically. The length of the wall shall be not less than 1.5 times the maximum diameter or length of the tank.~~

Reason: This proposal is intended to provide correlation with changes to Chapter 35 contained within separate proposals that will update references to NFPA 55 to apply updated separation distances tables added to that standard. When the separation distances were added to Chapter 22, the proponents indicated, in the written reason and in testimony, that the distances provided were the best that could be developed at that time and that once better distances were determined through research and analysis, the IFC would be updated. This proposal is one of several which fulfills that intent.

The remaining deletions are of language that is no longer required due to the application of modifications to Chapter 35 of the IFC and the updated reference to NFPA 55. Approval of this proposal will simplify the application of the IFC to the outdoor storage of hydrogen and continue the efforts of ICC to provide for improved levels of safety in the application of new hydrogen technology and hydrogen as an alternative fuel.

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

Analysis: The related code change proposal referred to in the first paragraph of the reason statement is F214-09/10. The action on this proposal should be consistent with the action on Code Change F174-09/10.

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

ICCFILENAME: BOYD-F2-2209.3.DOC

F177–09/10
2209.3.1.2

Proponent: Robert Boyd, Linde North America, Inc.

Revise as follows:

2209.3.1.2 Location of equipment. ~~Equipment shall be located from the enclosing walls at a distance not less than one tank diameter. When horizontal tanks are used,~~ The distance from equipment to any one enclosing wall shall be not less than ~~one-half the length of the tank or a minimum of~~ 5 feet (1524 mm).

Reason: During the most recent HIPOC meeting, the need for such large setback distance between tanks and enclosing walls was reviewed. Tanks are typically 8 or 10 feet in diameter and there is no justifiable reason to have more than a 5 foot walkway between tanks and enclosing walls. The requirement to have walls be half the length of the horizontal tank to the enclosing walls is even more out of line with what is needed.

This proposal came out of a final review of Chapter 22 after HIPOC had last convened. HIPOC will review this proposal in detail and will likely speak on behalf of this proposal.

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

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

ICCFILENAME: BOYD-F1-2209.3.1.2.DOC

F178–09/10
2211.7.2.1 (IBC [F] 406.6.6.1); 2211.7.2.2 (New) [IBC [F] 406.6.6.1.1 (New)]; 3704.2.2.10.1 (New)

Proponent: Bob Eugene/Underwriters Laboratories Inc. representing Underwriters Laboratories, Inc.

1. Add new text follows:

2211.7.2.1 (IBC [F]406.6.6.1) System design. The flammable gas detection system shall be *listed* or *approved* and shall be calibrated to the types of fuels or gases used by vehicles to be repaired. ~~Gas detectors or sensors shall be *listed* in accordance with UL 2075 and shall indicate the gases they are intended to detect~~. The gas detection system shall be designed to activate when the level of flammable gas exceeds 25 percent of the lower flammable limit (LFL). Gas detection shall also be provided in lubrication or chassis service pits of repair garages used for repairing nonodorized LNG-fueled vehicles.

2211.7.2.1.1 (IBC [F] 406.6.6.1.1) Gas detection system components. Gas detection system control units shall be listed and labeled in accordance with UL 864 or UL 2017. Gas detectors shall be listed and labeled in accordance with UL 2075 for use with the gases and vapors being detected.

3704.2.2.10.1 Gas detection system components. Gas detection system control units shall be listed and labeled in accordance with UL 864 or UL 2017. Gas detectors shall be listed and labeled in accordance with UL 2075 for use with the gases and vapors being detected.

2. Add new standard to Chapter 47 (IBC Chapter 35) as follows:

UL
2017-08 Standard for General Purpose Signaling Devices and Systems

Reason: The change is designed to ensure that gas detection system components are listed in accordance with nationally recognized safety standards. These standards include a comprehensive set of construction and performance requirements that are used to evaluate and list gas detection system control units and gas detectors.

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

Analysis: A review of the standard(s) proposed for inclusion in the code, UL 2017-08, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009.

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

ICCFILENAME: EUGENE-F7-3704.3.4.3.1

F179–09/10
2301.5 (New), 2302 (New), 2303.2, 2303.6, 2308.2.1, Chapter 47

Proponent: Jimbo Schifiliti, Fire Safety Consultants, Inc., representing self

1. Add new text as follows:

2301.5 Pallets. All pallets shall be wooden as defined by this Chapter or shall be *listed* and *labeled* in accordance with UL 2335 or FM 4996

SECTION 2302
DEFINITIONS

2302.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

WOODEN PALLET. A wooden pallet is defined as a 42 in. x 42 in., 2-way entry Stringer Pallet constructed from hardwood as described in ASME MH1.

2. Revise as follows:

2303.2 Class I commodities.Class I commodities are essentially noncombustible products ~~on wooden or nonexpanded polyethylene solid deck~~ with or without pallets , in ordinary corrugated cartons with or without single-thickness dividers, or in ordinary paper wrappings with or without pallets. Class I commodities are allowed to contain a limited amount of Group A plastics in accordance with Section 2303.7.4. Examples of Class I commodities include, but are not limited to, the following:

Alcoholic beverages not exceeding 20-percent alcohol
Appliances noncombustible, electrical
Cement in bags
Ceramics
Dairy products in nonwax-coated containers (excluding bottles)
Dry insecticides
Foods in noncombustible containers
Fresh fruits and vegetables in nonplastic trays or containers
Frozen foods
Glass
Glycol in metal cans
Gypsum board
Inert materials, bagged

Insulation, noncombustible
Noncombustible liquids in plastic containers having less than a 5-gallon (19 L) capacity
Noncombustible metal products

2303.6 High-hazard commodities. High-hazard commodities are high-hazard products presenting special fire hazards beyond those of Class I, II, III or IV. Group A plastics not otherwise classified are included in this class. Examples of high-hazard commodities include, but are not limited to, the following:

Aerosol, Level 3 (see Chapter 28)
Alcoholic beverages, exceeding 80-percent alcohol, in bottles or cartons
Commodities of any class in plastic containers in carousel storage
Flammable solids (except solid combustible metals)
Glycol in combustible containers (50 percent or greater)
Lacquers, which dry by solvent evaporation, in metal cans or cartons
Lubricating or hydraulic fluid in plastic containers
Mattresses, foam rubber or foam plastics
~~Pallets and flats which are idle combustible~~
Paper, asphalt, rolled, horizontal storage
Paper, asphalt, rolled, vertical storage
Paper and pulp, rolled, in vertical storage which is unbanded or not protected with an *approved* wrap
Pillows, foam rubber and foam plastics
Pyroxylin
Rubber tires
Vegetable oil and butter in plastic containers

2308.2.1 Plastic ~~pallets and~~ shelves. Storage on ~~plastic pallets or~~ plastic shelves shall be protected by *approved* specially engineered *fire protection systems*.

> **~~Exception:~~** ~~Plastic pallets listed and labeled in accordance with UL 2335 shall be treated as wood pallets for determining required sprinkler protection~~.

3. Add new standards to Chapter 47 as follows:

ANSI/FM 4996-2007	American National Standard for Classification of Idle Plastic Pallets as Equivalent to Wood Pallets
ASME MH1-2005	Pallets, Slip Sheets, and Other Bases for Unit Loads

Reason: Over the years the types of pallets utilized in day to day commerce has changed. When the density requirements relative to the impact pallets have on commodity classification and as idle pallet storage the standard wooden pallet was the hardwood, stringer type. Today a wooden pallet may be a 9-block, 4-way, softwood type or other variations including “one-way” pallets of a mixture of wood and composites. Some pallets are plastic, some are a combination of plastic and wood products.

NFPA 13 has undergone revisions over the last several cycles to increase density requirements based upon test data for the newer wood pallets. In addition, NFPA 13 added definitions as follows:

> “3.10.12 Wood Pallet. A wood pallet is defined as a pallet constructed entirely of wood with metal fasteners.”
>
> “3.10.13 Plastic Pallet. A plastic pallet is defined as a pallet having any portion of its construction consisting of a plastic material.”

The new definitions serve as a partial solution in that the pallet is either wood or plastic, and if classified as plastic verification of whether or not it is a listed and labeled plastic pallet can be made.

But the changes in NFPA 13 do not address the entire problem. Though the more recent additions of NFPA 13 have had increases made to density requirements to handle the challenge of some of the newer wood pallet types or new construction projects, those densities do not cover all of the newer types of materials in use in pallets and do not address the fact that the pallets are in use in facilities built under early editions of NFPA 13 and as a result do not have the needed water flow densities.

> We have an additional problem in Chapter 23. Whereas NFPA 13 addresses the impact of pallets at “5.6.2 Pallet Types”, (which may require a one or two class commodity increase or specific laboratory testing), and at “12.12 Protection of Idle Pallets” regardless or storage method, (solid pile versus rack storage), the IFC only addresses the issue in relation to rack storage and by classifying “*Pallets and flats which are idle combustible*” as a High-hazard commodities.

> “2308.2.1 Plastic pallets and shelves. Storage on plastic pallets or plastic shelves shall be protected by approved specially engineered fire protection systems.
>
> > Exception: Plastic pallets listed and labeled in accordance with UL 2335 shall be treated as wood pallets for determining required sprinkler protection”

This presents the real possibility that a building designed under the IFC did not have the correct commodity class for determining sprinkler density assigned unless the designer, plan reviewer and/or field inspector was aware of this issue and applied NFPA 13 to this topic even though classification is covered by the IFC.

In a practical sense, we cannot expect every existing building containing pallets with a fire suppression system installed prior to the 2002 edition of NFPA 13 to have the systems retroactively reassessed by a design professional and upgraded to handle the increased sprinkler demands of a violating product introduced after the building was constructed. It is easier and more cost effective to address the offending product, i.e., the unlisted or labeled pallet.

This proposal addresses the issue by requiring all pallets other than the hardwood, stringer type to be listed and labeled in accordance with the existing UL or FM standards. There is already one wood pallet provider that had their "yellow pine, 9-block" pallet tested for listed under the standards documenting that it can be done. In fact, it was some of those tests that identified the need to make changes to NFPA 13.

By requiring all pallets to be listed or labeled it will ensure that the pallets present can be handled by the existing suppression systems including those designed under the IFC where the required commodity class increase may have been missed and provide the code official with an effective tool to apply during maintenance inspections by spot checking for labels. It will also serve the building owner/operator by making it easy for him/her to verify that the pallets entering their facility do not place it at risk from a damaging fire.

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

Analysis: A review of the standard(s) proposed for inclusion in the code, ANSI/FM 4996-2007 and ASME MH1-2005, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009.

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

ICCFILENAME: SCHIFILITI-F1-2301.5.DOC

F180–09/10
2302.1

Proponent: Ron Clements, Chesterfield County Virginia Building Inspection Department, representing self

Revise as follows:

2302.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

HIGH-PILED STORAGE AREA. An area within a building which is designed, intended, proposed or actually used for high-piled combustible storage. <u>The area of aisles is not included in the determination of the size of the high-piled storage area.</u>

Reason: There is some ambiguity regarding if the area of aisles within high piled storage areas is to be included in the high-piled storage area value used by this chapter per this definition. Section 2306.9.1.1 bases some required aisle widths on the high-piled storage area. If the aisle widths area required to be included in the high piled storage area by definition, then it would be mathematically impossible to calculate the high-piled storage area because you cannot determine the aisle widths needed to calculate the aisle areas without the high-piled storage area. Additionally it does not make sense to include large aisles widths of 20', 30' or more between storage racks as part of the storage area. Clearly the intent is to measure the actual area of floor that is covered by the stored commodity.

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

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

ICCFILENAME: CLEMENTS-F1-2302.DOC

F181–09/10
2306.3.2.2

Proponent: Will Smith, PE, Code Consultants, Inc.

Revise as follows:

2306.3.2.2 Multiclass high piled storage areas. *High-piled storage areas* classified as Class I through IV not separated from *high-piled storage areas* classified as high hazard shall utilize the aggregate of all *high-piled storage areas* as high hazard for the purposes of the application of Table 2306.2. To be considered as separated, 1-hour *fire barrier* walls shall be constructed in accordance with the International Building Code. Openings in such walls shall be protected by opening protective assemblies having a 1-hour *fire protection rating*.

Exceptions:

1. As provided for in Section 2304.2.
2. When automatic sprinkler systems are designed for high hazard commodities throughout the high-piled storage area, the actual high-piled storage area classified as high hazard commodities and the actual high-piled storage area classified as Class I through IV commodities, individually, shall be used for the application of Table 2306.2.

Reason: The engineered solution provided in section 2304.2 allows for limiting the size of the high hazard areas to 120 sq ft and separating them by 25 ft. This exception is allowed when the sprinkler system is capable of delivering a sprinkler density that will protect high hazard commodities over a 900 sq ft area. The proposed exception provides an alternate solution when the sprinkler system is designed for high hazard commodities throughout the storage area.

Further research where the sprinkler system has been designed for the proper design density has proven that smoke and heat vents in most cases will not operate. At most, one vent will operate in the area.

This exception will allow the elimination of smoke and heat vents and building access requirements in a building when the design of the sprinkler system is for high hazard commodities, and the total amount of high-piled storage of high hazard commodities is less than 2,500 sq ft.

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

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

ICCFILENAME: SMITH-F2-2306.3.2.2.DOC

F182–09/10
2306.6.1.1

Proponent: Will Smith, PE, Code Consultants, Inc.

Revise as follows:

2306.6.1.1 Number of doors required. A minimum of one access door shall be provided in each 100 lineal feet (30 480 mm), or fraction thereof, of the exterior walls that face required fire apparatus access roads. The required access doors shall be distributed such that the lineal distance between adjacent access doors does not exceed 100 feet (30 80 mm).

Exception: Where exterior walls that face required fire apparatus access roads do not exceed a linear distance of 200 feet, two access doors shall be permitted such that the linear distance between adjacent access doors does not exceed 200 feet.

Reason: Where an exterior wall, 200 ft long, faces a required fire apparatus access road, the number of access doors required would be two. The distance between doors could be no less than 1 ft and no more than 100 ft apart. Three doors would be required if two existing doors were located more than 100 ft apart. This revision would allow a condition where the exterior wall is not greater than 200 ft, a minimum two doors would still be required, one door in each linear 100 ft. This condition still maintains a two door minimum requirement for a 200 ft long exterior wall.

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

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

ICCFILENAME: SMITH-F1-2306.6.1.1.DOC

F183–09/10
2308.2.1, Chapter 47

Proponent: Jesse J. Beitel, Hughes Associates, Inc., representing FM Approvals

1. Revise as follows:

2308.2.1 Plastic pallets and shelves. Storage on plastic pallets or plastic shelves shall be protected by approved specially engineered fire protection systems.

Exception: Plastic pallets listed and labeled in accordance with UL 2335 or ANSI/FM 4996 shall be treated as wood pallets for determining required sprinkler protection.

2. Add new standard to Chapter 47 as follows:

FM

ANSI/FM 4996-2007 American National Standard for Classification of Idle Plastic Pallets as Equivalent to Wood Pallets

Reason: The purpose of this code change is to include reference to ANSI/FM 4996 as an alternate to UL 2335 in the International Fire Code. ANSI/FM 4996 is an ANSI approved standard.

The inclusion of this alternate test method would provide the authority having jurisdiction with the flexibility to accept listed and labeled products evaluated in accordance with either UL 2335 or ANSI/FM 4996. This will also assist pallet manufacturers by providing two sources of listings and also not require pallet manufacturers currently listed with FM to have to retest and co-list with another laboratory/agency.

Both standards are similar in that they require full-scale fire tests and they address the issue of appropriate sprinkler protection for plastic pallets.

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

Analysis: A review of the standard proposed for inclusion in the code, ANSI/FM 4996-2007, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009.

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

ICCFILENAME: BEITEL-F1-2308.2.1.DOC

F184–09/10
2308.3.1 (New)

Proponent: Amber Anderson/Stuart Tom, Cosumnes CSD Fire Department, representing California Fire Chief's Association

Add new text as follows:

2308.3.1 Flue space protection. Where required by the fire code official, flue spaces required by Table 2308.3, in single, double or multiple row rack storage installations shall be equipped with approved devices to protect the required flue spaces. Such devices shall not be removed or modified.

Reason: This proposal authorizes the enforcing agency to require devices, when appropriate, to maintain the required flue spaces in rack storage systems found in IFC Section 2308 and IFC Table 2308.3. It is not the intent of this proposal to require such devices in each instance, but rather when the business practice has established a history of poor flue space maintenance.

Approved devices to protect required flue spaces may be any of the following: brackets, cables or other elements that are securely fastened to the load bearing columns of racks, which control the depth or width to which a product, pallet or similar material can be stored in the rack system thereby preventing obstruction of the required flue space.

Once approved devices are installed, most business owner confusion regarding flue space requirements are removed. Other benefits include; property loss reduction through quick activation of the fire protection system; improved penetration of extinguishing agent through the rack system to the seat of the fire; faster activation of smoke and heat vent systems, improved employee safety, public safety and firefighter safety.

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

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

ICCFILENAME: ANDERSON-TOM-F1-2308.3.1.DOC

F185–09/10
2309.4, 2309.5 (New)

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

1. Revise as follows:

2309.4 Automated rack storage. *High-piled storage areas* with more than 500 square feet (46 m^2) of automated rack storage shall be provided with automatic shutdown in accordance with the following:

1. Activation of the fire detection system or automatic fire sprinkler system required by Table 2306.2 shall sound an alarm at the operator's station and stop the automated rack storage system.

2. ~~*High-piled storage areas* with automated~~ Automated rack storage systems shall be provided with a manually activated emergency shut down switch for use by emergency personnel. The switch shall be clearly identified and shall be in a location *approved* by the fire chief.
3. The automated rack storage system shall be provided with manual override for fire department use during or after a fire incident. When the manual override is utilized, the automated rack storage system will travel at a speed *approved* by the fire chief.

2. Add new text as follows:

2309.5 Automated pallet movers. Automated pallet movers associated with *high-piled storage areas* shall be provided with automatic shutdown in accordance with the following:

1. Activation of the fire detection system or automatic fire sprinkler system required by Table 2306.2 shall sound an alarm at the operator's station and stop the automated pallet movers.
2. Automated pallet movers shall be provided with a manually activated emergency shut down switch for use by emergency personnel. The switch shall be clearly identified and shall be in a location *approved* by the fire chief.

Reason: Automated rack storage is occurring in many large warehousing operations. This proposal will add requirements specifying that if a fire occurs in an automated rack storage facility the remotely controlled pallet moving equipment will automatically shut-down. This automatic shut-down accomplishes two objectives. First, the potential to either move additional product into the fire or move burning product through the storage area via remotely controlled pallet movers is halted. Secondly, firefighting personnel cannot safely operate within the automated storage area when the system is still active. Many of these automated rack storage have equipment that moves quite fast, and there is a physical danger to the firefighters. This shut-down will eliminate this danger to firefighters.

Whether the products stored are Class I-IV commodities or High Hazard commodities, Table 2306.2 requires that any high piled storage area exceeding 500 sq.ft. will be protected with either a fire detection system or a fire sprinkler system. The activation of a fire detector, or the activation of a water flow switch will cause the remotely controlled devices to cease operation.

Additionally, Item #3 will allow the fire department to utilize the rack storage equipment after the system has been shut-down. The control of the speed at this point is critical. Since automated systems move extremely fast, it is necessary to slow the speed down while firefighting personnel are in and around this equipment.

Also, Section 2309.5 is added to require that automated pallet movers which are carrying pallets to and from the automated rack storage area shut down in addition to the automated rack storage equipment. This is just an extension of shutting down the equipment within the storage racks. This requirement will eliminate moving additional fuel load into the fire area.

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

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

ICCFILENAME: LARIVIERE-F18-2309.4.DOC

F186–09/10

Table 2703.1.1(1) [IBC [F] Table 307.1(1)]; 3302.1 (IBC [F]307.2)

Proponent: Glenn A. Dean, Virginia State Fire Marshal's Office

Revise as follows:

TABLE 2703.1.1(1) [IBC TABLE [F] 307.1(1)]
MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING A PHYSICAL HAZARD[a,j,n,p]

MATERIAL	CLASS	GROUP WHEN THE MAXIMUM ALLOWABLE QUANTITY IS EXCEEDED	STORAGE[b]			USE-CLOSED SYSTEM[b]			USE-OPEN SYSTEMS	
			SOLID POUNDS (CUBIC FEET)	LIQUID GALLONS (POUNDS)	GAS (CUBIC FEET AT NTP)	SOLID POUNDS (CUBIC FEET)	LIQUID GALLONS (POUNDS)	GAS (CUBIC FEET AT NTP)	SOLID POUNDS (CUBIC FEET)	LIQUID GALLONS (POUNDS)
~~Consumer fireworks (Class C, Common)~~	~~1.4G~~	~~H-3~~	~~125[d,e,i]~~	~~N/A~~	~~N/A~~	~~N/A~~	~~N/A~~	~~N/A~~	~~N/A~~	~~N/A~~

(Portions of table and notes not shown remain unchanged)

3302.1 (IBC [F]307.2) Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

FIREWORKS, 1.4G. (Formerly known as Class C, Common Fireworks.) Small fireworks devices containing restricted amounts of pyrotechnic composition designed primarily to produce visible or audible effects by combustion or deflagration that complies~~. Such 1.4G fireworks which comply~~ with the construction, chemical composition and labeling regulations of the DOTn for Fireworks, UN 0336, and the U.S. Consumer Product Safety Commission as set forth in CPSC 16 CFR: Parts 1500 and 1507,~~ are not explosive materials for the purpose of this code~~.

(Portions of definition of "Fireworks" not shown remain unchanged)

Reason: The intent of this change is to revert to language stating consumer fireworks are explosive in nature.

The IFC definition language denoting that consumer fireworks would not be considered "explosive materials for the purpose of this code" originated through IFC code change F97-99. The proponent at the time stated the change was to "revise the definitions for consumer fireworks and display to be more closely aligned with the definitions contained in the 1997 IFCI Uniform Fire Code including 1999 Accumulative Supplement and the 1999 BOCA National Fire Prevention Code."

In looking back for the UFC and BOCA fire codes that were referenced in the F97-99 change to the IFC, code change B3-97 introduced language through the BOCA building code claiming consumer fireworks are not explosive materials and did not provide any technical substantiation to support the claim. I would accept the proponent was making the claim as a means to justify reclassifying the storage and/or sale of consumer fireworks from an H-1 to an H-3 building. For that, I would agree somewhat with the proponent in saying that it "appears reasonable" given the comparison for other H-3 commodities but that is not the issue in this proposed change.

The next BOCA cycle saw the introduction of F18-98 changing the definition of consumer fireworks, 1.4G as "not explosive materials for the purpose of this code". The committee hearing the change at the time denied the proposal with a conference action to amend. Subsequently the proponent brought the issue back in the form of an amendment. But here again, a technical substantiation was not provided.

This same F18-98 change, as amended, carved out consumer fireworks from BOCA's MAQ table to "correlate with code change B3-97 to the 1996 BOCA National Building Code" to be shown as a Group H-3 building instead of a Group H-1. The proponent also stated that it was to "correlate definitions used in the BOCA National Fire Prevention Code and Building Code with terminology used in the new DOTn/UN classifications and regulations and NFPA standards." That may be true to a point and it's that point that gets to the heart of the reason behind this proposed change, which is, DOTn 49 CFR Parts 100-178, U.S Consumer Products Safety Commission as set forth in CPSC 16 CFR, UN 0336, NFPA standards 495, 1123, 1124, and 1126 **do not** contain language saying consumer fireworks are not explosive, at least not that I found. I went so far as to check pamphlets published by the Institute of Makers of Explosives; the U.S. Department of Justice, Bureau of Alcohol, Tobacco, Firearms and Explosives, AFT Publication 5400.7; the American Pyrotechnics Association Standard 87-1, and found nothing in that respect. In fact, everything found labels fireworks as "explosive" without distinction for 1.4G "consumer fireworks" versus a 1.4G professional pyrotechnic device such as the "gerb" that was used and ignited The Station nightclub fire in Rhode Island.

It is the accumulative results of B3-97 and F18-98 that lent itself to the reference in IFC code change F97-99 supporting statement.

That portion of the proposed definition change to include "deflagration" is a resurrection of a previously used descriptor and is to more accurately reflect the functioning of some consumer fireworks. While a sparkler or fountain may operate through combustion, simple combustion does not necessarily mean enough force will be produced quickly enough for the device to function in a desired manner. If the pyrotechnic material does not deflagrate, the flaming balls of roman candles may not launch; aerial devices may not have enough expelling force to obtain the needed altitude.

The change to Table 2703.1.1(1) is a change to reflect that consumer fireworks are indeed properly classified as an Explosive 1.4G and it's not necessary to have a separate line with identical threshold values, including all footnotes, to determine at what point a building would be classified as a Group H-3. It's redundant within the same table. In reality, at the model code level, other than the deletion of language saying consumer fireworks are not explosive, the net effect of this change will be zero to what is taking place in the world of consumer fireworks manufacturing, storage, sale and use.

At the time of this submission I have not located copies of the UFC code changes referenced above but I suspect the supporting statements closely resembled those submitted to BOCA.

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

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

ICCFILENAME: DEAN-F1-TABLE 2703.1.1(1).DOC

F187–09/10

Table 2703.1.1(1) [IBC Table [F] 307.1(1)]; IBC [F] 307.4 (IFC 202)

Proponent: William Winslow, CIH, CFI, CMI, Winslow Partnership, representing himself

1. Revise table as follows:

TABLE 2703.1.1(1) [IBC [F] Table 307.1(1)]
MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING A PHYSICAL HAZARD[a, j, m, n, p]

MATERIAL	CLASS	GROUP WHEN THE MAXIMUM ALLOWABLE QUANTITY IS EXCEEDED	STORAGE[b]			USE-CLOSED SYSTEMS[b]			USE-OPEN SYSTEMS[b]	
			Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas cubic feet at NTP	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas cubic feet at NTP	Solid pounds (cubic feet)	Liquid gallons (pounds)
Combustible Dust	Not Applicable	H-2	See Note q	Not Applicable	Not Applicable	See Note q	Not Applicable	Not Applicable	See Note q	Not Applicable

a. through p. (No change to current text.)
q. Where manufactured, generated or used in such a manner that the concentration and conditions create a fire or explosion hazard based on information prepared in accordance with Section 104.7.2 [IBC 414.1.3] .

(Portions of table not shown do not change.)

2. Revise IBC as follows:

[F] 307.4 (IFC 202) High-hazard Group H-2. Buildings and structures containing materials that pose a deflagration hazard or a hazard from accelerated burning shall be classified as Group H-2. Such materials shall include, but not be limited to, the following:

Class I, II or IIIA flammable or combustible liquids which are used or stored in normally open containers or systems, or in closed containers or systems pressurized at more than 15 psi (103.4 kPa) gage.

Combustible dusts, where manufactured, generated or used in such a manner that the concentration and conditions create a fire or explosion hazard based on information prepared in accordance with Section 414.1.3

Cryogenic fluids, flammable
Flammable gases
Organic peroxides, Class I
Oxidizers, Class 3, that are used or stored in normally open containers or systems, or in closed containers or system pressurized at more than 15 psi (103 kPa) gage
Pyrophoric liquids, solids and gases, nondetonable
Unstable (reactive) materials, Class 3, nondetonable
Water-reactive materials, Class 3

Reason: As it stands now, an occupancy with combustible dust is classified H-2 in accordance with IBC 307.4, with the exception of certain woodworking uses classified F-1. Many spaces with combustible dust should be classified H-2. However, others may fall into the F or S category depending on the specifics of the process. Item 1 adds combustible dust to the MAQ table, so the code user will not miss this important hazard category. New Note q directs the code user to pertinent sections in the IBC and IFC to determine if a dust hazard exists. Item 2 of this code change, which was found in the UBC, establishes that a potential combustible dust hazard has to be evaluated to determine the correct occupancy classification and safety controls

Cost Impact: The code change proposal may reduce the cost of construction

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

ICCFILENAME: WINSLOW-F2-T2703.1.1-REVISED

F188–09/10
2703.2.2

Proponent: William Winslow, CIH, CFI, CMI, Winslow Partnership, representing self

Revise as follows:

2703.2.2 Piping, tubing, valves and fittings.Piping, tubing, valves, and fittings conveying hazardous materials shall be designed and installed in accordance with ASME B31, Code for Pressure Piping or other approved standards and shall be in accordance with Sections 2703.2.2.1 and 2703.2.2.2

Reason: ANSI/AMSE B31 is the primary code for pressure piping. It is separated into 9 sections, each regulating a different type of piping, and it has detailed requirements for installation, inspection and testing. Including it in the general section on piping will assist designers to reference the correct standard in project specifications. To address past concerns, this change continues to allow the use of other approved piping standards.

ASME B31 is referenced in the NFPA standards that deal with piping, with the exception of the fuel gas code, which primarily covers low pressure gas supplies to appliances. ASME B31 is also referenced in ASHRAE Standard 15, Safety Standard for Refrigeration Systems, IIAR 2, Equipment, Design, and Installation of Ammonia Mechanical Refrigerating Systems, Chlorine Institute Pamphlet 6, Piping Systems for Dry Chlorine, and API 14E, Recommended Practice for Design and Installation of Offshore Production Platform Piping.

There has been a concern expressed that jurisdictions will have to purchase ASME B31 if it is referenced in the code. My experience is that AHJs do not have many standards listed in project specifications, so this proposal will not change that situation. The proposal's goal is to help ensure that designers specify the correct piping standard and that contractors install piping in accordance with the standard. It will save the designer time in that ASME B31 will not have to be approved by the FCO.

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

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

ICCFILENAME: WINSLOW-F4-2703.2.2.DOC

F189–09/10

2703.8.3.1 (IBC [F] 414.2.1), 2703.8.3.4 (IBC [F] 414.2.4), Table 2703.8.3.2 (IBC [F] Table 414.2.2)

Proponent: Gregory R. Keith, Professional heuristic Development, representing The Boeing Company

Revise as follows:

2703.8.3.1 (IBC [F] 414.2.1) Construction ~~requirements~~. Control areas shall be separated from each other, and from other portions of the building, by fire barriers constructed in accordance with Section 707 of the *International Building Code* or horizontal assemblies constructed in accordance with Section 712 of the *International Building Code*, or both.

2703.8.3.4 (IBC [F] 414.2.4) Fire-resistance rating ~~requirements~~. The required fire-resistance rating for fire barriers and horizontal assemblies shall be in accordance with Table 2703.8.3.2 (IBC [F] Table 414.2.2). ~~The floor assembly of the control area and the construction supporting the floor of the control area shall have a minimum 2-hour fire-resistance rating.~~

Exception: The floor assembly of the *control area* and the construction supporting the floor of the *control area* is allowed to be 1-hour *fire-resistance* rated in buildings of Type IIA, IIIA and VA construction, provided that both of the following conditions exist:

1. The building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1; and
2. The building is three stories or less above grade plane.

TABLE 2703.8.3.2 (IBC [F] TABLE 414.2.2)
DESIGN AND NUMBER OF CONTROL AREAS

~~FLOOR~~ STORY LEVEL	PERCENTAGE OF THE MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA[a]	NUMBER OF CONTROL AREAS PER ~~FLOOR~~ STORY	FIRE-RESISTANCE RATING FOR FIRE BARRIERS AND HORIZONTAL ASSEMBLIES IN HOURS[b]

(Portions of table not shown do not change.)

a. Percentages shall be of the maximum allowable quantity per control area indicated ~~shown~~ in Tables 2703.1.1(1) and 2703.1.1(2) [IBC [F] Tables 307.1(1) and 307.1(2)], with all increases allowed in the notes to those tables.

~~b. Fire barriers shall include walls and floors as necessary to provide separation from other portions of the building.~~

b. The floor assembly of the control area and the construction supporting the floor of the control area shall have a minimum 2-hour fire-resistance rating.

Reason: This proposal is intended to clarify IBC and IFC control area construction requirements. No technical changes are intended. Currently, Section 2703.8.3.1 (IBC [F] 414.2.1) states that control areas are to be constructed as fire barriers or horizontal assemblies. Section 2703.8.3.4 (IBC [F] 414.2.4) and Table 2703.8.3.2 (IBC [F] Table 414.2.2), however, only refer to fire barriers. A reference to horizontal assemblies has been added in each location.

Additionally, two current provisions have been relocated so as to be in technical context. Although Table 2703.8.3.2 (IBC [F] Table 414.2.2) provides fire-resistance rating requirements for fire assemblies used in the construction of control areas, Footnote b currently states a general design requirement. This design requirement has been placed in context in Section 2703.8.3.1 (IBC [F] 414.2.1). Similarly, Section 2703.8.3.4 (IBC [F] 414.2.4) provides a reference to Table 2703.8.3.2 (IBC [F] Table 414.2.2) for specific fire-resistance rating requirements based on the building story level.

Section 2703.8.3.4 (IBC [F] 414.2.4) also provides a detailed rating requirement for floor assemblies. That provision has been placed in context as a footnote to Table 414.2.2. Many practitioners determine technical requirements from tables without consulting charging text. Placing all applicable fire-resistive rating requirements in the same location will reduce the possibility of oversight. Additionally, several editorial changes have been made. The word "requirements" has been removed from Sections 2703.8.3.1 (IBC [F] 414.2.1) and 2703.8.3.4 (IBC [F] 414.2.4) headings. This is to be consistent with other IFC/IBC section headings. Virtually everything in the IFC/IBC is a requirement. This does not need to be stated in section headings. The height of a building is determined based on the number of stories, not the number of floors. Therefore, Table 2703.8.3.2 (IBC [F] Table 414.2.2) column headings have been revised to be consistent with that methodology. Approval of this proposal will assist users in the proper determination of requirements applicable to the design and construction of control areas.

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

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

ICC FILENAME: KEITH-F1-2703.8.3.1.DOC

F190–09/10
2703.8.3.2 (IBC [F] 414.2.2); 2702.1 (IBC [F] 307.2)

Proponent: Sarah A. Rice, CBO, representing herself

Revise as follows:

2703.8.3.2 (IBC [F] 414.2.2) Percentage of maximum allowable quantities. The percentage of maximum allowable quantities of hazardous materials per *control area* allowed at each floor level within a building hall be in accordance with Table 2703.8.3.2. Where the quantity of hazardous material stored in the building is equal to or less than the maximum allowable quantity per control area in Tables 2703.1.1(1) and 2703.1.1(2), the entire building shall be considered a single control area and the maximum allowable quantity of hazardous material shall be permitted to be located anywhere in the building subject to the per-floor limitations of Table 2703.8.3.2.

2702.1 (IBC [F] 307.2) Definitions. The following words and terms shall, for the purposes of this chapter, Chapters 28 through 44 and as used elsewhere in this code, have the meanings shown herein.

CONTROL AREA. A space or spaces within a building where quantities of hazardous materials not exceeding the maximum allowable quantities per control area are stored, dispensed, used or handled. A control area may be an entire building or a portion of a building. See also the definition of AOutdoor control area.@

Reason: The intent of this proposal is to codify IFC Committee Interpretations #51-07 and #52-07. Interpretation #51-07 states that "When the quantity of hazardous material stored in the building is equal to or less than the maximum allowable quantity per control area in Tables 2703.1.1(1) and 2703.1.1(2), the entire building would be considered the control area. When the entire building is the control area, the maximum allowable quantity of material may be located anywhere in the building subject to the per-floor limitations of Table 2703.8.3.2." Interpretation #52-07 states that "When the quantity of hazardous material being stored in each control area is equal to or less than the maximum allowable quantity per control area in Tables 2703.1.1(1) and 2703.1.1(2), the maximum allowable quantity of material per control area may be located anywhere within a multi-story control area, subject to the per-floor limitations of Table 2703.8.3.2."

This proposal revises Section 2703.8.3.2 to clarify that the provisions of Table 2703.8.3.2 are applicable to a multi-story building that is a single control area. The control area definition is also being revised to clarify that an entire building of any height or area can, in fact, be considered a control area

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

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

ICCFILENAME: RICE-G5-414~RENAMED-F1-2703.8.2

F191–09/10
2703.8.5.2, 2703.8.6.2, 2702

Proponent: Lynne M. Kilpatrick, Fire Department, City of Seattle WA

Revise as follows:

2703.8.5.2 Ventilation. Exhausted enclosures shall be provided with an exhaust ventilation system. The ventilation system for exhausted enclosures shall be designed to operate at a negative pressure in relation to the surrounding area. Ventilation systems used for highly toxic and toxic gases shall also comply with Items 1, 2 and 3 of Section 3704.1.2. The ventilation system shall be installed in accordance with the *International Mechanical Code*.

2703.8.6.2 Ventilation. Gas cabinets shall be provided with an exhaust ventilation system. The ventilation system for gas cabinets shall be designed to operate at a negative pressure in relation to the surrounding area. Ventilation systems used for highly toxic and toxic gases shall also comply with Items 1, 2 and 3 of Section 3704.1.2. The ventilation system shall be installed in accordance with the *International Mechanical Code*.

2702.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

GAS CABINET. A fully enclosed, ventilated, noncombustible enclosure used to provide an isolated environment for *compressed gas* cylinders in storage or use. Doors and access ports for exchanging cylinders and accessing pressure-regulating controls are allowed to be included.

Reason: The proposal adds a new sentence in both 2703.8.5.2 and 2703.8.6.2 mandating that an exhaust ventilation system be provided for exhausted enclosures and gas cabinets. Both sections set forth the design criteria for the ventilation systems but neither section clearly requires the ventilation system. This code change proposal also modifies the definition of gas cabinet to clearly state that a gas cabinet is ventilated.

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

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

ICCFILENAME: KILPATRICK-F7-2702.DOC

F192–09/10
2703.12

Proponent: Larry Fluer, Fluer, Inc. and Patrick McLaughlin, McLaughlin & Associates, representing the Compressed Gas Association

Revise as follows:

2703.12 Outdoor control areas. Outdoor control areas for hazardous materials in amounts not exceeding the maximum allowable quantity per outdoor control area shall be in accordance with the following:

1. Outdoor control area shall be kept free from weeds, debris and common combustible materials not necessary to the storage. The area surrounding an outdoor control area shall be kept clear of such materials for a minimum of 15 feet (4572 mm).
2. Outdoor control areas shall be located not closer than 20 feet (6096 mm) from a lot line that can be built upon, public street, public alley or public way. ~~A 2-hour fire-resistance-rated wall without openings extending not less than 30 inches (762 mm) above and to the sides of the storage area is allowed in lieu of such distance.~~

   Exceptions:

   1. For solid and liquid hazardous materials, a 2-hour fire-resistance-rated wall without openings extending not less than 30 inches (762 mm) above and to the sides of the storage area shall be allowed in lieu of such distance.
   2. For compressed gas hazardous materials, unless otherwise specified the minimum required distances shall not apply when fire barriers without openings or penetrations having a minimum fire-resistance rating of 2 hours interrupt the line of sight between the storage and the exposure. The configuration of the fire barrier shall be designed to allow natural ventilation to prevent the accumulation of hazardous gas concentrations.

3. Where a property exceeds 10,000 square feet (929 m^2), a group of two outdoor *control areas* is allowed when *approved* and when each *control area* is separated by a minimum distance of 50 feet (15 240 mm).
4. Where a property exceeds 35,000 square feet (3252 m^2), additional groups of outdoor *control areas* are allowed when approved and when each group is separated by a minimum distance of 300 feet (91 440 mm).

Reason: Correlation with requirements for separation provided for various compressed gases as found in Table 3504.2.1 note a; 3704.3.2.1.1; Table 4004.2.2 note a; Table 4104.2.1 note a; and Section 4304.2.3. The wording "unless otherwise specified is intended to recognize that there may be exceptions based on a specific application. For example, Sections 2209.3.1.1 and 2209.3.2.5.1.1 unique to fueling operations where hydrogen gas is utilized recognize the line of sight concept, but height minimums are determined based on specific items of equipment.

Acceptance of this code change will result in correlating requirements generally used for compressed gases without changing established requirements recognized for use with solids and liquids.

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

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

ICCFILENAME: FLUER-MCLAUGHLIN-F1-2703.12

F193–09/10
2704.10, 2705.1.6; IBC 901.6.3

Proponent: Tom Lariviere, Chairman, Joint Fire Service Review Committee and Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

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 – IFC

Revise as follows:

2704.10 Supervision and monitoring. Emergency alarm, detection and automatic fire-extinguishing systems required by Section 2704 shall be electrically supervised and monitored by an *approved* ~~central, proprietary or remote~~ supervising station ~~service~~ or, when approved, shall initiate an audible and visual signal at a constantly attended on-site location.

2705.1.6 Supervision and monitoring. Manual alarm, detection and automatic fire-extinguishing systems required by other provisions of Section 2705 shall be electrically supervised and monitored by an *approved* ~~central, proprietary or remote station~~ supervisory service or, when approved, shall initiate an audible and visual signal at a constantly attended on-site location.

PART II – IBC FIRE SAFETY

901.6.3 Group H. ~~Manual fire alarm, automatic fire-extinguishing and emergency alarm systems in Group H occupancies shall be monitored by an *approved* supervising station.~~
~~**Exception:** When *approved* by the *building official*, on-site monitoring at a *constantly attended location* shall be permitted provided that notifications to the fire department will be equal to those provided by an *approved* supervising station.~~ Supervision and monitoring of emergency alarm, detection and automatic fire-extinguishing systems in Group H occupancies shall be in accordance with the *International Fire Code*.

Reason: The purpose of this proposal is twofold. First, it will provide correlation between the fire code and the building code. Second, it will correlate the monitoring and supervision requirements in Chapter 27 and IBC 901.6.3 with the revisions that occurred in the 2007 Supplement.

Supervision is when the electrical integrity of the wiring system and device is checked and reported as a trouble when a fault occurs. Supervision is done on-site with a local control panel. Monitoring is when a fire protection system or fire alarm control panel sends a signal to another location such as to a central station.

Therefore, the following revisions occur:

1. The section title is revised to include supervision and monitoring.
2. The term “approved supervisory service” is utilized to replace “central station, proprietary station, or remote station”. This change occurred in the 2007 Supplement in Section 903.4.1. The term “approved supervisory service” includes central station, proprietary station, and remote station services.
3. Both IBC 901.6.3 and the IFC requiring monitoring, but they say it in a different fashion. IBC Section 901.6.3 is revised to make a simple reference to the IFC. This will maintain the correlation between the IBC and the requirements in IFC 2704.10.

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

PART I – IFC

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

PART II – IBC FIRE SAFETY

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

ICCFILENAME: LARIVIERE-F19-2704.10.DOC

F194–09/10
2705.1, 2705.2.1.1; IMC [F] 502.8.4

Proponent: Kenneth Kretchman, NC State University, representing the American Industrial Hygiene Association

1. Revise IFC as follows:

2705.1 General. Use, dispensing and handling of hazardous materials in amounts exceeding the *maximum allowable quantity per control area* set forth in Section 2703.1 shall be in accordance with Sections 2701, 2703 and 2705. Use, dispensing and handling of hazardous materials in amounts not exceeding the *maximum allowable quantity per control area* set forth in Section 2703.1 shall be in accordance with Sections 2701 and 2703.

Exception: Indoor dispensing and use in any amount of hazardous materials in open containers or systems shall be ventilated in accordance with Section 2705.2.1.1.

2705.2.1.1 Ventilation. Where gases, liquids or solids having a hazard ranking of 3 or 4 in accordance with NFPA 704 will be ~~are~~ dispensed or used in a manner which could result in personnel exposures in excess of levels established in DOL 29 CFR 1910.1000, Table Z-1,Z-2, and Z-3 or other regulatory airborne exposure limits established in their jurisdiction, mechanical exhaust ventilation shall be provided to capture these gases, fumes, mists or vapors at the point of generation.

Exception: Gases, liquids or solids that can be demonstrated not to create harmful gases, fumes, mists or vapors which could result in exposures in excess of levels established in DOL 29 CFR 1910.1000, Tables Z-1,Z-2, and Z-3 or other regulatory airborne exposure limits established in their jurisdiction or can demonstrate that other forms of exhaust ventilation or other control methodologies will effectively limit exposures.

2. Revise IMC as follows:

[F] 502.8.4 Indoor dispensing and use-point sources. Where gases, liquids or solids having a hazard rating of 3 or 4 in accordance with NFPA 704 will be ~~are~~ dispensed or used in a manner which may result in personnel exposures in excess of levels established in DOL 29 CFR 1910.1000, Table Z-1,Z-2, and Z-3 or other regulatory airborne exposure limits established in their jurisdiction, ~~in amounts exceeding the maximum allowable quantity per control area and having a hazard ranking of 3 or 4 in accordance with NFPA 704,~~ mechanical exhaust ventilation shall be provided to capture these gases, fumes, mists or vapors at the point of generation.

Exception: Where it can be demonstrated that the gases, liquids, or solids do not create harmful gases, fumes, mists, or vapors which may result in exposures in excess of levels established in OSHA 29 CFR 1910.1000, Tables Z-1,Z-2, and Z-3 or other regulatory airborne exposure limits established in their jurisdiction or can demonstrate that other forms of exhaust ventilation or other control methodologies will effectively limit exposures.

Reason: The limitation of applying this engineering approach to those substances rated 3 or 4 only when in amounts in excess of allowable control area storage and use limits can easily result in a final design that neglects adequate control of emissions resulting in overexposures and also can result in the need for costly retrofits to achieve safety and energy efficiency goals. Conversely, requiring point of generation exhaust for all operations within a control area where quantities are exceeded may represent the unnecessary cost of additional ventilation where not needed.

As stated in the 2006 Commentary to the International Mechanical Code, "The intent of this section is to ensure that hazardous vapors and fumes are captured and exhausted at the point where the materials are being dispensed or used rather than allowing them to disperse into the room where occupants could be exposed to the harmful effects. According to this section, this form of controls required only where the materials have an NFPA 704 hazard ranking of 3 or 4 and also exceed the maximum allowable amount for the control area." While the first sentence in this reference is well stated and addresses an important issue, employee or public overexposures to hazardous materials can readily occur in a location within a control area even though each hazardous material in that control area is within its allowable storage and use quantities. The added text referencing DOL/OSHA exposure limits is consistent with the language provided in 502.19 (Indoor firing ranges) recognizing that regulations exist which limit airborne exposures to hazardous materials.

The edit to the Exception recognizes both that very slight airborne emissions, even though class 3 or 4 rated, may not need point of generation ventilation or that other control methodologies may also be effective, leaving the registered design professional and the design team the ability to select the most appropriate control method.

Retroactive engineering efforts are in effect at many institutions to add or modify existing mechanical exhaust systems to point of generation exhaust to reduce operating costs as this method will typically utilize less exhaust than dilution ventilation. This approach has the primary safety value of capturing the contaminant before it reaches the persons breathing zone, providing both safety and energy savings benefits. (The Specific Operations section of the Industrial Ventilation Manual, published by the American Conference of Governmental Industrial Hygienists, provides examples of long established design methodologies to capture contaminants at the point of generation, customized for particular processes, and is a useful tool for designers).

Cost Impact: None and reduction in ongoing energy consumption costs in many cases.

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

ICCFILENAME: KRETCHMAN-F1-2705.1

F195–09/10
3006

Proponent: Lynne M. Kilpatrick, Fire Department, City of Seattle, WA

Delete section without substitution:

~~**SECTION 3006**~~
~~**MEDICAL GAS SYSTEMS**~~

Reason: Section 3006 requires confinement of compressed medical gases intended for inhalation or sedation in quantities exceeding the permit threshold to a one-hour 'med gas' room equipped with at least one sprinkler head. Further, existing text clarifies that a Group H Occupancy is required when quantities of medical gases in the one-hour 'med gas' room that are also hazardous materials exceed the MAQ set forth in Chapter 27 (e.g. 1500 cu ft oxidizing gases in unsprinklered buildings; 3000 cu ft oxidizing gases in sprinkered buildings). This proposal deletes the requirement for the special one-hour 'med gas' room in its entirety and defaults to regulation of the gases in accordance with Chapter 27 and NFPA 99.

Cost Impact: The code change proposal may decrease the cost of construction.

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

ICCFILENAME: KILPATRICK-F3-3006.DOC

F196–09/10
3301.1, 3301.1.3.1 (New), 3302.1, Chapter 47; IBC [F] 307.2, IBC Chapter 35

Proponent: Rick Thornberry, PE, The Code Consortium, Inc., representing: American Pyrotechnics Association (APA)

1. Revise the IFC as follows:

3301.1 Scope. The provisions of this chapter shall govern the possession, manufacture, storage, handling, sale and use of explosives, explosive materials, fireworks and small arms ammunition.

Exceptions:

1. The Armed Forces of the United States, Coast Guard or National Guard.
2. Explosives in forms prescribed by the official United States Pharmacopoeia.
3. The possession, storage and use of small arms ammunition when packaged in accordance with DOTn packaging requirements.
4. The possession, storage and use of not more than 1 pound (0.454 kg) of commercially manufactured sporting black powder, 20 pounds (9 kg) of smokeless powder and 10,000 small arms primers for hand loading of small arms ammunition for personal consumption.
5. The use of explosive materials by federal, state and local regulatory, law enforcement and fire agencies acting in their official capacities.
6. Special industrial explosive devices which in the aggregate contain less than 50 pounds (23 kg) of explosive materials.
7. The possession, storage and use of blank industrial power load cartridges when packaged in accordance with DOTn packaging regulations.
8. Transportation in accordance with DOTn 49 CFR Part 100-185.
9. Items preempted by federal regulations.
10. <u>Novelties.</u>

3302.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

EXPLOSIVE. A chemical compound, mixture or device, the primary or common purpose of which is to function by explosion. The term includes, but is not limited to, dynamite, black powder, pellet powder, initiating explosives, detonators, safety fuses, squibs, detonating cord, igniter cord, igniters and display fireworks, 1.3G (Class B, Special).

The term "Explosive" includes any material determined to be within the scope of USC Title 18: Chapter 40 and also includes any material classified as an explosive other than consumer fireworks, 1.4G (Class C, Common) <u>and novelties, 1.4G</u> by hazardous materials regulations of DOTn 49 CFR Parts 100-185.

2. Add new text to the IFC as follows:

3301.1.3.1 Novelties, 1.4G. Novelties, 1.4G shall be regulated as fireworks, 1.4G for the purpose of this code.

3302.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

NOVELTIES. Small pyrotechnic devices not requiring DOTn approval and containing small amounts of pyrotechnic or explosive composition designed to produce limited visible or audible effects and not classified as consumer fireworks, 1.4G or novelties, 1.4G. Such novelties which comply with the labeling regulations of the US Consumer Product Safety Commission as set forth in CPSC 16 CFR: Parts 1500 and 1507 are not explosive materials for the purpose of this code.

NOVELTIES, 1.4G. Small pyrotechnic devices approved by DOTn and containing small amounts of pyrotechnic or explosive composition designed to produce limited visible or audible effects and not classified as consumer fireworks, 1.4G. Such 1.4G novelties which comply with the construction, chemical composition, and labeling regulations of American Pyrotechnics Association Standard 87-1 and the US Consumer Products Safety Commission as set forth in CPSC 16 CFR: Parts 1500 and 1507 are not explosive materials for the purpose of this code.

3. Revise the IBC as follows:

IBC [F] 307.2 Definitions. The following words and terms shall, for the purposes of this section and as used elsewhere in this code, have the meanings shown herein.

EXPLOSIVE. A chemical compound, mixture or device, the primary or common purpose of which is to function by explosion. The term includes, but is not limited to, dynamite, black powder, pellet powder, initiating explosives, detonators, safety fuses, squibs, detonating cord, igniter cord, igniters and display fireworks, 1.3G (Class B, Special).

The term "Explosive" includes any material determined to be within the scope of USC Title 18: Chapter 40 and also includes any material classified as an explosive other than consumer fireworks, 1.4G (Class C, Common) and novelties, 1.4G by hazardous materials regulations of DOTn 49 CFR Parts 100-185.

4. Add new text to the IBC as follows:

IBC [F] 307.2 Definitions. The following words and terms shall, for the purposes of this section and as used elsewhere in this code, have the meanings shown herein.

NOVELTIES, 1.4G. Small pyrotechnic devices approved by DOTn and containing small amounts of pyrotechnic or explosive composition designed to produce limited visible or audible effects and not classified as consumer fireworks, 1.4G. Such 1.4G novelties which comply with the construction, chemical composition, and labeling regulations of American Pyrotechnics Association Standard 87-1 and the US Consumer Products Safety Commission as set forth in CPSC 16 CFR: Parts 1500 and 1507 are not explosive materials and shall be regulated as fireworks, 1.4G for the purpose of this code.

5. Add new referenced standard to IFC Chapter 47 and IBC Chapter 35 as follows:

APA
American Pyrotechnics Association
Post Office Box 30438
Bethesda, MD 20824

87-1 (2001)	Standard for Construction and Approval for Transportation of Fireworks, Novelties, and Theatrical Pyrotechnics

Reason: Items 1 and 2: The purpose of this proposed code change is to close a loophole in the current requirements in Chapter 33 that regulate consumer fireworks, 1.4G. There is another class of similar fireworks items with a lesser hazard that are classified as novelties, 1.4G. These items, in general, have less pyrotechnic and/or explosive composition than consumer fireworks, 1.4G so they are less of a fire and life safety hazard. However, they are still regulated by the DOTn and are also required to meet the labeling requirements of the CPSC for consumer fireworks, 1.4G. This information can be found in Section C.3.2 Novelty of American Pyrotechnics Association APA Standard 87-1 which is being proposed as a referenced standard. APA Standard 87-1 is titled "Standard for Construction and Approval for Transportation of Fireworks, Novelties, and Theatrical Pyrotechnics." APA Standard 87-1 comprises Annex C of NFPA 1124-2006, Code for the Manufacture, Transportation, Storage, and Retail Sales of Fireworks and Pyrotechnics Articles. It is also referenced by the DOTn in Title 49, CFR, 171-180 and by the CPSC in Title 16, CFR, 1000 to End. It is available from both the federal government and the APA.

This code change proposal also clarifies that novelties which are not classed as novelties, 1.4G because they do not require DOTn approval and they are not regulated as explosives by the DOTn are exempt from the requirements of Chapter 33. However, they are still required to comply with the labeling regulations of the US Consumer Products Safety Commission as set forth in CPSC 16, CFR: Parts 1500 and 1507.

New definitions have also been provided for "Novelties" and "Novelties, 1.4G" in order to help implement this code change proposal.

The proposed new definition for "Novelties" is necessary so the term can be referenced in this code change proposal in order to specifically exempt "novelties" from the requirements of Chapter 33. This will make the International Fire Code consistent with the DOTn regulations which do not require approval of novelties meeting the specific requirements of Section C.3.2 of APA Standard 87-1. In fact, such novelties are not regulated by the DOTn as explosives, although they are still required to comply with CPSC labeling requirements for consumer fireworks. Such "novelties" contain very small amounts of pyrotechnic and/or explosive compositions which for transportation purposes are not considered to be a fire or explosion hazard in their manufactured form.

The proposed new definition for "Novelties, 1.4G" is based on the definition contained in Section C.2.12 Novelty of the American Pyrotechnics Association APA Standard 87-1.

Items 3 and 4: The purpose of this proposed code change is to close a loophole in the current requirements that regulate consumer fireworks, 1.4G. There is another class of similar fireworks items with a lesser hazard that are classified as novelties, 1.4G. These items, in general, have less pyrotechnic and/or explosive composition than consumer fireworks, 1.4G so they are less of a fire and life safety hazard. However, they are still regulated by the DOTn and are also required to meet the labeling requirements of the CPSC for consumer fireworks, 1.4G.

A new definition has also been provided for "Novelties, 1.4G" in order to help implement this code change proposal. This proposed new definition for "Novelties, 1.4G" is based on the definition contained in Section C.2.12 Novelty of the American Pyrotechnics Association APA Standard 87-1, Standard for Construction and Approval for Transportation of Fireworks, Novelties, and Theatrical Pyrotechnics which is being proposed as a referenced standard. APA Standard 87-1 comprises Annex C of NFPA 1124-2006, Code for the Manufacture, Transportation, Storage, and Retail Sales of Fireworks and Pyrotechnics Articles. It is also referenced by the DOTn in Title 49, CFR, 171-180 and by the CPSC in Title 16, CFR, 1000 to End. It is available from both the federal government and the APA. Additional information can also be found in Section C.3.2 Novelty of APA Standard 87-1.

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

Analysis: A review of the standard(s) proposed for inclusion in the code, APA 87-1 (2001), for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009.

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

ICCFILENAME: THORNBERRY-F1-3301 COMBINED W-G3-307.2

F197–09/10
Table 3301.8.1(3)

Proponent: Rick Thornberry, PE, The Code Consortium, Inc., representing American Pyrotechnics Association (APA)

Revise table note as follows:

TABLE 3301.8.1(3)
APPLICATION OF SEPARATION DISTANCE (Q-D) TABLES—DIVISION 1.4 EXPLOSIVES[a,b,c,d]

d. This table shall not apply to consumer fireworks, 1.4 G and novelties, 1.4G.

(Portions of table and notes not shown remain unchanged)

Reason: The purpose of this code change proposal is to include novelties, 1.4G in the same category of hazard as consumer fireworks, 1.4G for the purpose of exempting them from the application of this table for separation distances for Division 1.4 explosives. In general, novelties are no more of a fire and explosion hazard than consumer fireworks and in many cases are even less of a hazard if they are considered novelties exempt from DOTn approval and classification as explosives.

Novelties are classified and defined in the American Pyrotechnics Association APA Standard 87-1, Standard for Construction and Approval for Transportation of Fireworks, Novelties, and Theatrical Pyrotechnics. It can be found in Annex C of NFPA 1124-2006, Code for the Manufacture, Transportation, Storage, and Retail Sales of Fireworks and Pyrotechnic Articles. APA Standard 87-1 is also referenced by the DOTn in Title 49, CFR 171-180 and by the CPSC in Title 16, CFR 1000 to the End. It is available from the federal government, as well as the APA. A separate code change proposal has been submitted to define novelties and clarify how Chapter 33 should address them in relationship to their relative hazard compared to consumer fireworks, 1.4G.

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

Analysis: Code change F196-09/10 proposes to add a definition for "Novelties, 1.4G"

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

ICCFILENAME: THORNBERRY-F4-T3301.8.1(3).DOC

F198–09/10
Table 3304.3

Proponent: Rick Thornberry, PE, The Code Consortium, Inc., representing American Pyrotechnics Association (APA)

Revise table note as follows:

TABLE 3304.3
STORAGE AMOUNTS AND MAGAZINE REQUIREMENTS FOR EXPLOSIVES, EXPLOSIVE MATERIALS AND FIREWORKS, 1.3G MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA

c. This table shall not apply to consumer fireworks, 1.4G and novelties, 1.4G.

(Portions of table and notes not shown remain unchanged)

Reason: The purpose of this code change proposal is to include novelties, 1.4G in the same category of hazard as consumer fireworks, 1.4G for the purpose of exempting them from the application of this table for separation distances for Division 1.4 explosives. In general, novelties are no more of a fire and explosion hazard than consumer fireworks and in many cases are even less of a hazard if they are considered novelties exempt from DOTn approval and classification as explosives.

Novelties are classified and defined in the American Pyrotechnics Association APA Standard 87-1, Standard for Construction and Approval for Transportation of Fireworks, Novelties, and Theatrical Pyrotechnics. It can be found in Annex C of NFPA 1124-2006, Code for the Manufacture, Transportation, Storage, and Retail Sales of Fireworks and Pyrotechnic Articles. APA Standard 87-1 is also referenced by the DOTn in Title 49, CFR 171-180 and by the CPSC in Title 16, CFR 1000 to the End. It is available from the federal government, as well as the APA. A separate code change proposal has been submitted to define novelties and clarify how Chapter 33 should address them in relationship to their relative hazard compared to consumer fireworks, 1.4G.

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

Analysis: Code change F196-09/10 proposes to add a definition for “Novelties, 1.4G”

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

ICCFILENAME: THORNBERRY-F5-T3304.3.DOC

F199–09/10
Table 3304.5.2(3)

Proponent: Rick Thornberry, PE, The Code Consortium, Inc., representing American Pyrotechnics Association (APA)

Revise table note as follows:

TABLE 3304.5.2(3)
TABLE OF DISTANCES (Q-D) FOR BUILDINGS AND MAGAZINES CONTAINING EXPLOSIVES—DIVISION 1.4[c]

c. Restricted to articles, including articles packaged for shipment, that are not regulated as an explosive under Bureau of Alcohol, Tobacco and Firearms regulations, or unpacked articles used in process operations that do not propagate a detonation or deflagration between articles. This table shall not apply to consumer fireworks, 1.4G and novelties, 1.4G.

(Portions of table and notes not shown remain unchanged)

Reason: The revision to the title of the table is editorial. This correlates the title of the table with the subject of Section 3304.5.2 Outdoor Magazines that references the table.

This code change proposal also includes novelties, 1.4G in the same category of hazard as consumer fireworks, 1.4G for the purpose of exempting them from the application of this table for separation distances for Division 1.4 explosives. In general, novelties are no more of a fire and explosion hazard than consumer fireworks and in many cases are even less of a hazard if they are considered novelties exempt from DOTn approval and classification as explosives.

Novelties are classified and defined in the American Pyrotechnics Association APA Standard 87-1, Standard for Construction and Approval for Transportation of Fireworks, Novelties, and Theatrical Pyrotechnics. It can be found in Annex C of NFPA 1124-2006, Code for the Manufacture, Transportation, Storage, and Retail Sales of Fireworks and Pyrotechnic Articles. APA Standard 87-1 is also referenced by the DOTn in Title 49, CFR 171-180 and by the CPSC Title 16, CFR 1000 to the End. It is available from the federal government, as well as the APA. A separate code change proposal has been submitted to define novelties and clarify how Chapter 33 should address them in relationship to their relative hazard compared to consumer fireworks, 1.4G.

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

Analysis: Code change F196-09/10 proposes to add a definition for “Novelties, 1.4G”

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

ICCFILENAME: THORNBERRY-F7-T3304.5.2(3).DOC

F200–09/10
3402.1

Proponent: Jesse J. Beitel, Hughes Associates, Inc. representing Bode Chemie GmbH and Medline Industries, Inc. and Thomas W. Jaeger, PE, Jaeger & Associates, LLC, representing GOJO Industries, Inc.

Revise definition as follows:

3402.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

ALCOHOL-BASED HAND RUB. An alcohol-containing preparation designed for application to the hands for reducing the number of viable microorganisms on the hands and containing ethanol or isopropanol in an amount not exceeding ~~70~~ 95 percent by volume.

Reason: Beitel: Alcohol-based hand rubs are defined in Section 3402.1 of the IFC and their use is regulated by Section 3405.5 of the IFC. This Code proposal requests that the limit for the alcohol content of these materials be increased from 70% to 95%. No changes are being requested to Section 3405.5.

This change is to recognize the necessity for higher concentrations of alcohol in Hand and Surgical Hygiene products (alcohol-based hand rubs) in order to provide much needed improved efficacy against relevant pathogens

Actions by respected world-wide health organizations are specifically calling for higher concentrations of alcohol (higher than 70% v/v limit of the IFC) in order to better combat evolving multi-drug resistant bacteria such as MRSA and VRE (so-called “super bugs’) and to have sufficient efficacy against relevant viruses like Influenza A, HIV, Hepatitis, RSV, Rhino, Rota and Adenovirus. Increasingly, we live in a world facing real dangers from potential epidemic and pandemic viruses such as norovirus, SARS, H5N1 Avian Influenza "bird flu" and H1N1 "swine flu" viruses.

Published in 1994 [1] and later reinforced by the CDC in its 2002 "Guideline for Hand Hygiene in Health-Care Settings,” [2] the FDA defined antiseptic handwash or healthcare personnel handwash active ingredients as “Alcohol 60 to 95% by volume.”

Clinical Microbiology Review [3] reports, “Higher concentrations of ethanol (e.g., 95%) generally have better virucidal activity than do lower concentrations, such as 60 to 80%...Preparations containing less than 85% ethanol are usually less effective against viruses.”

While there is some scientific debate over the upper limit for the most effective alcohol concentration (90 – 95%), there is very little question that stronger, more effective higher concentration (above 70% v/v) alcohol-based antiseptics is needed. This need is clearly recognized by the FDA, CDC and other world health organizations.

Alcohol-based hand antiseptics with concentrations above 70% and up to the FDA limit of 95% v/v will play a critical role to protect healthcare workers, hospital patients and long-term care residents against the threat of healthcare acquired infection. Emerging community-acquired strains of multi-drug resistant bacteria (ex. Ca-MRSA) and the very real threat of pandemic make development of and access to hand antiseptic products with alcohol concentrations above 70% v/v and up to 95% a healthcare necessity.

Originally, when this issue was introduced into the IFC, the fire aspect was addressed via a fire modeling study which established that the 1.2-liter size for corridors and the 2-liter size for rooms was an acceptable hazard.

Since that time additional testing and modeling have been conducted by Hughes Associates, Inc. In order to evaluate potential differences in fire characteristics, four products were evaluated based on the formation of pool fires using 1.2 L of each hand-rub. The 1.2 L volume is currently allowed by the codes for a single station of hand-rub. Calculations were performed to determine heat release and burn time for each hand-rub. The calculations were conducted using equations and formulas provided in the SFPE Handbook of Fire protection Engineering [4] and as required, data from the ASTM E1354 tests. The results are provided in Table I.

Table I. – Pool Fire Calculations

Specimen	Formula	Heat release (kW)	Burn Time (sec)
Commercial Product A	85% ETOH (w/w)	240	95
Commercial Product B	62% ETOH (v/v) plus 5% Isopropanol	146	117
Commercial Product C	70% ETOH plus 10% Isopropanol	146	119
Non-commercial test sample	95% ETOH (v/v)	282	83

As shown in Table I, there is an increase in fire size due to the increased percentage of ethanol in the hand-rubs. However, all formulations are well within the range of incidental fires associated with small portable items (trash bags, cartoned materials, cushions, etc.) that are routinely found in medical facilities and elsewhere. [5] Additionally, the hand-rubs with the higher ethanol content exhibit comparable flame heights and shorter burn times than currently allowed 60–70% hand-rubs. As a point of perspective, the increase in fire size is equivalent to approximately one 2.5 lb. trash bag.

Flame heights associated with these spills were calculated and found to be a small fraction of the spill diameter. Under these conditions, the flames break up into individual flamelets, such that flame height is not dependent upon the heat release rate as is the case with larger fires [6]. As such, the ability of the spill fire to ignite a second object is not directly impacted by the change in ethanol content. Further testing has shown that radiant heat exposures from alcohol pool fires are low. A pool fire of 95% Ethanol provided a peak radiant heat flux of 9 kW/m^2 for a short period of time. This heat flux is well below the typical minimum 12 kW/m^2 critical flux value for ignition of most materials.

In summary, fire test data shows that while there is some increase in the flammability of alcohol-based hand rubs with higher alcohol content, the increase is not a significant increase above the currently allowed materials. Based on the health benefits of the higher alcohol content hand rubs, and their limited increase to the overall fire hazard, it is recommended that this Code proposal be adopted.

Bibliography:

1. Annonymous, 1994. Tentative Final Monograph for health-care antiseptic products; proposed rule, Federal Register 59:31401-31452;
2. Guideline for Hand Hygiene in Health-Care Settings, Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force" published in the Morbidity and Mortality Weekly Report, Recommendations and Reports October 25, 2002 / Vol. 51 / No. RR-16.
3. CLINICAL MICROBIOLOGY REVIEWS, Oct. 2004, p. 876 Epidemiologic Background of Hand Hygiene and Evaluation of the Most Important Agents for Scrubs and Rubs, Gunter Kampf and Axel Kramer
4. Gottuk, D., and White D., "Liquid Fuel Fires," Chapter 2-15, *SFPE Handbook of Fire Protection Engineering*, 4th Edition, National Fire Protection Association, Quincy, MA, pp 2-337 to 2-355.
5. Babrauskas, V., "Heat Release Rates," Chapter 3-1, *SFPE Handbook of Fire Protection Engineering*, 4th Edition, National Fire Protection Association, Quincy, MA, pp 3-46.
6. Heskestad, G., "Luminous Heights of Turbulent Diffusion Flames," *Fire Safety Journal*, **5** (1983) pp 103–108.

Reason: Jaeger: I was the project manager for the 2003 Gage Babcock & Associates study that was the basis for the code requirements for the alcohol-based hand rubs (ABHR) in health care facilities. At the time of the study, all ABHR's were 70% or less alcohol by volume based on European studies and use in Europe for the previous 25 years. In the past 6 years the regulatory and infection control arenas for ABHR's have changed and the demand for higher levels of alcohol in the products has emerged. World-wide health organizations are now recommending higher percentages of alcohol and therefore the market is demanding ABHR's with a higher percentage of alcohol. US customers have watched the international debate and are requesting a broader variety of products at various alcohol levels including products in the 70-95% level.

The consensus of the experts in the area of infection control is that there is an upper limit on efficacy as to the percentage of alcohol, somewhere around 90-95%. There are some data to suggest that higher percentages above 70% are more effective against some important infectious organisms. In order to protect the patients and staff of health care facilities, we need to add the option of higher alcohol levels within the fire code. Infections contacted in hospital and nursing homes is one of the largest causes of patient deaths in these facilities. At the time of the 2003 study, the Center for Disease Control (CDC) data showed that in hospitals alone, 90,000 patients died per year from infections contacted within the hospital.

Additional fire testing and modeling have been conducted since the 2003 work of Gage Babcock by Hughes Associates, Inc. Please see the proposal and substantiation for revising Section 3402.1 submitted by Jesse Beitel of Hughes Associates, Inc. As expected, the increased alcohol content of the ABHR's resulted in some increase in the flammability of the ABHR's, but the increase was minor compared to the 70% currently allowed in the Code. The results of the Hughes' study are consistent with the 2003 Gage Babcock study in that the 1.2 liters of alcohol burns off quickly and has a very low potential to ignite other objects.

Health care facilities have many risks that need to be addressed other than the risk of fire, one of these being infections. In 2003, the studies showed that the hazard of installing limited quantities of ABHR's in health care facilities along with the other requirements in Section 3405.5 rightfully did not significantly increase the risk to the occupants of health care facilities. The current Hughes study again documents that even with an increase of the alcohol content from 70% to 95%, the increase in the fire risk is minimal and justified to adequately address the hazard of infections.

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

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

ICCFILENAME: BEITEL-F2-3402.1.DOC

F201–09/10
Table 3403.1.1

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

Revise table as follows:

TABLE 3403.1.1
CLASS I ELECTRICAL EQUIPMENT LOCATIONS[a]

LOCATION	GROUP D DIVISION	EXTENT OF CLASSIFIED AREA
Pumps, bleeders, withdrawal fittings, meters and similar devices		
Indoor	2	Within 5 feet of any edge of such devices, extending in all directions. Also up to 3 feet above floor or grade level within 25 feet horizontally from any edge of such devices.
Outdoor	2	Within 3 feet of any edge of such devices, extending in all directions. Also up to 18 inches above floor or grade level within 10 feet horizontally from an edge of such devices.
Tank vehicle and tank car[b]		
Loading through open dome	1	Within 3 feet of edge of dome, extending in all directions.
	2	Area between 3 feet and 15 feet from edge of dome, extending in all directions.
Loading through bottom connections with atmospheric venting	1	Within 3 feet of point of venting to atmosphere, extending in all directions.
	2	Area between 3 feet and 15 feet from point of venting to atmosphere, extending in all directions. Also up to 18 inches above grade within a horizontal radius of 10 feet from point of loading connection.
~~Office and restrooms~~	~~Ordinary~~	~~Where there is an opening to these rooms within the extent of an indoor classified location, the room shall be classified the same as if the wall, curb or partition did not exist.~~
Loading through closed dome with atmospheric venting	1	Within 3 feet of open end of vent, extending in all directions.
	2	Area between 3 feet and 15 feet from open end of vent, extending in all directions. Also within 3 feet of edge of dome, extending in all directions.
Loading through closed dome with vapor control	2	Within 3 feet of point of connection of both fill and vapor lines, extending in all directions.
Bottom loading with vapor control or any bottom unloading	2	Within 3 feet of point of connection, extending in all directions. Also up to 18 inches above grade within a horizontal radius of 10 feet from point of connection.
Office and restrooms	Ordinary	Where there is an opening to these rooms within the extent of an indoor classified location, the room shall be classified the same as if the wall, curb or partition did not exist.

(Portions of table and notes not shown do not change)

Reason: Revision #1 – Pumps and devices: This revision is made because the current wording does not make sense. Part of the sentence has been lost and this correction will provide the appropriate diameter to be used with the height of 18". This revision will also provide consistency with NFPA 30 Table 7.3.3.

Revision #2 – Office and restrooms: This revision moves the requirement for protecting offices and restrooms when they are part of a facility requiring classified electrical. The issue of office and restrooms is not specific to the heading of "tank cars". It is a situation that applies wherever the office space occurs. Relocating the requirement to its own line will allow offices and restrooms to be treated as ordinary electrical unless they are located within the classified area of a hazard. In that case, the office or restroom would be of the same classification as the room to which it is attached

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

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

ICCFILENAME: LARIVIERE-F32-T3403.1.1.DOC

F202–09/10
3403.6.5.1 (New), 3404.2.7.9.2 (New)

Proponent: Douglas Horne PE, Clean Vehicle Education Foundation, representing self

Add new text as follows:

3403.6.5.1 Protection from internal corrosion due to galvanic action. In alcohol blended fuel systems fluid–handling components shall be fabricated from materials that mitigate galvanic action. Dissimilar metallic parts that promote galvanic action shall not be joined.

3404.2.7.9.1 Protection from internal corrosion due to galvanic action. Tanks storing alcohol blended fuels shall be fabricated from materials that mitigate galvanic action. Dissimilar metallic parts that promote galvanic action shall not be joined.

Reason: Adds new Sections 3403.6.5.1 and 3404.2.7.9.1 with requirements covering the compatibility of the fuel containment systems materials with the alcohol blended fuels. The wording for this section is similar to wording currently in Sections 3403.6.5 and 3404.2.7.9, which addresses external corrosion, not internal corrosion. Alcohols are polar compounds that exhibit increased moisture absorption, water solubility, polar solvency and solution conductivity relative to gasoline. Alcohol-gasoline blended fuels have unique properties that affect material compatibility and fire response.

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

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

ICCFILENAME: HORNE-F1-F2-COMBINED-3403.6.5.1.DOC

F203–09/10
3404.2.7.3.2, 3404.2.9.7.3

Proponent: Steve M. Crothers, Seattle Fire Department, representing Washington State Association of Fire Marshals

Revise as follows:

1. Revise as follows:

3404.2.7.3.2 Vent-line flame arresters and ~~venting devices~~ pressure-vacuum vents. Listed or approved flame arresters or pressure-vacuum (PV) vents that remain closed unless venting under pressure or vacuum conditions shall be installed in normal vents of tanks containing Class IB and IC liquids.

Exception: When determined by the fire code official that the use of such devices can result in damage to the tank.

Vent-line flame arresters and venting devices shall be installed and maintained in accordance with their listings and API 2000. ~~Use of~~ In-line flame arresters in piping systems shall be installed and maintained in accordance with their listing and API 2028. Pressure vacuum vents shall be installed and maintained in accordance with API 2000.

2. Delete without substitution:

~~**3404.2.9.7.3 Flame arresters.** Approved flame arresters or pressure breather valves shall be installed in normal vents.~~

(Renumber subsequent sections)

Reason: The code currently requires that a flame arrester or pressure-vacuum (PV) vent be installed in the normal vent of all protected aboveground tanks containing flammable or combustible liquids but it does not have a similar requirement for other aboveground tanks whose design and construction provides significantly less protection and control than a protected tank. This code change accomplishes several things, it:

1. Correlates the requirement for flame arresters and PV vents so that regardless of the tank type the requirement is the same.
2. Modifies the current provision requiring a flame arrester for all flammable and combustible liquids so that a flame arrester or PV vent is only required for tanks containing Class IB and IC liquids. Because the primary function of a flame arrester is to prevent the unrestricted propagation of flame through flammable gas or vapor mixtures, it is not necessary to install a flame arrester on tanks containing combustible liquids. Additionally, because flame arresters cannot prevent detonation or control flame propagation speeds associated with a detonation (flame speeds greater than the speed of sound), flame arresters are not effective when installed on tanks containing Class IA liquids. This revision establishes a requirement for a tank vent flame arrester only when there is a sound technical reason to provide one.

3. Provides a much needed correlation between the IFC and NFPA 30, *Code for Flammable and Combustible Liquids*, for establishing when flame arresters are required on tank vents.
4. Adds a new exception that allows omitting the use of a tank vent flame arrester in situations where the properties of the liquid can cause the tank to be damaged by use of the device. Properties of some Class IB and IC liquids such as crystallization, polymerization and corrosion can present obstructions in flame arresters that may justify omitting the device.
5. Clarifies that the existing API reference document (API 2028) addresses in-line flame arresters for piping systems. An end-of-line flame arrester is a flame arrester that is mounted at the end of a pipe (flanged or threaded inlet connection) and vents directly to the atmosphere whereas an in-line flame arrester may be mounted upstream of a pressure/vacuum relief vent, or may be located upstream of a specified maximum length of vent piping to atmosphere. Both are approved devices.
6. Addresses maintenance of flame arresters and pressure vacuum vents. Not only is proper installation of these devices important but their maintenance is critical. A blocked or corroded flame arrester can render the device ineffective and lead to catastrophic results. This code change adds a new requirement to maintain flame arresters and PV devices in accordance with their listings and API 2000.

Cost Impact: Costs will decrease since currently any aboveground tank containing Class I, II or III liquids requires a flame arrestor on the normal vent and this proposal will require flame arrestors only on Class I liquid tanks. There could be some cost increase where maintenance of flame arrestors does not currently occur.

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

ICCFILENAME: CROTHERS-F2-3404.2.9.7.3.DOC

F204–09/10
3404.2.7.4

Proponent: Lynne M. Kilpatrick, Fire Department, City of Seattle, WA, representing Washington State Association of Fire Marshals

Revise as follows:

3404.2.7.4 Emergency venting. Stationary, aboveground tanks shall be equipped with additional venting that will relieve excessive internal pressure caused by exposure to fires. Emergency vents for Class I, II and IIIA liquids shall not discharge inside buildings. The venting shall be installed and maintained in accordance with Section 22.7 of NFPA 30.

Exception<u>s</u>:

1. <u>Tanks larger than 12,000 gallons (45 420 L) in capacity storing Class IIIB liquids which are not within the diked area or the drainage path of Class I or II liquids do not require emergency relief venting.</u>
2. <u>Emergency vents on protected aboveground tanks complying with UL 2085 containing Class II or IIIA liquids are allowed to discharge inside the building.</u>

Reason: UL 2085 protected aboveground tanks are designed and constructed to withstand a two-hour fire test of 2000°F during which no single point temperature may exceed 400°F and the average temperature rise throughout the internal tank can be no greater than 260°F. The largest quantity of Class II or IIIA liquid that can be stored indoors in a UL 2085 tank unprotected by an approved automatic sprinkler system is 660 gallons. Given the stringent testing requirement, and the required sprinkler coverage, activation of the emergency vent is likely only under extreme fire conditions over an extended period of time. Further, NFPA 30 requires that emergency vents placed on vent pipes that extend beyond twelve inches from the tank be reengineered to account for the potential back pressure and ensure activation at the appropriate pressure. It is not unusual to see vent lines extending 30 or 40 feet or more through a building in order to achieve the exterior discharge. Allowing the emergency vent to discharge inside eliminates the need to reengineer the venting and ensures proper sizing and activation of the emergency vent.

Cost Impact: There is a cost savings since emergency vent lines would not be required to extend through buildings to the exterior.

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

ICCFILENAME: KILPATRICK-F4-3404.2.7.4.DOC

F205–09/10
3404.2.9.5, 3404.2.9.5.1 (New), 3404.2.9.5.2 (New)

Proponent: Steve M. Crothers, Seattle Fire Department, representing Washington State Association of Fire Marshals

Revise as follows:

3404.2.9.5 Above-ground tanks inside of buildings. <u>Above-ground tanks inside of buildings shall comply with Sections 3404.2.9.5.1 and 3404.2.9.5.2.</u>

3404.2.9.5.1 Overfill prevention. Above-ground tanks storing Class I, II and IIIA liquids inside buildings shall be equipped with a device or other means to prevent overflow into the building including, but not limited to: a float valve; a preset meter on the fill line; a valve actuated by the weight of the tank's contents; a low-head pump that is incapable of producing overflow; or a liquid-tight overflow pipe at least one pipe size larger than the fill pipe and discharging by gravity back to the outside source of liquid or to an *approved* location. Tanks containing Class IIIB liquids and connected to fuel-burning equipment shall be provided with a means to prevent overflow into buildings in accordance with Section 3404.2.7.5.8.

3404.2.9.5.2 Fill pipe connections. Fill pipe connections shall be in accordance with Section 3404.2.9.7.7.

Reason: This code change requires that fill pipes on aboveground tanks located inside buildings be equipped with a means to make a direct connection with the tank vehicle's fuel delivery hose. Essentially it requires a camlock or other similar device and prohibits filling a tank located inside a building through the use of a hand held nozzle. This requirement already exists for protected aboveground tanks in Section 3404.2.9.7.7 so a reference in this section establishes parity between protected tanks and other types of tanks.

Cost Impact: Cost will increase for tanks other than protected aboveground tanks.

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

ICCFILENAME: CROTHERS-F1-3404.2.9.5

F206–09/10
3404.3.6, 3404.3.8.4

Proponent: Patrick A. McLaughlin, McLaughlin & Associates, representing The Sherwin Williams Company

Revise as follows:

3404.3.6 Wholesale and retail sales uses. Flammable and combustible liquids in Group M occupancy wholesale and retail sales uses shall be in accordance with Sections 3404.3.6.1 through 3404.3.6.5, or Sections 10.10.2, 12.3.8, 16.4.1 through 16.4.3, 16.5.1 through 16.5.2.12, Tables 16.5.2.1 through ~~16.5.2.6~~ 16.5.2.12, and Figures 16.4.1 (a) through (c) of NFPA 30.

3404.3.8.4 Fire-extinguishing systems. Liquid storage warehouses shall be protected by automatic sprinkler systems installed in accordance with Chapter 9 and Tables 3404.3.6.3(4) through 3404.3.6.3(7) and Table 3404.3.7.5.1, or Sections 16.4.1 through 16.4.3, 16.5.1 through 16.5.2.12, and Tables 16.5.2.1 through ~~16.5.2.6~~ 16.5.2.12 and Figures 16.4.1 (a) through (c) of NFPA 30. In-rack sprinklers shall also comply with NFPA 13.

Automatic foam-water systems and automatic AFFF water sprinkler systems shall not be used except when approved.

Protection criteria developed from fire modeling or full-scale fire testing conducted at an approved testing laboratory are allowed in lieu of the protection as shown in Tables 3404.3.6.3(2) through 3404.3.6.3(7) and Table 3404.3.7.5.1 when approved.

Reason: NFPA 30 was completely reorganized in the 2008 edition. Staff editorially updated the section but did not include all the sprinkler designs because they were not previously referenced by the IFC. This proposal adds the additional designs with protection criteria and storage arrangements for flammable and combustible liquids.

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

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

ICCFILENAME: MCLAUGHLIN-F2-3404.3.6-REVISED.DOC

F207–09/10
Table 3404.3.6.3(5)

Proponent: Patrick A. McLaughlin, McLaughlin & Associates, representing The Sherwin Williams Company

Revise table as follows:

TABLE 3404.3.6.3(5)
AUTOMATIC SPRINKLER PROTECTION REQUIREMENTS FOR RACK STORAGE OF LIQUIDS IN METAL CONTAINERS OF 5-GALLONS CAPACITY OR LESS WITH OR WITHOUT CARTONS ON COVENTIONAL WOOD PALLETS

I and II (maximum 14-foot storage height) (maximum three tiers)	0.55[c]	2000 ~~b~~[b,d]	Not Applicable	100 ft^2/head	Not Applicable None for maximum 6-foot-deep racks	Not Applicable	Not Applicable	Not Applicable	500	2

(Portions of table and notes not shown remain unchanged)

Reason: Footnote "b" allows for a maximum 30 ft. ceiling for Class I and II liquids stored up to 14 feet high with up to three tier. The large-scale fire testing conducted at Underwriters Laboratories by Sherwin-Williams supporting these storage and protection arrangements for Class I and II liquids was conducted under an 18 ft. ceiling. Therefore, the increased ceiling height (i.e. 30 ft.) option noted by footnote "b" should be deleted, subject to further research and testing.

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

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

ICCFILENAME: MCLAUGHLIN-F7-T3404.3.6.3(5)

F208–09/10
3405.2.4

Proponent: Ronald Keefer, Menlo Park Fire District, representing California Fire Chiefs Association

Revise as follows:
3405.2.4 Class I, II and III liquids. Class I liquids or <u>when heated to above their flash points</u>, Class II and Class III liquids ~~that are heated up to or above their *flash points*~~ shall be transferred by one of the following methods:

1. From safety cans complying with UL 30.
2. Through an *approved* closed piping system.
3. From containers or tanks by an *approved* pump taking suction through an opening in the top of the container or tank.
4. For Class IB, IC, II and III liquids, from containers or tanks by gravity through an *approved* self-closing or automatic-closing valve when the container or tank and dispensing operations are provided with spill control and secondary containment in accordance with Section 3403.4. Class IA liquids shall not be dispensed by gravity from tanks.
5. *Approved* engineered liquid transfer systems.

Exception: Liquids in containers not exceeding a 5.3-gallon (20 L) capacity.

Reason: The code section applies to Class I regardless of their flashpoint, and Class II and III liquids only when they have been heated to above their flashpoints. As currently written, it can be easily misinterpreted as applying to all Class I, II, or III Liquids when they have been heated to above their flashpoints during dispensing. The change is meant to provide clarity only, and is not meant to change the intent of the Code.

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

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

ICCFILENAME: KEEFER-F1-3405.2.4~REVISED.DOC

F209–09/10
3405.2.4

Proponent: Bob Eugene, Underwriters Laboratories Inc.

Revise as follows:

3405.2.4 Class I, II and III liquids. Class I liquids or Class II liquids and Class III liquids that are heated up to or above their flash points, shall be transferred by one of the following methods:

1. From listed and labeled safety cans complying with UL 30 or UL 1313.
2. Through an *approved* closed piping system.
3. From containers or tanks by an *approved* pump taking suction through an opening in the top of the container or tank.
4. For Class IB, IC, II and III liquids, from containers or tanks by gravity through an *approved* self-closing or automatic-closing valve when the container or tank and dispensing operations are provided with spill control and secondary containment in accordance with Section 3403.4. Class IA liquids shall not be dispensed by gravity from tanks.
5. Approved engineered liquid transfer systems.

Exception: Liquids in containers not exceeding a 5.3-gallon (20 L) capacity.

Reason: This proposal accomplishes two things, to clarify that safety cans shall be listed in accordance with UL 30, and to allow listed safety cans listed in accordance with UL 1313 to be used to transfer flammable and combustible liquids.

UL 1313 includes requirements for evaluating nonmetallic safety cans, while UL 30 is meant for metal containers only. The addition of the UL 1313 option is appropriate for situation when flammable and combustible liquids cannot be storage or transferred into metal containers due to corrosive or reaction nature of the metal components of the containers.
Currently, UL 1313 is referenced in Chapter 27 and this will only expand the reference to this section.

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

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

ICCFILENAME: EUGENE-F1-3405.2.4.DOC

F210–09/10
3405.2.4

Proponent: Bob Eugene, Underwriters Laboratories Inc.

Revise as follows:

3405.2.4 Class I, II and III liquids. Class I liquids or Class II liquids and Class III liquids that are heated up to or above their flash points shall be transferred by one of the following methods:

1. From safety cans with UL 30.
2. Through an *approved* closed piping system.
3. From containers or tanks by an *approved* pump taking suction through an opening in the top of the container or tank.
4. For Class IB, IC, II and III liquids, from containers or tanks by gravity through an *approved* self-closing or automatic-closing valve when the container or tank and dispensing operations are provided with spill control and secondary containment in accordance with Section 3403.4. Class IA liquids shall not be dispensed by gravity from tanks.
5. Approved engineered liquid transfer systems.

Exception: Liquids in containers not exceeding a ~~5.3-gallon (20 L)~~ 1.3-gallon (5 L) capacity.

Reason: As written, the exception to this section allows transferring from any type of container up to 5.3 gallons. This appears to be an excessive amount of liquid within any type of container, and conflicts with maximum amount of flammable liquids allowed for portable containers in NFPA 30, Table 9.4.3. By reducing the amount of liquid to a maximum of 1.3 gallons for transferring from a container, this is consistent with the NFPA 30 limits, while still allowing for smaller amounts found in laboratory glassware and other containers.

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

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

ICCFILENAME: EUGENE-F5-3405.2.4-2.DOC

F211–09/10
3405.3.6.1, Chapter 47

Proponent: Bob Eugene, Underwriters Laboratories, Inc.

1. Revise as follows:

3405.3.6.1 Cleaning operations. Class IA liquids shall not be used for cleaning. Cleaning with Class IB, IC or II liquids shall be conducted as follows:

1. In a room or building in accordance with Section 3405.3.7; or
2. In a parts cleaner ~~machine~~ listed and labeled in accordance with UL 1204 and approved for the purpose in accordance with Section 3405.3.6.2.

Exception: Materials used in commercial and industrial process-related cleaning operations in accordance with other provisions of this code and not involving facilities maintenance cleaning operations.

2. Add new standard to Chapter 47 as follows:

UL
1204-04 Outline of Investigation for Parts Cleaners

Reason: UL's Subject 1204 Outline of Investigation includes a comprehensive set of construction and performance requirements that are used to evaluate and list parts cleaners. This equipment is reviewed to ensure the use and operation of the equipment provides a safe involvement using the flammable and combustible solvents. Five companies currently have parts cleaners listed.

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

Analysis: A review of the standard(s) proposed for inclusion in the code, UL 1204-04, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009.

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

ICCFILENAME: EUGENE-F6-3405.3.6.1.DOC

F212–09/10
3405.4.1

Proponent: Lynne M. Kilpatrick, Fire Department, City of Seattle WA, representing Washington State Association of Fire Marshals

Revise as follows:

3405.4.1 Unit with a capacity of 60 gallons or less. Solvent distillation units used to recycle Class I, II or IIIA liquids having a distillation chamber capacity of 60 gallons (227 L) or less shall be *listed*, *labeled* and installed in accordance with Section 3405.4 and UL 2208.

Exceptions:

~~1. Solvent distillation units installed in dry cleaning plants in accordance with Chapter 12.~~
~~2.~~ 1. Solvent distillation units used in continuous through-put industrial processes where the source of heat is remotely supplied using steam, hot water, oil or other heat transfer fluids, the temperature of which is below the auto-ignition point of the solvent.
~~3. Solvent distillation units *listed* for and used in laboratories.~~
~~4.~~ 2. Approved research, testing and experimental processes.

Reason: As currently written, Section 3405.4.1 Exception 1 exempts solvent distillation units installed in dry cleaning plants in accordance with Chapter 12 from meeting the UL 2208 listing standard. Likewise, exception 4 also exempts solvent distillation units listed for and used in laboratories from meeting the UL 2208 standard. The scope of UL 2208 not only covers solvent distillation units in dry cleaning plants and labs, it also states the units are intended for installation in dry cleaning plants and labs meeting NFPA 32 and NFPA 45 respectively. This proposal eliminates both exception 1 and exception 4 and thus will require solvent distillation units in dry cleaning plants and laboratories unless used for research, testing or experimentation, to meet UL 2008, consistent with units installed elsewhere and the scope of UL 2208.

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

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

ICCFILENAME: KILPATRICK-F5-3405.4.1.DOC

F213–09/10
3405.5, Chapter 47

Proponent: Thomas W. Jaeger, PE, Jaeger & Associates, LLC, representing GOJO Industries, Inc.

1. Revise as follows:

3405.5 Alcohol-based hand rubs classified as Class I or II liquids. The use of wall-mounted dispensers containing alcohol-based hand rubs classified as Class I or II liquids shall be in accordance with all of the following:

1. The maximum capacity of each dispenser shall be 68 ounces (2 L).
2. The minimum separation between dispensers shall be 48 inches (1219 mm).
3. The dispensers shall not be installed directly adjacent to, directly above or below an electrical receptacle, switch, appliance, device or other ignition source. The wall space between the dispenser and the floor shall remain clear and unobstructed.
4. Dispensers shall be mounted so that the bottom of the dispenser is a minimum of 42 inches (1067 mm) and a maximum of 48 inches (1219 mm) above the finished floor.
5. Dispensers shall not release their contents except when the dispenser is manually activated. Facilities shall be permitted to install and use automatically activated "Touch Free" alcohol based handrub dispensing devices with the following requirements:
   - 5.1. The touch free dispensing system shall be listed as being in compliance with UL/CE 60601-1 and IEC 60601-1-2 for medical devices.
   - 5.2. The facility or persons responsible for the dispensers shall test the dispensers each time a new refill is installed in accordance with the manufacturer's care and use instructions
   - 5.3. Dispensers shall be designed and must operate in a manner that ensures accidental or malicious activations of the dispensing device are minimized. At a minimum, all devices subject to or used in accordance with this section shall have the following safety features:
     - 5.3.1. Any activations of the dispenser shall only occur when an object is placed within four inches of the sensing device.
     - 5.3.2. The dispenser shall not dispense more than the amount required for hand hygiene consistent with label instructions as regulated by the Food and Drug Administration.
     - 5.3.3. An object placed within the activation zone and left in place will cause only one activation.
6. Storage and use of alcohol-based hand rubs shall be in accordance with the applicable provisions of Sections 3404 and 3405.
7. Dispensers installed in occupancies with carpeted floors shall only be allowed in smoke compartments or *fire areas* equipped throughout with an *approved* automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

2. Add new standards to Chapter 47 as follows:

IEC
International Electrotechnical Commission
IEC Central Office
3. ru de Varembe, P.O. Box 131,
CH-1211 GENEVA 20, Switzerland.

60601-1-2:2004 EMC Standards for Electrical Medical Equipment

UL
UL/CE 60601-1-03 Medical Electrical Equipment, Part I: General Requirements for Safety

Reason: Interpretation of the current code varies widely. Some inspectors are allowing touch free dispensing units and consider that placing the hand within the sensing area of the unit meets the intent of manual activation of this section while others have not allowed touch free systems. The proposed revised content above represents the content of a variance obtained with the State Fire Marshal in Ohio. It defines the engineering parameters required for safe operation of touch free systems while ensuring facilities have access to current touch free technologies that promote hand hygiene compliance. Touch free systems have been demonstrated to improve hand hygiene compliance by 20.8%[1]

More and more clients and users are demanding touch free dispensers so that contaminated hands never touch the dispenser and pass infections on to other users of the dispensers. When the original Alcohol-based Hand Rub study and fire modeling was done by Gage Babcock & Associates in 2003 the state of art for dispensers was solely manually operated push type dispensers and the development of the code language currently in all codes is based on the original study and state of the art in 2003. The state of art for dispensers and the demands, requirements of the users and the requirements of the infection control experts now require touch free dispensers.

GOJO Industries manufactures and sells the leading "Touch Free" alcohol based hand sanitizer dispensers in the US. GOJO has placed more than a million dispensers in the US with additional units internationally for PURELL Instant Hand Sanitizer dating back to our first touch free dispenser in 2003. There have been many hand sanitizer refills cycled through these dispensers with no reported fire incidents. This includes gel type formulations and non-aerosol foam units.

As project manager of the original Gage Babcock & Associates study, I consider the proposed change more of an editorial change to recognize current types of new dispensers than a technical change to the Fire Code.

[1]. Larson E. Albrecht S, O'Keefe M., Hand Hygiene in a Pediatric Emergency Department and a Pediatric Intensive Care Unit: Comparison of Use of 2 Dispenser Systems, American Journal of Critical Care July, 2005, Volume 14, no 1 p 304-311

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

Analysis: A review of the standards proposed for inclusion in the code, IEC 60601-1-2:2004 and UL/CE 60601-1-03, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009.

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

ICCFILENAME: JAEGER-F2-3404.5.DOC

F214–09/10
3501.1, 3502.1, 3504.2.1

Proponents: Robert Boyd, Linde North America, Inc., representing Hydrogen Industry Panel on Codes (HIPOC); Robert J. Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

1. Revise as follows:

3501.1 Scope. The storage and use of flammable gases and flammable cryogenic fluids shall be in accordance with this chapter and NFPA 55. Compressed gases shall also comply with Chapter 30 and cryogenic fluids shall also comply with Chapter 32. Flammable cryogenic fluids shall comply with Section 3506. ~~Bulk hydrogen compressed gas systems and bulk liquefied hydrogen gas systems shall comply with NFPA 55~~. Hydrogen motor fuel-dispensing stations and repair garages and their associated above-ground hydrogen storage systems shall also be designed and constructed in accordance with Chapter 22.

Exceptions:

1. Gases used as refrigerants in refrigeration systems (see Section 606).
2. Liquefied petroleum gases and natural gases regulated by Chapter 38.
3. Fuel-gas systems and appliances regulated under the International Fuel Gas Code other than gaseous hydrogen systems and appliances.
4. Pyrophoric gases in accordance with Chapter 41.

2. Delete definitions without substitution:

3502.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

~~**BULK HYDROGEN COMPRESSED GAS SYSTEM.** An assembly of equipment, consisting of but not limited to, storage containers, pressure regulators, pressure relief devices, vaporizers, manifolds, and piping, with a storage capacity of more than 400 ft^3 (scf) (11 m^3) of compressed hydrogen gas including unconnected reserves integral to the system. The bulk system terminates at the point where the gas supply, at service pressure, first enters the supply line. The containers are either stationary or portable, and the gas is stored as a compressed gas.~~

~~**BULK LIQUEFIED HYDROGEN GAS SYSTEM.** An assembly of equipment, consisting of but not limited to, storage containers, pressure regulators, pressure relief devices, vaporizers, manifolds, and piping, with a storage capacity of more than 39.7 gal (150 L) of liquefied hydrogen including unconnected reserves integral to the system. The bulk system terminates at the point where the gas supply, at service pressure, first enters the supply line. The containers are either stationary or portable, and the gas is stored as a cryogenic fluid.~~

3. Revise as follows:

3504.2.1 Distance limitation to exposures. Outdoor storage or use of flammable compressed gases other than hydrogen shall be located from a lot line, public street, public alley, public way, or building not associated with the manufacture or distribution of such gases in accordance with Table 3504.2.1. The outdoor storage of hydrogen compressed gas shall comply with the separation distances in NFPA 55.

Reason (Boyd): Adding the text and flammable cryogenic fluids to the 1st sentence of Section 3501.1 and the text Flammable cryogenic fluids shall comply with Section 3506. to Section 3501.1 is an editorial clarification for consistency that is proposed based upon the modification of the Chapter 35 title which was changed from "FLAMMABLE GASES" to "FLAMMABLE GASES AND FLAMMABLE CRYOGENIC FLUIDS" in the 2009 edition. The proposed changes increase clarity

Adding the text and NFPA 55 to the 1st sentence of 3501.1 requires the provisions of both Chapter 35 and NFPA 55 be applied to both flammable gases and flammable cryogenic fluids. This is a reversal of the action taken by the committee in the 2009 IFC and this proposal offers a simpler solution with the same basic intent. The term also was removed during the Final Action hearings for the 2009 IFC in order to remove any potential conflict caused by different separation distances in IFC Table 3504.2.1 and the separation distances presented in NFPA 55. The 2009 change also exempted bulk hydrogen compressed gas systems from the rest of IFC Chapter 35 as well. This was a greater effect than is considered appropriate by HIPOC. This 2009/2010 proposal clarifies that compliance with Chapter 35 requirements is required for all storage and use of flammable gases and flammable cryogenic fluids. Any conflict with NFPA 55 separation distance requirements is eliminated by the proposed revisions in Section 3504.2.1 that exclude storage or use of gaseous hydrogen from complying with the separation distances in Table 3504.2.1 and instead requires them to comply with the separation distances in NFPA 55.

The elimination of the definitions of a bulk hydrogen compressed gas system and a bulk liquefied hydrogen gas system simplifies Chapter 35 because the definitions has no other relationship to the code and the requirement to distinguish between bulk and non-bulk hydrogen systems will not be needed for proper application of Chapter 35 requirements, if the other changes in this proposal are accepted.

The Hydrogen Industry requests the IFC Code Development Committee vote in favor of this proposal.

Reason (Davidson-Shuman): Adding the text and flammable cryogenic fluids to the 1st sentence of Section 3501.1 and the text Flammable cryogenic fluids shall comply with Section 3506. to Section 3501.1 is an editorial clarification for consistency that is proposed based upon the modification of the Chapter 35 title which was changed from "FLAMMABLE GASES" to "FLAMMABLE GASES AND FLAMMABLE CRYOGENIC FLUIDS" in the 2009 edition. The proposed changes increase clarity.

Adding the text and NFPA 55 to the 1st sentence of 3501.1 requires the provisions of both Chapter 35 and NFPA 55 be applied to both flammable gases and flammable cryogenic fluids. This is a reversal of the action taken by the committee in the 2009 IFC and this proposal offers a simpler solution with the same basic intent. The term also was removed during the Final Action hearings for the 2009 IFC in order to remove any potential conflict caused by different separation distances in IFC Table 3504.2.1 and the separation distances presented in NFPA 55. However, the 2009 change also was intended to exempt bulk hydrogen compressed gas systems from the rest of IFC Chapter 35 as well, but to properly accomplish that the sentence modified should have been relocated to the exceptions list. This was a greater intended effect than is considered appropriate by HIPOC. This (2009/10) proposal clarifies that compliance with Chapter 35 requirements is required for all storage and use of flammable gases and flammable cryogenic fluids. Any conflict with NFPA 55 separation distance requirements is eliminated by the proposed revisions in Section 3504.2.1 that exclude storage or use of gaseous hydrogen from complying with the separation distances in Table 3504.2.1 and instead requires them to comply with the separation distances in NFPA 55.

The elimination of the definitions of a bulk hydrogen compressed gas system and a bulk liquefied hydrogen gas system simplifies Chapter 35 because the definitions has no other relationship to the code and the requirement to distinguish between bulk and non-bulk hydrogen systems will not be needed for proper application of Chapter 35 requirements, if the other changes in this proposal are accepted.

The approval of this code change will increase the effectiveness of the code for the safe siting of hydrogen storage installations by applying the new NFPA 55 separation distances now that the work to upgrade that standard has been completed for this cycle, and will serve as completion of a stated goal when the hydrogen motor-fueling language was first added to the IFC, i.e., a more appropriate separation distance table will be provided for based upon research and testing.

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

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

ICCFILENAME: BOYD-F3-DAVIDSON-SHUMAN-F1-3501.1-COMBINED.DOC

F215–09/10

3501.1, 3502.1, 3504.2.1, Table 3504.2.1, 3504.2.1.1, 3504.2.1.2 (New), 3504.2.1.2.1 (New)

Proponents: Larry Fluer, Fluer, Inc. and Patrick McLaughlin, McLaughlin & Associates, representing the Compressed Gas Association

1. Revise as follows:

3501.1 Scope. The storage and use of flammable gases shall be in accordance with this chapter. Compressed gases shall also comply with Chapter 30 and cryogenic fluids shall also comply with Chapter 32. Bulk hydrogen and other bulk flammable compressed gas systems and bulk liquefied hydrogen and other bulk flammable cryogenic fluid gas systems shall comply with NFPA 55. Hydrogen motor fuel-dispensing stations and repair garages and their associated aboveground hydrogen storage systems shall also be designed and constructed in accordance with Chapter 22.

2. Add new definitions as follows:

3502.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

BULK FLAMMABLE COMPRESSED GAS SYSTEM. An assembly of equipment, consisting of but not limited to, storage containers, pressure regulators, pressure relief devices, vaporizers, manifolds, and piping, with a storage capacity of more than 5000 ft^3 (scf) (142 m^3) of compressed flammable gas including unconnected reserves integral to the system. The bulk system terminates at the point where the gas supply, at service pressure, first enters the supply line. The containers are either stationary or portable, and the gas is stored as a compressed gas.

BULK FLAMMABLE CRYOGENIC FLUID GAS SYSTEM. An assembly of equipment, consisting of but not limited to, storage containers, pressure regulators, pressure relief devices, vaporizers, manifolds, and piping, with a storage capacity of more than 45 gal (170 L) of flammable cryogenic fluid including unconnected reserves integral to the system. The bulk system terminates at the point where the gas supply, at service pressure, first enters the supply line. The containers are either stationary or portable, and the gas is stored as a cryogenic fluid.

3. Revise as follows:

3504.2.1 Distance limitation to exposures. Outdoor storage or use of non-bulk flammable compressed gases shall be located from ~~a lot line, public street, public alley, public way, or building~~ exposures not associated with the manufacture or distribution of such gases in accordance with Table 3504.2.1.

TABLE 3504.2.1
NON-BULK FLAMMABLE GASES – DISTANCE ~~FROM STORAGE~~ TO EXPOSURES[a]

MAXIMUM AMOUNT PER STORAGE OR USE AREA (cubic feet)	MINIMUM DISTANCE BETWEEN STORAGE OR USE AREAS (feet)[a]	MINIMUM DISTANCE TO LOT LINES OF PROPERTY THAT CAN BE BUILT UPON (feet)[a]	MINIMUM DISTANCE TO PUBLIC STREETS, PUBLIC ALLEYS OR PUBLIC WAYS (feet)	MINIMUM DISTANCE TO BUILDINGS ON THE SAME PROPERTY		
				~~Nonrated construction or openings with 25 feet~~ Less Than 2-Hour Construction	2-hour construction ~~and no openings within 25 feet~~	4-hour construction ~~and no openings within 25 feet~~
0-4,225	5	5	5	5	0	0
4,226 – 21,225	10	10	10	10	5	0
21,126-50,700	10	15	15	20	5	0
50,701 – 84,500	10	20	20	20	5	0
84,501 – ~~or greater~~ 200,000	20	25	25	20	5	0

For SI: 1 foot = 304.8 mm, 1 cubic foot = 0.02832 m^3

a. The minimum required distances shall not apply when fire barriers without openings or penetrations having a minimum fire-resistance rating of 2 hours interrupt the line of sight between the storage and the exposure. The configuration of the fire barrier shall be designed to allow natural ventilation to prevent the accumulation of hazardous gas concentrations.

3504.2.1.1 Weather protection canopies. Where weather protection is provided for sheltering outdoor non-bulk flammable gas storage or use areas, such areas shall be constructed in accordance with Section 2704.13 and the International Building Code. Outdoor storage or use of non-bulk flammable compressed gases shall be located from ~~a lot line, public street, public alley, public way~~ exposures in accordance with Table 3504.2.1 except that Note a of Table 3504.2.1 shall not apply to separation from lot lines, public streets, public alleys or public ways when storage or use areas are sheltered by weather protection.

4. Add new text as follows:

3504.2.1.2 Building openings. Outdoor storage and use of non-bulk flammable gases shall be separated from building openings by 25 feet.

3504.2.1.2.1 Fire barrier. Fire barriers as shown in Note a to Table 3504.2.1 shall be allowed to be used as a means to separate storage and use areas from openings including building exits and the exit discharge.

Reason: Section 3501.1. The section has been expanded to address bulk flammable gas systems, and two new definitions have been provided to address systems (gaseous and liquefied) of this nature. These definitions are based in part on definitions for bulk hydrogen compressed and liquefied gas systems that were added to the last edition of the code. The quantity thresholds used to define the bulk systems for hydrogen have been well established and have a long history of use. For other flammable gases such as methane the 5,000 cubic foot requirement for gaseous systems will correlate the IFC with the approach used by NFPA 55 thereby producing national harmony between the codes. The quantity used for other flammable cryogenic fluid gas systems has been provided based on an equivalent amount of gas using hydrogen as the index for comparison.

Section 3504.2.1: The intent of Section 3504.2.1 was to address non-bulk flammable gas storage. Bulk hydrogen compressed gas systems are required to be in compliance with NFPA 55 by Section 3501.1 as that section of the code was revised in the last code cycle. Section 3504.2.1 has been modified to simplify the list of exposures by the use of the term in lieu of a detailed listing while maintaining the restriction against using footnote "a" to allow encroachment by structures (weather protection) on the property line, and other elements of the public way.

Table 3504.2.1: Footnote "a" to Table 3504.2.1 has been revised to be applicable to the table as a whole as fire barriers are a recognized means to provide the required separation between exposures and non-bulk gas storage or small non-bulk systems.

A "cap" of 200,000 cubic feet has been added as a means to limit the quantity of material in a single outdoor area. Additional storage areas can either be provided by the use of separation distance as shown in column 2 or by constructing a fire barrier that separates one storage area from another. The 200,000 cubic foot limitation has been established based on the typical quantity of gas loaded onto the typical single tractor-trailer unit used throughout the industry or approximately 225 cylinders. The establishment of a quantity cap is warranted based on recent fire history involving flammable gases experienced with flammable gas fires occurring in storage areas. In terms of area or footprint when conventional cylinders are stored, 200,000 cubic feet of gas occupies an area of about 400 square feet. The 200,000 cubic foot limitation has been integrated into similar tables developed and adopted into NFPA 55 for use with non-bulk flammable gases. The overall risk embodied in terms of quantity has been determined to be equivalent of a single tractor-trailer unit which when unloaded occupies approximately 400 square feet.

The "term openings" has been removed from the heading row describing building construction and are now included in a new section (3504.2.1.2).

Section 3504.2.1.1. Modifications have been made to limit the use of the provision to non-bulk systems. The list of exposures has been simplified by the use of the term "exposures" in lieu of a detailed listing to correlate with Section 3504.2.1.

Section 3504.2.1.2 (new) and 3504.2.1.2.1 (new): This section has been developed by separating the requirements between building openings and type of construction so as not to confuse requirements for openings with those imposed by the building code. Provisions have been added to allow the use of fire barrier walls as a means to separate the area of storage or "non-bulk" use from building openings including exits. When exits are involved fire barriers can serve as an effective means to safeguard the exit as well as the discharge to the public way.

Acceptance of this code change will serve to clarify the application of the table for the use intended (non-bulk) as well as to resolve questions as to application for non-bulk systems. Importantly it will serve to further correlate the approach used with other model codes thereby promoting harmonization for code enforcement as well as the user community.

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

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

ICCFILENAME: FLUER-MCLAUGHLIN-F2-3501.1.DOC

F216–09/10
3804.3.1 (New)

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

Add new text as follows:

3804.3.1 Installation on roof prohibited. The installation of LP-gas containers on the roofs of buildings is prohibited.

(Renumber subsequent sections)

Reason: Currently, Chapter 38 also refers to NFPA 58. NFPA 58 will allow the installation of LP-gas containers on rooftops. This proposal will include a specific restriction which will supersede the provisions in the referenced standard NFPA 58. As a result, propane tank installation will not be permitted on roof tops.

LP-gas is a flammable gas with a vapor density heavier than air. The heavier vapor density means that any leak from a roof mounted propane storage tank will travel down into the occupied spaces of the building where there is a very high probability of fire or explosion due to all the potential ignition sources.

Additionally, a building fire beneath the LP-gas container will impinge upon or heat the tank causing activation of the pressure relief valve. When the pressure relief valve is activated, it will release propane, which still is heavier than air, and the propane will travel downwards toward the fire and increase fire intensity. This could endanger the building or neighboring buildings and exposures.

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

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

ICCFILENAME: LARIVIERE-F20-3804.3.1.DOC

F217–09/10
3806.1

Proponent: Bruce Swiecicki, National Propane Gas Association

Revise as follows:

3806.1 Attendants. Dispensing of LP-gas shall be performed by a qualified attendant. A container installed on site shall only be filled by its owner or with the owner's authorization.

Reason: The purpose of the proposed change is to require LP-gas containers to be filled only by the owner of the container or with the owner's permission. Prior to filling a stationary propane container (one that is installed on site), the container and system must undergo a visual inspection to ensure they are suitable for continued service. It is common practice in the propane industry for ASME stationary containers to be leased to customers, rather than sold to the customer. Because the propane marketer that owns the container is responsible for ensuring that it is in suitable condition and safe to be continued in service, the proposed change will have a positive impact on the safe operation of stationary LP-gas systems.

From the earliest days of the compressed gas industry, a fundamental safety principle has been that cylinders may only be filled by the owner or his designee. This industry safety requirement is predicated on the belief that only the owner knows how the container has been used or how it will be used and is, therefore, accountable. Accountability is very important for safety. Accountability underpins industry practices, industry standards, and state and federal laws and regulations, as will be demonstrated in this substantiation for the proposed change to the IFC.

From time to time, questions have arisen regarding this principle, asking whether such a restriction is necessary for safety, or whether it constrains consumer choice. For example, in 1991 the Utah Attorney General issued a legal opinion that such a rule of the state propane regulatory authority was a violation of the antitrust laws. However, the Utah Attorney General's opinion was overturned when a U.S. District Court declared that there was no antitrust violation. In addition, earlier in 1992, the Utah state legislature amended the Utah state propane law to add a specific container law prohibition into the statutes so as to avoid any future challenges.

The purpose of this document is to explain what a container law is, the rationale behind the principle of ownership filling, and to document the many standards, laws and regulations that have codified the principle.

How does the container filling restriction work?
Simply stated, the proposed change to the IFC would restrict the filling of a propane gas storage tank, or container, to its owner or someone having the owner's written authorization.

Why is a container filling restriction needed?
The need for accountability underscores the need to restrict who can fill a container. Safety requires more than just specifying that a person be qualified or trained to fill a container. The container is an integral part of a pressurized fuel system. If it is filled improperly, becomes damaged because of the filler's negligence, or is filled with contaminated gas, an accident could occur, resulting in property damage and personal injury. By restricting filling and servicing operations to the owner or his designee, there is greater assurance that these operations are performed only by those with the greatest interest in seeing that they are performed properly.

The container's owner is in the best position to know the condition of the tank, and only the owner or the owner's authorized agent can be counted on to take the necessary safety precautions during the filling operation and to thoroughly inspect the container and its appurtenances at each filling. Moreover, both industry standards and federal rules hold a container owner responsible for ensuring the container's suitability and qualification for service. If anyone is permitted to fill a container without the owner's knowledge or authority, it would be difficult for the owner to meet these legal obligations.

Aren't many tanks owned by the consumer? How do they assure safe filling and proper maintenance?
First, it is important to distinguish between the typical propane containers used for home heating, cooking or water heating, and those portable cylinders used for outdoor barbecue grilling or recreational vehicles. A typical home propane container is either a large DOT-specification cylinder or an ASME container holding from 100 to 1000 gallons of product. A small cylinder, commonly referred to as a 20-pound cylinder, holds about 5 gallons of propane gas.

The proposed container filling restriction would apply only to larger ASME containers and not portable cylinders, and it is common industry practice for the propane retailer to retain ownership of those containers and lease them to their customers. By leasing the container, the retailer retains responsibility for its maintenance and inspection, and the container laws help to insure that he retains control over who puts product into the container.

Yet, despite this common industry practice, some consumers insist upon owning their containers and most retail propane dealers will sell the container to the consumer, usually with great reluctance. In those cases, the consumer then assumes full responsibility for the container's maintenance and it is his responsibility to insure that the retail supplier from whom he purchases propane is supplying only specification product and is safely performing all required steps in the filling process.

The propane industry views consumer-owned containers as less than an ideal situation since the consumer is not an expert on propane gas or the maintenance of propane gas systems. A random filler has no vested interest in inspecting the system each time it is filled, or to alert the consumer to a potential problem with his consumer-owned tank. Moreover, if a random filler is allowed to fill a container owned by another propane marketer and not the consumer, the marketer who owns the container will be exposed to liability for any acts or failure to act by the random filler. These situations should be avoided and discouraged in the interest of maintaining safety.

Is there a Federal law restricting the filling of containers?
The origins of restrictions on the filling of propane containers can be traced to the Interstate Commerce Commission (ICC) whose rules contained the proscription in the first publication of the Code of Federal Regulations, effective as of June 1, 1938. Industry believes this original rule dates to at least 1919. The U.S. Department of Transportation regulations, which incorporated the old ICC rules, currently provide as follows:

> "(e) *Ownership of cylinder.* A cylinder filled with a hazardous material may not be offered for transportation unless it was filled by the owner of the cylinder or with the owner's consent.

In their rules governing workplace safety, the U.S. Department of Labor's Occupational Safety & Health Administration includes the following provision:

> "(ii) Containers shall be filled or used only upon authorization of the owner."

The staff of the Federal agency dedicated to consumer safety, the U.S. Consumer Product Safety Commission, endorsed the principle of a container filling restriction law in 1991.

Why have a code provision in addition to Federal?
Federal laws and regulations generally apply only to interstate commerce. State agencies that regulate the use of propane gas typically base their regulations on industry codes and standards. While this system has generally worked well, it can leave gaps in the state's regulatory scheme if, for example, a federal law does not apply or an industry standard is modified. This was demonstrated vividly in 1991 when NFPA, out of concern about its antitrust liability exposure due to the erroneous legal opinion of the Utah Attorney General, modified NFPA-58 to remove the container filling restriction.

Is a container filling restriction in the public interest?
In the absence of a container law, anyone is free to fill any tank, regardless of ownership. This undermines accountability and renders moot all safety programs. Without a restriction on filling, there is no incentive for the propane retailer to continue to carry the responsibility for tank maintenance.

With no limitation on who may fill a container, the propane retailer who owns a leased tank could be found liable, even though blameless, if an accident occurred because of negligence on the part of the supplier who filled the tank. The likelihood is that tank leasing would cease without restrictions on who may fill containers, consumers would be forced to purchase and maintain their own tanks, and safety would be degraded.

Insurance companies are concerned about the potential for increased liability exposure. In 1991, four of the industry's major insurers wrote in opposition to removal of the ownership restrictions from NFPA-58. This increased risk exposure would force insurers to raise premiums on propane gas retailers and possibly result in some small retailers being unable to afford insurance.

Inevitably, safety will deteriorate as more and more tanks are owned by consumers who buy their fuel from small, undercapitalized and underinsured suppliers who fill tanks but provide no inspection, maintenance, or repair service.

Is a container filling restriction a restraint on trade?
A container law reflects basic property law rights. Antitrust scholars have examined this issue from many angles and concluded that the elements of an antitrust violation simply are not present.

1. Leasing tanks to consumers gives propane retailers no control over the market. Consumers can easily change gas suppliers, with only a minimal cost for switching tanks.
2. Entry into the propane gas market is relatively easy for start-up companies or for established companies expanding into new market areas. A fundamental principle of antitrust law is that absence of entry barriers into a market constrains anticompetitive conduct, irrespective of market share.
3. There is ample justification on the grounds of consumer safety, and it is clear from court cases that there is no antirust violation in adopting a policy designed to promote safety.

Summary and Conclusion
After nearly a century of industry standards and regulations restricting the filling of propane gas containers to the owner or the owner's authorized agent, this commonly accepted practice has proven its value as a safety rule. Endorsed by safety engineers, state and federal regulatory authorities, insurance companies, adopted as law by legislatures in at least 39 states and tested in court, it is a rule by which propane retailers and consumers can live, and one they should.

[1] Letter of March 5, 1991, from Arthur M. Strong, Utah Assistant Attorney General, and R. Paul Van Dam, Utah Attorney General, to D. Douglas Bodrero, Commissioner, Utah Department of Safety, in re: Request for Legal Opinion: Antitrust Considerations and NFPA 58 sec. 4-2.2.1.

[1] Declaratory Judgment in Civil Case No. 91-C-382G, April 15, 1992, Suburban Propane Division of Quantum Chemical Corporation, et al, vs. D. Douglas Bodrero and R. Paul Van Dam, Judge J. Thomas Greene, United States District Court, District of Utah, Central Division.

Letters from Stephen P. Lincavage, Loss Control Manager, Continental Insurance, October 28, 1991; Charles A. Taylor, Jr., President, LPG Risk Retention Group Insurance Company, June 27, 1991; Wm. David Knight, Vice President, Ranger Insurance Company, June 19, 1991; and, William M. Sutcliffe, President, Underwriters Management Associates, Inc., July 3, 1991.

In Title 49 CFR §80.172(d) as: "*Cylinders, charged by owner*. Cylinders containing compressed gas must not be shipped unless they were charged by or with the consent of the owner of the cylinders."
Title 49 CFR §173.301(e).
Title 29 CFR §1910.110(b)(14)(ii).
Letter from Donald W. Switzer, CPSC Chemical Engineer, Directorate for Engineering Sciences, to T. C. Lemoff, NFPA, June 19, 1991.
Letters from Stephen P. Lincavage, Loss Control Manager, Continental Insurance, October 28, 1991; Charles A. Taylor, Jr., President, LPG Risk Retention Group Insurance Company, June 27, 1991; Wm. David Knight, Vice President, Ranger Insurance Company, June 19, 1991; and, William M. Sutcliffe, President, Underwriters Management Associates, Inc., July 3, 1991.
See, e.g., Clamp-All, 851 F.2d at 487; United States v. National Malleable & Steel Castings Co., 1957 Trade Cas. (CCH) ¶ 68,890 (N.D. Ohio), aff'd per curiam, 358 U.S. 38 (1958); Hatley v. American Quarter Horse Ass'n, 552 F.2d 646, 653 (5th Cir. 1977); Roofire Alarm Co. v. Royal Indem. Co., 202 F.Supp. 166, 169 (E.D. Tenn. 1962), aff'd, 313 F.2d 635 (6th Cir.), cert. denied, 373 U.S. 949 (1963); Structural Laminating, Inc. v. Douglas Fir Plywood Ass'n, 261 F.Supp. 154 (D. Or.), aff'd, 399 F.2d 155 (9th Cir. 1966), cert. denied, 393 U.S. 1024 (1968). See also ECOS Elecs. Corp. v. Underwriters Laboratories, 743 F.2d 498, 503 (7th Cir. 1984), cert. denied, 469 U.S. 1210 (1985). Courts have recognized safety concerns as legitimate business justifications. Mozart Co. v. Mercedes-Benz of N. Am., Inc., 593 F.Supp. 1506, 1522 (N.D. Cal. 1984); Polytechnic Data Corp. v. Xerox Corp., 362 F. Supp. 1 (N.D. Ill. 1973). As stated by the court in Polytechnic Data: "It is clear from the cases that there is not an antitrust violation in adopting and implementing a policy which is designed to promote safety, protect the integrity of one's property or good will or assure proper functioning of equipment." 362 F. Supp. At 1.

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

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

ICCFILENAME: SWIECICKI-F1-3806.1.DOC

F218–09/10
3809.14 (New)

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

Add new text as follows:

3809.14 Automated LP-gas vending m**achines.** The use of automated LP-gas vending machines or racks that are not operated by an attendant to purchase or exchange LP-gas containers is prohibited.

(Renumber subsequent sections)

Reason: Over the last ten years, there has been a rapid increase in the use of automated LP-gas vending machines for consumer propane tanks. The next step of providing better accessibility to propane tanks is the introduction of automated exchange machines. An automated LP-gas vending machine requires minimal or no interaction by anyone on-site. The automated LP-gas vending machine is completely operated by just a consumer with a credit card and an empty tank.

The hazard with this operation is that the enforcement of basic safety issues are problematic with exchange racks and the removal of an attendant or knowledgeable person increases these deficiencies and hazards. It is not uncommon to see tanks stored upside down, rotted, pitted, or stored with the valve open. Tanks may also be left outside this unattended storage rack, creating security and/or vandalism related hazards for release of propane from unsecured tanks.

Automated LP-gas vending machines increase the likelihood of placing hazardous tanks in these machines that are situated in the existing locations of manual exchange racks. In addition, unattended automated racks increase the likelihood of tampering with the machine and providing access to unauthorized persons.

As a comparison, if someone brings a tank in for exchange at a conventional propane exchange rack and it starts to leak, the likelihood of someone calling it in (clerk or otherwise) is pretty good due to the odor. Conversely, a leaky tank in an unattended, automated machine outside of a closed store could leak for hours undetected.

Other issues include the absence of fire department access (i.e. cutting the lock) and the security issues regarding the access to a large quantity of flammable gas without supervision.

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

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

ICCFILENAME: LARIVIERE-F21-3809.14.DOC

F219–09/10
4601.2 through 4601.4.2, Table 4603.1, 4604.1, Table 4604.18.2

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

Revise as follows:

4601.2 Intent. The intent of this chapter is to provide a minimum degree of fire and life safety to *persons* occupying existing buildings by providing minimum construction requirements when ~~for *alterations* to~~ such existing buildings ~~which~~ do not comply with the minimum requirements of the *International Building Code.*

4601.3 Permits. Permits shall be required as set forth in Sections 105.6 and 105.7 and the *International Building Code* ~~and this code~~.

4601.4 Owner notification. When a building is found to be in non-compliance with this chapter, the *fire code official* shall duly notify the *owner* of the building. Upon receipt of such notice, the *owner* shall, subject to the following time limits, take necessary actions to comply with the provisions of this chapter.

4601.4.1 Construction documents. *Construction documents* ~~for the~~ necessary ~~*alterations*~~ to comply with this chapter shall be completed and submitted within a time schedule *approved* by the *fire code official.*

4601.4.2 Completion of work. Work ~~on the required *alterations* to the building~~ necessary to comply with this chapter shall be completed within a time schedule *approved* by the *fire code official*.

TABLE 4603.1
OCCUPANCY AND USE REQUIREMENTS[a]

Section	Use			Occupancy Classification																		
	High Rise	Atrium ~~and~~ or Covered Mall	Under ground Building	A	B	E	F	H-1	H-2	H-3	H-4	H-5	I-1	I-2	I-3	I-4	M	R-1	R-2	R-3	R-4	S

a. Existing buildings shall comply with the sections identified "as Required" based on occupancy classification or use, or both, whichever is applicable.

(Portions of table not shown remain unchanged)

4604.1 General. *Means of egress* in existing buildings shall comply with the minimum egress requirements when specified in Table 4603.1 as further enumerated in Sections 4604.2 through 4604.23, and the building code that applied at the time of construction. Where the provisions of this chapter conflict with the original building code, the most restrictive provision shall apply. Existing buildings that were not required to comply with a building code at the time of construction shall comply with the minimum egress requirements when specified in Table 4603.1 as further enumerated in Sections 4604.2 through 4604.23~~, and, in addition, shall have a life safety evaluation prepared, consistent with the requirements of Section 104.7.2. The life safety evaluation shall identify any changes to the *means of egress* that are necessary to provide safe egress to occupants and shall be subject to review and approval by the *fire code official*. The building shall be modified to comply with the recommendations set forth in the *approved* evaluation~~.

TABLE 4604.18.2
COMMON PATH, DEAD-END AND TRAVEL DISTANCE LIMITS (by occupancy)

Occupancy	Common Path Limit		Dead-End Limit		Travel Distance Limit	
	Unsprinklered (feet)	Sprinklered (feet)	Unsprinklered (feet)	Sprinklered (feet)	Unsprinklered (feet)	Sprinklered (feet)
Group B	75	100	50	50	200	~~250~~ 300
Group R-2 (Apartments)	75	~~75~~ 125	50	50	200	250
Group U	75	~~75~~ 100	20	50	200	250

(Portions of table and footnotes not shown remain unchanged)

Reason: The revisions in this proposal are added to further clarify to the intent of each of the sections in the new Chapter 46. The modifications herein do not alter the requirements currently found in the IFC.

Section 4601.2 is revised to remove the word "alterations". "Alteration" is used as a trigger point for the *International Existing Building Code* and is specifically defined. The desire is to remove the potential confusion with that definition. The retroactive requirements in Chapter 46 are not triggered by "alteration". These requirements apply to all existing buildings regardless of alteration or remodel permits.

Section 4601.3: At Palm Springs, the Code Committee added the phrase "and this code" because of a desire to include other permit requirements in the IFC. There is no need to reference IFC Section 105.7 and then say the entire code, 105.7 is part of the entire code. However, this proposal takes a different approach to solve the concern for other potential permits and add a reference to Section 105.6 "Operational Permits", and the reference to the entire code is deleted. The reference to the specific sections provides the user with more guidance than just stating the entire code.

Section 4601.4 is revised to clarify that the requirement for owner notification in Section 4601.4 is specific to this chapter and not to the entire code. Violations of other code sections are already handled in Chapter 1. This provision is specific since it refers to developing a timeline for repair as stated in the Subsection 4601.4.2.

Sections 4601.4.1 and 4601.4.2 are revised to remove the term "alterations". These requirements are not triggered by alterations or remodels. These requirements are applicable as soon as the code is adopted. This provides consistency with Item #1 above.

Table 4603.1 is revised by adding Footnote A to provide direction on the application of the table. Additionally, the heading of "Atrium and Covered Mall" is revised to read "Atrium or Covered Mall" to eliminate the possible confusion that if a building does not have an atrium and a covered mall that it does not need to comply.

The 1st paragraph of Section 4604.1 is revised to clarify that the intent of the paragraph is to resolve conflicts between the original building code and this chapter, not the entire IFC.

The 2nd paragraph of Section 4604.1 is revised by deleting the requirement for a life safety evaluation. The minimum egress requirements are already established within Chapter 46. If additional egress issues exist, Section 102.1 allows for the code official to address distinct hazards. There is no need to additionally require a full life safety evaluation.

Table 4604.18.2 is revised to provide correlation with IBC requirements for new construction. If these revisions are not made, then the requirements for new buildings will be less restrictive than the requirements for existing buildings. Changes as follows:

1. For Group B, "Travel Distance Limit", "Sprinklered", 250' is revised to 300' to be consistent with IBC Table 1016.1.
2. For Group R-2, "Common Path Limit", "Sprinklered", 75' is revised to 125' to be consistent with IBC Section 1014.3 Exception #4.
3. For Group U, "Common Path Limit", "Sprinklered", 75' is revised to 100' to be consistent with IBC Section 1014.3 Exception #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: LARIVIERE-F22-4601.2.DOC

F220–09/10
4603.4.3, 4603.4.4, 4603.4.5 (All New)

Proponents: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Add new text as follows:

4603.4.3 Group F-1. An automatic sprinkler system shall be provided throughout all buildings containing a Group F-1 occupancy used for the manufacture of upholstered furniture or mattresses.

4603.4.4 Group M. An automatic sprinkler system shall be provided throughout all buildings containing a Group M occupancy used for the display and sale of upholstered furniture or mattresses.

4603.4.5 Group S-1. An automatic sprinkler system shall be provided throughout all buildings containing a Group S-1 occupancy used for the storage of upholstered furniture or mattresses.

Reason: This proposal adds retroactive requirements to install an automatic sprinkler system in buildings containing F-1, M and S-1 occupancies involving upholstered furniture and mattresses. The purpose is to build upon the change approved last cycle to require mercantile occupancies with any amount of upholstered furniture to be suppressed as requested by the upholstered furniture industry.

The recognized hazard by a fuel load consisting of upholstered furniture and mattresses has been as identified as requiring sprinkler protection in newly constructed buildings that would also be required to meet all other current requirements of the International Series of Codes. Most, if not all existing buildings do not meet the current requirements of the International Series of Codes. A building that existed prior to the current editions of the International Series Codes most likely has less protective features and the existence of the fuel load presented by upholstered furniture and mattress would then create a greater hazard and an increased need for automatic fire suppression.

Cost Impact: The code change proposal will increase the cost of existing occupancies containing these hazards.

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

ICCFILENAME: DAVIDSON-SHUMAN-F11-4603.4.3.DOC

F221–09/10
4603.5, 4603.5.1 (New), 4603.5.2 (New)

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

Revise as follows:

4603.5 Standpipes. Existing structures ~~with occupied floors located more than 50 feet (15 240 mm) above or below the lowest level of fire department access~~ shall be equipped with standpipes installed in accordance with Section 905 when required in Sections 4603.5.1 through 4603.5.2. ~~The standpipes shall have an *approved* fire department connection with hose connections at each floor level above or below the lowest level of fire department access.~~ The *fire code official* is authorized to approve the installation of manual standpipe systems to achieve compliance with this section where the responding fire department is capable of providing the required hose flow at the highest standpipe outlet.

4603.5.1 Existing multi-story buildings. Existing buildings with occupied floors located more than 50 feet (15 240 mm) above the lowest level of fire department access or more than 50 feet (15 240 mm) below the highest level of fire department access shall be equipped with standpipes.

4603.5.2 Existing helistops and heliports. Existing buildings with a *helistop* or *heliport* located more than 30 feet above the lowest level of fire department access to the roof level on which the *helistop* or *heliport* is located shall be equipped with standpipes in accordance with Section 1107.5.

Reason: A heliport is a distinct hazard that will involve flammable fuels. In the event of an emergency, rapid deployment of hand hose lines will be necessary to attack a resulting fire, effectuate rescue and to protect exposures and the remainder of the building. This proposal will specify that when existing buildings have a helistop or heliport on a rooftop location, then a standpipe system is required.

The current Section 4603.5 is reformatted as a general section which refers back to Section 905 for standpipe design. The sentence requiring hose connections on each floor is deleted. This sentence is deleted because the section already refers back to Section 905 for design and Section 905.4 #1 requires hose connections on each floor. So this sentence in Section 4603.5 is redundant and not necessary.

The new Section 4603.5.1 is the current requirement found in 4603.5 for buildings with an occupied floor level over 50 feet in height.

The new Section 4603.5.2 requires a standpipe system in existing buildings with a heliport or helistop. This section refers back to Section 1107.5 for design and hose connection location for the rooftop heliport.

The requirement is for a standpipe system throughout the building, not just a connection at the roof level. This is critical in firefighting operations because many times the connection below the rooftop level may be needed just to gain access onto the roof. If the only connection is on the roof, it is of no use if the firefighters cannot get to it. Additionally, a heliport includes fueling operations. It is entirely possible for a spill to not only affect the rooftop, but also floors below as the liquid fuel spreads. The standpipe system will again be utilized in these situations.

Cost Impact: The code change proposal will not increase the cost of new construction, but will affect existing buildings.

Analysis: Similar requirements are proposed in code change proposal F222-09/10.

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

ICCFILENAME: LARIVIERE-F23-4603.5.DOC

F222–09/10
4603.5, 4603.5.1 (New), 4603.5.2 (New)

Proponents: Robert J Davidson, Code Consultant/Alan Shuman, President, representing the National Association of State Fire Marshals (NASFM)

Revise as follows:

4603.5 Standpipes. Existing structures ~~with occupied floors located more than 50 feet (15 240 mm) above or below the lowest level of fire department access~~ shall be equipped with standpipes installed in accordance with Section 905 where required in Sections 4603.5.1 through 4603.5.2. ~~The standpipes shall have an approved fire department connection with hose connections at each floor level above or below the lowest level of fire department access.~~ The fire code official is authorized to approve the installation of manual standpipe systems to achieve compliance with this section where the responding fire department is capable of providing the required hose flow at the highest standpipe outlet.

4603.5.1 Existing multi-story buildings. Existing buildings with occupied floors located more than 50 feet (15 240 mm) above the lowest level of fire department access or more than 50 feet (15 240 mm) below the highest level of fire department access shall be equipped with standpipes.

4603.5.2 Roof gardens and landscaped roofs. Buildings or structures with roof gardens or landscaped roofs and that are equipped with a standpipe shall extend the standpipe to the roof level on which the roof garden or landscaped roof is located.

Reason: A rooftop garden or landscaped roof is a distinct hazard that adds combustible fuel loads to the roof level. In the event of a fire, rapid deployment of hand hose lines will be necessary to effect extinguishment and to protect exposures and the remainder of the building. This proposal will specify that when existing buildings have a standpipe system and a rooftop garden or landscaped roof on a rooftop location, then a standpipe system is required to be extended to the roof level with the roof garden or landscaped roof.

The current Section 4603.5 is reformatted as a general section which refers back to Section 905 for standpipe design. The sentence requiring hose connections on each floor is deleted. This sentence is deleted because the section already refers back to Section 905 for design and Section 905.4, #1 requires hose connections on each floor. So this sentence in Section 4603.5 is redundant and not necessary.

The new Section 4603.5.1 is the current requirement found in 4603.5 for buildings with an occupied floor level over 50 feet in height.

The new Section 4603.5.2 requires an existing standpipe system in existing buildings with a roof garden or landscaped roof to be extended to that roof level.

Cost Impact: The code change proposal will increase the cost of existing occupancies containing these hazards.

Analysis: Similar requirements are proposed in code change proposal F221-09/10.

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

ICCFILENAME: DAVIDSON-SHUMAN-F10-4603.5.DOC

F223–09/10
4603.6.6

Proponent: Gene Boecker, Code Consultants, Inc.

Revise as follows:

4603.6.6 Group R-2. ~~An automatic or~~ A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-2 occupancies more than three stories in height or with more than 16 *dwelling* or *sleeping units*.

Exceptions:

1. Where each living unit is separated from other contiguous living units by *fire barriers* having a *fire-resistance rating* of not less than 0.75 hour, and where each living unit has either its own independent *exit* or its own independent stairway or ramp discharging at grade.
2. A separate fire alarm system is not required in buildings that are equipped throughout with an *approved* supervised *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2 and having a local alarm to notify all occupants.
3. A fire alarm system is not required in buildings that do not have interior *corridors* serving *dwelling units* and are protected by an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, provided that *dwelling units* either have a *means of egress* door opening directly to an exterior *exit access* that leads directly to the *exits* or are served by open-ended *corridors* designed in accordance with Section 1023.6, Exception 4.

Reason: During the prior code change cycle the effort was made to clear up the confusion between whether the required system must be a manual or automatic fire alarm system. Consistently, the code changes noted that the required retrofit system must be a manual one. However, in a few instances the clarification was not addressed in a code change.

This proposal is an effort to finish up the clean-up which began with the prior code change cycles in rewriting the requirements for fire alarms in existing buildings.

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

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

ICCFILENAME: BOECKER-F10-4603.6.6.DOC

F224–09/10
4603.6.7

Proponent: Gene Boecker, Code Consultants, Inc.

Revise as follows:

4603.6.7 Group R-4. ~~An automatic or~~ A manual fire alarm system that activates an occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-2 residential care/assisted living facilities in accordance with Section ~~907.2.10~~ 907.2.10.1.

Exceptions:

1. Where there are interconnected smoke alarms meeting the requirements of Section 907.2.11 and there is at least one manual fire alarm box per floor arranged to continuously sound the smoke alarms.
2. Other manually activated, continuously sounding alarms *approved* by the *fire code official*.

Reason: During the prior code change cycle the effort was made to clear up the confusion between whether the required system must be a manual or automatic fire alarm system. Consistently, the code changes noted that the required retrofit system must be a manual one. However, in a few instances the clarification was not addressed in a code change.

This proposal is an effort to finish up the clean-up which began with the prior code change cycles in rewriting the requirements for fire alarms in existing buildings.

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

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

ICCFILENAME: BOECKER-F11-4603.6.7.DOC

F225–09/10
4603.7.1

Proponent: Jeffrey M. Shapiro, PE, International Code Consultants, representing National Multi Housing Council

Revise as follows:

4603.7.1 Where required. Existing Group R occupancies and *dwellings* not classified as Group R occupancies, which are not already provided with single-station smoke alarms complying with requirements of the code that governed at the time of construction, shall be provided with single-station smoke alarms~~. Installation shall be~~ in accordance with Section 907.2.11, except as provided in Sections 4603.7.2 and 4603.7.3.

Reason: This proposal is intended as a clarification to assist in proper application of the existing text. The key phrase that determines exactly what is required in existing Group R occupancies is "Existing Group R occupancies…not already provided with single station smoke alarms..." Although this statement appears fairly straightforward in its intended application, it is occasionally misinterpreted, perhaps because the IFC Commentary on this issue is even more misleading than the code itself. To some, the text suggests that anytime smoke alarms are not already installed throughout a Group R occupancy, located as required for new construction in accordance with Section 907.2.10, additional alarms must be installed to protect any areas, such as bedrooms, that would require protection in new construction. However, I can state with great certainty that this was never the intended application of the code.

The IFC text originated in the UFC in 1995, and it was carried directly into the IFC during the drafting process. Thereby, the intent of this section was established by the original UFC provision. The provision in question resulted from a code change proposal submitted by the Minnesota State Fire Chiefs Association in 1995 (Proposal #21, 1007-95-1). The proposal was initially disapproved by the UFC Code Development Committee, but was approved at the final action hearing after initial objections were addressed by a public comment.

Part 4 of the public comment was further revised by a floor motion at the hearing, which was when the text "not already provided with single station smoke detectors" was added to the code. This text replaced other proposed text "…in accordance with the building code under which the building was constructed. Buildings that were not constructed under the requirements of a building code shall meet the minimum requirements of Section 1007.2.9.2," which needed to be changed because it didn't require buildings that were constructed under an old building code, prior to when smoke alarms were first required, to be retrofitted. By adding "not already provided with single station smoke detectors," the intent was to retain a "grandfather" clause for existing buildings that were previously provided with smoke alarms, while adding a requirement to retrofit buildings that were not.

When the IFC was developed, it was drafted using a combination of NFPA 1 Fire Prevention Code, NFPA 101 Life Safety Code and the UFC. Documentation from the drafting committee's work on the retroactive smoke alarm section show that the committee was given a choice of accepting either the NFPA 101 provisions (Sections 19-3.4 through 19.3.4.4.2) or the UFC provisions (Sections 1007.2.9.2 through 1007.2.9.2.4) for apartments. With respect to smoke alarms in sleeping rooms, the choice made no difference because neither code required smoke alarms to be retrofitted in these areas. In fact, NFPA 101 quite clearly maintains that approach today in Section 31.3.4.5.1.

In the end, the IFC adopted the UFC text, which included the "Existing Group R occupancies not already provided with single station smoke alarms..." text that remains today. Lacking any code change that would have revised the intended application of Section 4603.7.1, I am confident that the original intent of the code, to grandfather existing buildings that had smoke alarms installed prior to adoption of the IFC, remains the proper application of the code today. Accordingly, this proposal should be approved to remove the existing ambiguity.

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

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

ICCFILENAME: SHAPIRO-F1-4603.7.1.DOC

F226–09/10
4603.8 (New)

Proponent: A. Hal Key, P.E., Fire Department, Mesa, AZ

Add new text as follows:

4603.8 Existing fire alarm systems. When an existing fire alarm system becomes unserviceable due to non-availability of components or parts, that system shall be replaced in accordance with Section 907.2.

Reason: When a fire alarm system becomes unserviceable due to the age of the equipment, the entire system must be replaced to maintain the system in operation. In most cases, the type of system (addressable vs. analog) changes and these systems need to be installed to the latest edition of the adopted code. Where an existing system has not yet been upgraded to the latest ADA requirements, the owners of these systems are already required to upgrade the system annunciation.

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

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

ICCFILENAME: KEY-F2-4603.8.DOC

F227–09/10
4604.17.5, 4604.17.5.1 (New)

Proponent: Kathleen A. Way, Fire Protection Specialist, NYS Department of State, Office of Fire Prevention & Control; Daniel E. Nichols, PE, New York State Department of State, Div. of Code Enforcement and Administration

1. Revise as follows:

4604.17.5 Materials and strength. Components of fire escape stairs shall be constructed of noncombustible materials. Fire escape stairs and balconies shall support the dead load plus a live load of not less than 100 pounds per square foot (4.78 kN/m^2). Fire escape stairs and balconies shall be provided with a top and intermediate handrail on each side. ~~The *fire code official* is authorized to require testing or other satisfactory evidence that an existing fire escape stair meets the requirements of this section.~~

2. Add new text as follows:

4604.17.5.1 Examination. Fire escape stairs and balconies shall be examined for structural adequacy and safety, in accordance with Section 4604.17.5, by a registered design professional or others acceptable to the fire code official every five years, or as required by the fire code official. An inspection report shall be submitted to the fire code official after such examination.

Reason: Fire escapes are necessary and essential, where provided as a second means of egress for occupants. In some jurisdictions, the fire service may also utilize fire escapes for the purpose of fire suppression and rescue. Unfortunately, normal day to day maintenance of fire escapes is not sufficient enough to determine if they are truly safe for use. It would be necessary, at some interval to have a qualified person determine, structurally that the fire escape is structurally sound. Determining a set time frame is left with the fire code official due to many factors that affect the condition of fire escapes including weathering, temperatures, building condition, and previous upkeep. Currently, the States of Massachusetts and New Jersey have specific code provisions with regard to certification of fire escapes.

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

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

ICCFILENAME: NICHOLS-F1-4604.17.5.DOC

F228–09/10
Table 4604.18.2

Proponent: Gene Boecker, Code Consultants, Inc.

Revise table as follows:

TABLE 4604.18.2
COMMON PATH, DEAD-END AND TRAVEL DISTANCE LIMITS (by occupancy)

OCCUPANCY	COMMON PATH LIMIT		DEAD-END LIMIT		TRAVEL DISTANCE LIMIT	
	Unsprinklered (feet)	Sprinklered (feet)	Unsprinklered (feet)	Sprinklered (feet)	Unsprinklered (feet)	Sprinklered (feet)
Group A	20/75[a]	20/75[a]	20[b]	20[b]	200	250
Group B [f]	75	100	50	50	200	250
Group E	75	75	20	20	200	250
Groups F-1, S-1[d,f]	75	75	20	20	200	250
Groups F-2, S-2[d,f]	75	100	50	50	200	250
Group H-1	25	25	0	0	75	75
Group H-2	50	100	0	0	75	100
Group H-3	50	100	20	20	100	150
Group H-4	75	75	20	20	150	175
Group H-5	75	75	20	50	150	200
Group I-1	75	75	20	20	200	250
Group I-2 (Health Care)	NR[e]	NR[e]	NR	NR	150	200[c]
Group I-3 (Detention and Correctional—Use Conditions II, III, IV, V	NR	NR	20	20	200	250
Group I-4 (Day Care Centers)	100	100	NR	NR	150[c]	200[c]
Group M (Covered Mall)	75	100	50	50	200	400
Group M (Mercantile)	75	100	50	50	200	250
Group R-1 (Hotels)	75	75	50	50	200	250
Group R-2 (Apartments)	75	75	50	50	200	250
Group R-3 (One- and Two-Family)	NR	NR	NR	NR	NR	NR
Group R-4 (Residential Care/Assisted Living)	NR	NR	NR	NR	NR	NR
Group U [f]	75	75	20	20	200	250

For SI: 1 foot = 304.8 mm.

a. 20 feet for common path serving 50 or more persons; 75 feet for common path serving less than 50 persons.
b. See Section 1025.9.5 for dead-end aisles in Group A occupancies.
c. This dimension is for the total travel distance, assuming incremental portions have fully utilized their allowable maximums. For travel distance within the room, and from the room exit access door to the exit, see the appropriate occupancy chapter.
d. See the *International Building Code* for special requirements on spacing of doors in aircraft hangars.

e. Any patient sleeping room, or any suite that includes patient sleeping rooms, of more than 1,000 square feet (93 m^2) shall have at least two exit access doors placed a distance apart equal to not less than one-third the length of the maximum overall diagonal dimension of the patient sleeping room or suite to be served, measured in a straight line between exit access doors.

f. Where a tenant space in Group B, S and U occupancies has an occupant load of not more than 30, the length of a common path of egress travel shall not be more than 100 feet (30 480 mm).

NR = No requirements.

Reason: The proposal corrects a conflict between the International Building Code and the International Fire Code. The added footnote addresses exception #2 in Section 1014.3. The code grants this allowance for new construction. It should be reflected in the table as allowable for existing conditions. Otherwise the building could be cited for non-compliance the day after it is issued a certificate of occupancy.

For clarity to the reader, because it is not easy to see superscripts in the table, this is being proposed for "B," "S-1," "S-2," and "U" occupancies; consistent with the provisions in IBC Section 1014.3; exception #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: BOECKER-F12-T4604.18.2.DOC

F229–09/10
Chapter 46, 102.1

Proponent: Lawrence G. Perry, AIA, representing Building Owners and Managers Association (BOMA) International

1. Revise by relocating Chapter 46 in its entirety as follows:

~~CHAPTER 46~~ APPENDIX K
CONSTRUCTION REQUIREMENTS FOR EXISTING BUILDINGS

2. Revise as follows:

102.1 Construction and design provisions. The construction and design provisions of this code shall apply to:

1. Structures, facilities and conditions arising after the adoption of this code.
2. Existing structures, facilities and conditions not legally in existence at the time of adoption of this code.
3. ~~Existing structures, facilities and conditions when required in Chapter 46.~~
4. ~~4.~~ 3. Existing structures, facilities and conditions which, in the opinion of the *fire code official*, constitute a distinct hazard to life or property.

Reason: Many jurisdictions that adopt a model fire code lack the authority to retroactively mandate construction upgrades to existing buildings without some specific 'triggering' event. Additionally, as written, the triggering language in Chapter 46 is vague, and would lead to a lack of consistency in enforcement. Section 4601.4 states "Where a building is found to be in noncompliance, the fire code official shall duly notify the owner of the building." What is the mechanism for the fire code official to 'find' the building in noncompliance? Without some specific mechanism in the code, this will lead to arbitrary application of these retroactive requirements.

By relocating Chapter 46 to an appendix Chapter, those jurisdictions that have the authority, the mechanism, and the desire to require assessment and retrofit of existing buildings will have a framework on which they can build a comprehensive package. By removing the Chapter from the body of the code, the majority of jurisdictions, who are either unauthorized or unable to assess every existing building and mandate every possible retrofit outlined in the chapter, will not need to amend these provisions out of the code, or ignore the potential impact that the breadth of this Chapter would have on some older existing buildings. Note that even with the deletion of this Chapter from the body of the code, the fire code official still has the authority to mandate that 'distinct hazards to life and property' be mitigated.

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

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

ICCFILENAME: PERRY-F1-CHAP46.DOC

F230–09/10
Appendix D103.6.1, D103.6.2

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

Revise as follows:

D103.6.1 Roads 20 to 26 feet in width. Fire lane signs as specified in D103.6 shall be posted on both sides of fire apparatus access roads that are 20 to 26 feet wide (6096 to 7925 mm) ~~shall be posted on both sides as a fire lane~~.

D103.6.2 Roads more than 26 feet in width. Fire lane signs as specified in D103.6 shall be posted on one side of apparatus access roads more than 26 feet wide (7925 mm) ~~to~~ and less than 32 feet wide (9754 mm) ~~shall be posted on one side of the road as a fire lane~~.

Reason: This proposal completes the requirement in each of the sections. Currently each section states that "access road shall be posted", but gives no guidance as to what needs to be posted. This revision specifies that the posting of the access road is with the FIRE LANE sign specified in Section D103.6. This proposal provides correlation with Section D103.6.

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

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

ICCFILENAME: LARIVIERE-F27-D103.6.1.DOC

F231–09/10
Appendix D105.1, D105.2, D105.3, D105.4 (New)

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

Revise as follows:

D105.1 Where required. Where the vertical distance between the grade plane and the highest roof surface exceeds ~~Buildings or portions of buildings or facilities exceeding~~ 30 feet (9144 mm) ~~in height above the lowest level of fire department vehicle access shall be provided with~~, *approved* ~~fire~~ aerial apparatus access roads ~~capable of accommodating fire department aerial apparatus~~ shall be provided. ~~Overhead utility and power lines shall not be located within the aerial fire apparatus access roadway.~~ For purposes of this section, the highest roof surface shall be determined by measurement to the eave of a pitched roof, the intersection of the roof to the exterior wall, or the top of parapet walls, whichever is greater.

D105.2 Width. Aerial fire apparatus access roads shall have a minimum unobstructed width of 26 feet (7925 mm), exclusive of shoulders, in the immediate vicinity of ~~any~~ the building or portion thereof. ~~of building more than 30 feet (9144 mm) in height.~~

D105.3 Proximity to building. At least one of the required access routes meeting this condition shall be located within a minimum of 15 feet (4572 mm) and a maximum of 30 feet (9144 mm) from the building, and shall be positioned parallel to one entire side of the building. The side of the building on which the aerial apparatus access road is positioned shall be approved by the fire code official.

D105.4 Obstructions. Overhead utility and power lines shall not be located over the aerial fire apparatus access road or between the road and the building. Other obstructions shall be permitted to be placed with the approval of the fire code official.

Reason: Aerial apparatus access roads are required when the fire department cannot reach the roof or upper stories with ground ladders. ISO fire suppression rating schedule requires that fire department's carry a 35' ground ladder (35' ladder is now acceptable under the alternative equipment list). When setting up a 35' ground ladder appropriately, the effective vertical reach of this ladder is approximately 30'; hence the 30' requirement within this section.

Section D105.1- The height requirement should be based on the fire department's ability to utilize a ground ladder, or lack thereof. The current language takes into account the height of the building compared to the fire apparatus access road. This is not the intent; a one story building that is on a hill above the fire apparatus access road could be subject to the aerial access road requirements when ground ladder access is provided. The proposed language takes the measurement from grade plane to the edge of the roof where the ladder would be placed. If this is greater than 30', then an aerial apparatus access road would be required. The term accessible point of the highest roof surface has been used as 'building height' would be too high for peaked roofs (midpoint measurement) and too low for flat roofs with parapet walls. The term eave is the most common term used in the IBC when describing the edge of a peaked roof, thus incorporated herein.

D105.2- The measurement of the 'height' has been removed. This removes the potential confusion between 'height' and 'height above lowest level of FD access.'

D105.3- Currently, the language allows the designer to determine the side that aerial apparatus access is provided. This has caused issues where the code provisions were met by providing aerial access on the end of a building or on the gable end of a structure. The two aforementioned situations are not beneficial to fire department operations as it hinders access to emergency escape and rescue openings (this section, if adopted, is a component of Section 503 and applicable to IRC constructed buildings by ICC interpretation) and roof surfaces for firefighting operations.

D105.4- This is a new section that has been pulled out D105.1 for better clarity. The overhead obstructions have been expanded to be prohibited between the road and the building. It also adds a statement that allows the fire code official to allow some obstructions that do not affect the aerial apparatus operation, such a portico over the road or vegetation.

Cost Impact: The code change proposal will increase the cost of construction in certain situations and not increase the cost in certain situations.

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

ICCFILENAME: NICHOLS-F4-D105.1.DOC

F232–09/10
Appendix D105.3

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

Delete without substitution:

~~**D105.3 Proximity to building.** At least one of the required access routes meeting this condition shall be located within a minimum of 15 feet (4572 mm) and a maximum of 30 feet (9144 mm) from the building, and shall be positioned parallel to one entire side of the building.~~

Reason: The current language has created confusion and difficulty in application of these requirements as follows:

1. In many cases it has been misinterpreted to say that the entire access road must be within 15' of the building.
2. In several building designs, the distance of 15' from the building places the ladder at angle that is less than preferred. This will occur when a building has a height of less than 50'. With the access road at least 15' from the building, the ladder turntable will be approximately 23' from the exterior wall, and approximately 8' above grade. This places the ladder at less than a 30 degree climbing angle.

This proposal will delete the requirement for location of the access road and default back to Section D105.1. Section D105.1 already specifies that buildings over 30' in height must provide "approved fire apparatus access roads capable of accommodating fire department aerial apparatus".

The access road for aerial apparatus is still required, and must meet the approval of the fire code official. This will allow for the spacing from the building as may be appropriate based on the actual configuration of the building, grade, and obstructions.

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

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

ICCFILENAME: LARIVIERE-F28-D105.3.DOC

F233–09/10
Appendix D107.1

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

Revise as follows:

D107.1 One- or two-family dwelling residential developments. Developments of one- or two-family *dwellings* where the number of *dwelling units* exceeds 30 shall be provided with <u>two</u> separate and *approved* fire apparatus access roads and shall meet the requirements of Section D104.3.

Exceptions:

1. Where there are more than 30 *dwelling units* on a single public or private fire apparatus access road and all *dwelling units* are equipped throughout with an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, access from two directions shall not be required.
2. The number of *dwelling units* on a single fire apparatus access road shall not be increased unless fire apparatus access roads will connect with future development, as determined by the *fire code official*.

Reason: This proposal will clarify the requirement for two separate access roads into facilities with more than 30 units. The same language appears in Sections D106.1 and D106.2 when dealing with multi-family units. The intent of this section is similar to D106.1 and D106.2. When the wording is different, the code user is wondering what else was meant to be different in this application as compared to D106.1 or D06.2. Whereas the actuality is that the requirement is meant to require two means of access to developments with more than 30 dwellings.

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

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

ICCFILENAME: LARIVIERE-F29-D107.1.DOC

F234–09/10
Appendix H101.4

Proponent: Lynne M. Kilpatrick, Fire Department, City of Seattle WA, representing Washington State Association of Fire Marshals

Delete without substitution:

~~**H101.4 HMMP short form.** Facilities with the *maximum allowable quantities or less per control area* in Tables 2703.3.3(10) through 2703.1.1(4) of the *International Fire Code* and where the threshold planning quantities at EPA 40 CFR Part 355, Sections 302 and 304 are not exceeded, shall be allowed to file a short form HMMP which shall include all of the following components:~~

~~1. General facility information.~~
~~2. A simple line drawing of the facility showing the location of storage facilities and indicating the hazard class or classes and physical state of the hazardous materials being stored.~~
~~3. Information that the hazardous materials will be stored and handled in a safe manner and will be appropriately contained, separated and monitored.~~
~~4. Assurance that security precautions have been taken, employees have been appropriately trained to handle the hazardous materials and react to emergency situations, adequate labeling and warning signs are posted, adequate emergency equipment is maintained and the disposal of hazardous materials will be in an appropriate manner.~~

~~Facilities which have prepared, filed and submitted a Tier II Inventory Report required by the U.S. Environmental Protection Agency (USEPA) or required by a state which has secured USEPA approval for a similar form shall be deemed to have complied with this section.~~

Reason: This proposal proposes to delete the new HMMP short form for the following reasons:

Item 3 is requesting information presumably attesting that the hazardous materials will be stored and handled in a safe manner and will be appropriately contained, separated and monitored. This request is ambiguous and unclear. Documents to verify compliance with the containment, separation and monitoring provisions of this Code should more appropriately be requested.

Item 4 is requesting assurance that security, training, labeling, signage, equipment and disposal will be appropriate. What does that assurance look like and what is appropriate?

Further, under this Section facilities that have submitted a Tier Two Inventory Report required by EPA are deemed to have met the HMMP short form requirements. Section 2701.5.2 states that where the fire code official requires an approved HMIS statement (format). To state that submittal of the Tier Two or other USEPA approved form meets the requirement is not appropriate. Generally the reportable quantities are 500 pounds – 10,000 pounds and do not provide a complete picture of the hazardous materials present on site.

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

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

ICCFILENAME: KILPATRICK-F6-H101.4.DOC

F235–09/10
Appendix K (New)

Proponent: Michael Jacoby, Seven Valleys, PA, representing self

Add new text as follows:

APPENDIX K
EMERGENCY COMMUNICATION SYSTEMS
(HAZARDOUS SUBSTANCE)

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION K101
GENERAL

K101.1 Scope. This appendix contains provisions that are available for adoption by governments, communities or tribes who will have an opportunity to use the National Fire Protection Association's (NFPA) NFPA 72 codes that just added three new chapters at the same time made a name change to the National Fire Alarm and Signaling Codes that also includes the requirements for mass notification systems that can be found in a new chapter called Emergency Communication System (ECS) in NFPA 72-2010.

By adopting the provisions within this appendix it will give governments, communities or tribes etc. who already adopted the International Code Council (ICC) Codes, the ability to enhance their emergency communication by bringing these two major code organizations together to ensure that NFPA 72/National Fire Alarm and Signaling Codes, Emergency Communication Systems (ECS) such as in one-way, two-way and mass notification systems etc. are being designed and later installed per code as desired.

These requirements/codes/specifications could then be used in such applications as for college campuses, schools, and stadiums, community centers to include even local community warning/notification systems etc. when these emergency communication systems are being upgraded or initially installed thus providing early warning messages before, during or after manmade disasters/situations/events, natural disasters such as hurricanes, tornadoes, snowstorms, blizzards, flooding, massive fires while giving instructions to the public in times of crisis etc.

This appendix will also address system upgrades or the initial requirements for fixed sites/facilities with hazardous substances.

K101.2 Emergency communication system requirements. Fire alarm system upgrades to the new National Fire Alarm and Signaling Codes can be applied to such sites that meet the requirements set forth in ICC IFC Section 2701.5.1 and 2701.5.2 or for those sites that already meet the following criteria with the focus being on outside emergency communication that is commonly known as mass notification now known as emergency communications systems while other parts of the National Fire Alarm and Signaling Codes can also be applied.

Guidelines:

1. Sites containing hazardous substances subject to **Pub.L. 109-295** that is commonly referred to by the public as the Department of Homeland Security's Chemical Facility Anti-Terrorism Standards (CFATS).
2. Sites containing hazardous substances with a federal recognized classification of **SARA Title III**, Superfund Amendments and Reauthorization Act (SARA) Title III of SARA ("SARA Title III") that is part of the Emergency Planning and Community Right-To-Know Act (EPCRA) requiring a Risk Management Plan (RMP) as part of a site's emergency response also known by the International Fire Code (IFC) as sites/facilities having a Hazardous Materials Management Plan (HMMP) sometimes referred to by federal or state governments as a Crisis Response Plan, Hazardous Material Emergency Plan or Hazardous Material Off-Site Response Plan.
3. Emergency Communication System Upgrade clarification: A site's risk analysis, being the basis of site's emergency communication design will be done by others unless the fire code official is qualified, and the future site designs of an IFC H classification site/facility/structure has a potential of reaching a DHS/CFATS, SARA Title III classification or will meet ICC IFC Section 2701.5.1 and or 2701.5.2 and the requirements when applicable for the new National Fire Alarm and Signaling Codes with their Emergency Communication System (ECS) or is already specified in the site's fire alarm system plans and a site risk analysis is already incorporated into the emergency communication design as part of their overall design is then complete.

K101.2.1 Retroactive emergency communication system upgrade requirements. The option of upgrading a Fire alarm system to the new National Fire Alarm and Signaling Codes for those sites applicable that in the past required emergency HazMat responses or activated their Hazardous Materials Management Plan (HMMP) the local authority having jurisdiction can review the present status of the site/facility with their fire code official and based on the site's risk analysis a system upgrade can be applied.

SECTION K102
REFERENCED STANDARDS

ICC IFC-06 International Fire Code K101.1, K101.2
NFPA 72-2010 National Fire Alarm Code K101.1, K101.2, K101.2.1

Commenter's Reason: This Appendix with its provisions could be a **key element** that could be used to protect millions throughout our nation by giving those governments, communities or tribes etc. who are presently **ICC compliant** the opportunity to enhance emergency communication within their communities by using these new codes.

For many years our nation waited for codes as such to catch up to the NEW state-of-the-art technology being used in emergency communication systems. Just imagine how much deliberation took place when the NFPA they decided to change the name of their new codes that now might have others confused. Within the codes you might find upgrades to one-way, two-way and mass emergency communication systems etc. that many have been waiting for, for many years. Depending on when you have the opportunity to read this proposed appendix you might discover that due to overlapping code development cycles between organizations the printed form of these new code showing you these upgrades may not yet be available so… I recommend that you use the Internet to find updated NFPA information if you would like to do some research.

Since this new terminology maybe a concern, background information is available through the internet by searching for articles such as Emergency Communications Systems and or the new NFPA 72-2010 codes. If you are interested in some detailed information, you could try to contact somebody at the NFPA that you might know who sat on the NFPA 72 development committee who is familiar with the final ratification of these new NFPA 72/National Fire Alarm and Signaling Codes, Emergency Communication Systems specifications etc. and he or she might be able to fill you in or…at least tell you where you can find these new codes changes on their website, that is if you did not already find what you were looking for.

In the past awareness about emergency communication issues were brought to the ICC IFC attention in the attempt to establish a standard within the IFC so emergency communication/notifications systems being a outside annunciator devices /speakers etc. could be installed by code, but now that the NFPA 72 committee has moved forward… in my opinion I think it does not make any sense to have duplicate codes in the IFC, so that is why this proposed appendix with these new codes I believe should now be used.

What did it take for our Federal Government to get involved? Did you know that it actually took a Presidential Executive Order 13407 followed by Congress's involvement with requirements to start to upgrade our national standards to reflect the new state-of-the-art technology in emergency communications? As an end result our Department of Homeland Security is now involved through an agency that presently falls under their umbrella that is called the Federal Emergency Management Agency (FEMA) and in layman's terms, now has a goal to provide alert and warnings throughout our infrastructure no matter what the crisis by using communication systems that could then provide life-saving information no matter where you are located or what time of the day it might be, such as during a natural or man-made disaster/ event… or in times of crisis. This federal government program is commonly known today as the Integrated Public Alert Warning System (IPAWS).

Do you agree? Washington with all of their wisdom forgot the basics, it appears that they forgot that when it comes to upgrading the alert/warning, emergency communication systems used for early warning mass notification everything starts with codes/specifications and implementation of systems with requirements at the local government level. Now do you realize why these upgraded NFPA 72/National Fire Alarm and Signaling Codes are so important?

Understanding why DHS's CFATS and the SARA Title III classifications are being used as guidelines to start a site's analysis are a very important part of this appendix. In this case you need a benchmark based on a time factor of how long it will take local first responders from the first millisecond of the event to be on scene, to then mitigate the event.

As you will discover our federal government gave an industry a wake-up call. The industry that many knew is now changing and by the time you read this proposal you might already be familiar with the following Federal Law, Pub.L.109-295 publicly known as our Department of Homeland Security's (DHS) and their Chemical Facility Anti-Terrorism Standards (CFATS). Keep in mind that DHS is a Security department and not a Code organization. I think you will quickly understand why CFATS is being used as a guideline if not simply contact the Department of Homeland Security and have them explain to you their Top Screening process that they used and how they determined their multiple tier structure to identify certain sites of concern. Once you understand their methods I feel that you will be able to see why this appendix is so important.

The short version back in 2008 after an official release the national media reported that more than 7,000 sites were chosen by using DHS's Top Screening process based on their tier structure as being sites of potential high-risk for terrorist attack. By the time code officials read this information some of the DHS security inspections at these sites that were on the schedule to start in January 2009 should already be completed. DHS should be the first to see how many of these sites with hazardous substances actually have any outside emergency communication warning devices/systems in place and operational to warn the surrounding public who could be outside exposed to the atmosphere when an event containing hazardous substances takes place at their facility that for many years others "assumed" such early warning devices were being installed. Having emergency communication notification systems in place with the ability to warn the public before exposure is one of the reasons for proposing this appendix. For too many years the mind-set has been that the general public will be sitting in their homes or have their electronic devices turned on just waiting for emergency warnings when in reality they are discovering that depending on the geographical area and the time of day that numbers will vary. Note that each geographical area of a site of interest that could be applicable is different and that is why a site analysis study is required. The most important part of our general public which are those who are less fortunate, our poor, the handicapped and those with special needs have a problem. Emergency Communication Systems used for outside early warning notification have the potential of reaching a large percentage of the affected population almost immediately unlike other means that could be subject to system loads and possible time delays. Another factor that has been increasing is the demand on our electrical grid and at times there are areas within our nation who might already be without electrical service (a major power outage), and or do not have telecom, broadcast, or cable connectivity. As the public starts to do their math and these deficiencies are known is strange how quiet it is now getting. Who was responsible for doing the math?

You probably are questioning why the terms SARA Title III is used as a guideline benchmark, it is simple many elected officials understand the term SARA Title III rather than the H classification being used in present code. Since governments, communities or tribes etc. will be involved in the decision-making on whether or not to adopt this proposed Appendix the term SARA that is an abbreviation for Superfund Amendments and Reauthorization Act, which is more universally understood by elected officials or others who participate in their (LEPC) Local Emergency Planning Committees, this terminology should make it easier for fire code officials to work with local governments to determine which sites located within their communities these upgrades and or new installation requirements will apply. Since fire code officials may not be familiar with the new technology in

the world of emergency communication, in order to relieve the fire code official of additional burdens as it pertains to the acoustical designs and decision making a site's risk analysis, being the basis of site emergency communication design will be done by others, unless the fire code official is qualified and he or she would like to get involved.

For the second part of this requirement for installation being that if the site's designer already incorporated the new NFPA 72 codes to be known as National Fire Alarm and Signaling Codes, Emergency Communication System codes in the IFC H classification of a site/facility/structure and the acoustical designs including the decision making as it pertains to a site's risk analysis is already in their site design plans, and everything has been accounted for, thus meeting local government and fire code official approval everything should be Good-To-Go.

Please note that designers have been doing acoustical studies/designs for many years and emergency communication systems are being used throughout the world. Now our fire code officials will have an opportunity to have a closer working relationship with their local governments as being the Authority Having Jurisdiction (AHJ) to ensure that all related code preparedness and public safety communication concerns are met.

As discussions at the local level will always seem to continue on how to activate the emergency communications system, being the trigger, that is why a site analysis of the facility/building/structure is done first because each site maybe unique. These are decisions that are made after the appendix is adopted.

As you consider this proposed appendix for approval please keep in mind that this appendix addresses the ability of a community to adopt the appendix so they can use these new NFPA codes to ensure that early warning emergency communication is available for those who may be outside fully exposed to the atmosphere being that of employees at a site/facility or the public in the surrounding community at site/facilities where these code requirements may apply will then be installed by code. Again in doing so this will address the larger portion of the effectiveness of the notification problem because the majority of the public depending on the geographical area and time of day could be outside of their homes and outside emergency communication early warning notification is essential so that they can protect their families by turning on their electronic devices and waiting for further instructions.

For some areas of our nation emergency communication systems as such are already installed at facilities/sites etc. and even emergency communication systems are being used for public community notification so this appendix may have little or no impact on those who choose to adopt this appendix.

Please consider this proposed Appendix with it's provisions/requirements that will give those governments, communities or tribes who are presently ICC compliant the opportunity to protect their communities, families, loved ones and especially those with special needs by using these new codes that many have been waiting for, for so many years.

Cost Impact: The cost impact of this code proposal will depend on many factors such as when this code is adopted, site inspections are done in order to determine what is required after doing a site analysis, the acoustical design and or other actions are performed in order to determine the cost of construction since the emergency communications system in some applications could also be considered an add-on, even an estimated cost of construction cannot honestly be determined at this time because each site will be different.

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

ICCFILENAME: JACOBY-F2-APPENDIX K.DOC

F236–09/10

Appendix K (New); IBC Appendix L (New)

Proponent: Sean DeCrane, Cleveland Fire Department, representing International Association of Fire Fighters

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 – IFC

Add new appendix as follows:

APPENDIX K
BUILDING INFORMATION SIGN

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION K 101
GENERAL

K101.1 Scope New buildings shall have a building information sign(s) that shall comply with Sections 505.3.1 through 505.3.7. Existing buildings shall be brought into conformance with Sections K101.1 through K101.9 when one of the following occurs:

1. The fire department conducts an annual inspection intended to verify compliance with this section of the code, or any required inspection.
2. When a Change in Use or Occupancy has occurred.

Exceptions:

1. Utility occupancies
2. One and Two-family dwellings

K101.1.1 Sign location. The building information sign shall be placed on one of the following:

1. The entry door or sidelight at a minimum height of 42" above the walking surface on the address side of the building or structure;
2. The exterior surface of the building or structure no further than 3' from the entrance door, on either side of the entry door, at a minimum height of 42" above the walking surface on the address side of the building or structure;
3. Conspicuously placed, inside an enclosed entrance lobby, on any vertical surface within 10 feet of the entrance door at a minimum height of 42" above the walking surface;
4. Located inside the building's fire command center;
5. Located on the exterior of the fire alarm panel or immediately along side the panel door on the wall if the alarm panel is located in the enclosed main lobby.

K101.1.2 Sign features. The building information sign shall consist of:

1. White reflective background with red letters;
2. Durable material;
3. Numerals shall be Roman or Latin numerals, as required, and/or alphabet letters;
4. Permanently affixed to the building or structure in an approved manner.

K101.1.3 Sign shape. The building information sign shall be a Maltese Cross as shown in Figure K101.1.3

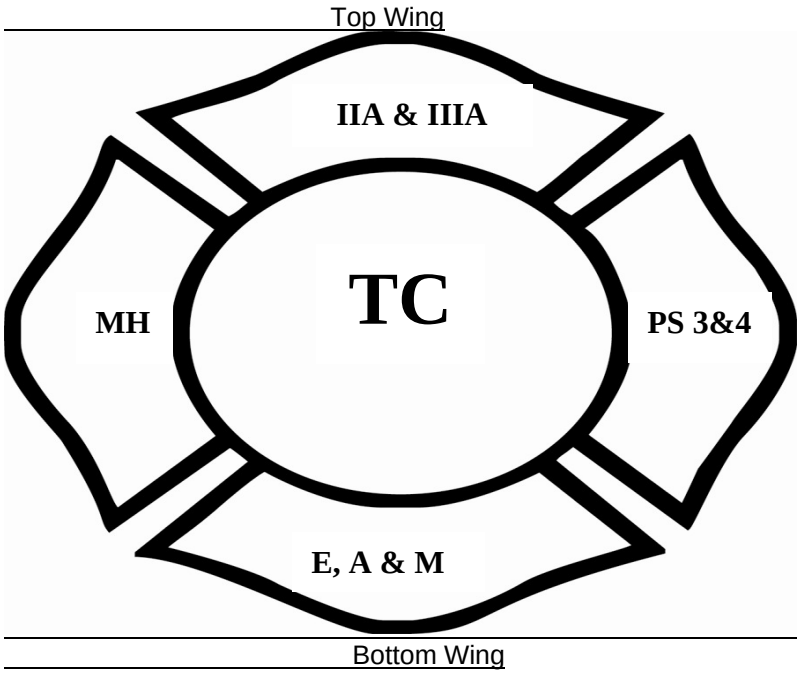

FIGURE K101.1.3
BUILDING INFORMATION SIGN

K101.1.4 Sign size and lettering. The minimum size of the building information sign and lettering shall be in accordance with the following:

1. The width and height shall be 6 inches by 6 inches
2. The height or width of each Maltese cross wing area shall be 1 1/8 inches and have a stroke width of ½ inch;
3. The center of the Maltese cross a circle of oval 3 ⅛ inches in diameter and has a stroke width of ½ inch;
4. All roman numerals and alphabetic designations, shall be 1 ¼ inch height and have a stroke width of ¼ inch.

K101.2 Sign designations. Designations shall be made based upon the construction type, content, hazard, fire protection systems, life safety and occupancy. Where multiple designations occur within a classification Category, the designation used shall be based on the greatest potential risk.

K101.3 Construction type (TOP WING). The construction types shall be designated by assigning the appropriate Roman numeral, and letter, placed inside the top wing of the Maltese cross. The hourly rating provided is for the structural framing in accordance with Table 601 of the *International Building Code*,

Construction Type	**Hourly Rating**
IA - Non-Combustible Construction -	3 Hour Rating
IB –Non-Combustible Construction -	2 Hour Rating
IIA – Non-Combustible Construction -	1 Hour Rating
IIB – Non-Combustible Construction -	0 Hour Rating
IIIA – Non-Combustible/Combustible Construction -	1 Hour Rating
IIIB – Non-Combustible/Combustible Construction -	0 Hour Rating
IV – Heavy Timber Construction -	
VA – Combustible Construction -	1 Hour Rating
VB – Combustible Construction –	0 Hour Rating

K101.4 Fire protection systems (Right Wing). The fire protection systems shall be designated by determining its level of protection and assigning the appropriate designation to the right wing of the Maltese cross. Where multiple systems are provided, all shall be listed:

AS – Automated Fire Sprinkler System installed throughout;
DS – Dry Sprinkler System and designated areas
FAS – Fire Alarm System
FP – Fire Pump
FW – Fire Wall and designated areas
PAS – Pre-Action Sprinkler System and designated floor
PS – Partial Automatic Fire Sprinkler System, and designate floor;
CES – Chemical Extinguishing System and designated area,
CS – Combination Sprinkler and Standpipe System;
S – Standpipe System;
NS – No system installed

K101.5 Occupancy type (Bottom Wing). The occupancy of a building or structure shall be designated in accordance with the occupancy classification found in Section 302.1 of the *International Building Code* and the corresponding designation shall be placed in the bottom wing of the Maltese cross. When a building or structure contains a mixture of uses and occupancies; all uses and occupancies shall be identified.

A – Assembly
B – Business
E – Educational
F – Factory or Industrial
H – High Hazard
I – Institutional
M – Mercantile
R – Residential
S – Storage

K101.6 Hazards of content (Left Wing). The hazards of building contents shall be designated by one of the following classifications as defined in NFPA 13 and the appropriate designation shall be placed inside the left wing of the Maltese cross:

LH - Light Hazard
MH - Moderate Hazard
HH - High Hazard

K101.7 Tactical Considerations (Center Circle). The Center Circle shall include the name of the local Fire Service and when required the letters TC for Tactical Considerations. When fire fighters conduct pre-plan operations, a unique situation(s) for tactical considerations shall be identified and the information provided to the fire dispatch communications center to further assist fire fighters in identifying that there is special consideration(s) for this occupancy. Special consideration designations include, but are not limited to:

1. Impact resistant drywall
2. Impact resistant glazing, such as blast or hurricane type glass
3. All types of roof and floor structural members including but not limited to post tension concrete, bar joists, solid wood joists, rafters, trusses, cold-formed galvanized steel, I-joists and I-beams; Green roof with vegetation, soil & plants
4. Hazardous materials, explosives, chemicals, plastics, etc;
5. Solar Panels and DC electrical energy
6. HVAC system; and smoke management system for pressurization and exhaust methods
7. Other unique characteristic(s) within the building that are ranked according to a potential risk to occupants and firefighters

K101.8 Sign classification maintenance, Building information sign maintenance shall comply with each of the following:

1. Fire departments in the jurisdiction shall define the designations to be placed within the sign.
2. Fire departments in the jurisdiction shall conduct annual inspections to verify compliance with this section of the code and shall notify the owner, or the owners agent, of any required updates to the sign in accordance with fire department designations and the owner, or the owner's agent, shall comply within thirty (30) days.
3. The owner of a building shall be responsible for the maintenance and updates to the sign in accordance to fire department designations.
4. The owner of a building shall notify the fire department of any changes that possibly effect the classifications, of the system, within thirty (30) days of the changes and the Fire Department shall conduct an inspection.
5. The owner of a building shall change the effected classification posted on the sign within thirty (30) days of the changes.

K101.9 Training. Jurisdictions shall train all fire department personnel on Sections K101.1 through K101.9

PART II – IBC GENERAL

Add new appendix as follows:

APPENDIX L
BUILDING INFORMATION SIGN

SECTION L101
GENERAL

L101.1 Scope New buildings shall have a building information sign(s) that shall comply with Sections 505.3.1 through 505.3.7. Existing buildings shall be brought into conformance with Sections L101.1 through L101.9 when one of the following occurs:

1. The fire department conducts an annual inspection intended to verify compliance with this section of the code, or any required inspection.
2. When a Change in Use or Occupancy has occurred.

Exceptions:

1. Utility occupancies
2. One and Two-family homes

L101.1.1 Sign location. The building information sign shall be placed on one of the following:

1. The entry door or sidelight at a minimum height of 42" above the walking surface on the address side of the building or structure;
2. The exterior surface of the building or structure no further than 3' from the entrance door, on either side of the entry door, at a minimum height of 42" above the walking surface on the address side of the building or structure;
3. Conspicuously placed, inside an enclosed entrance lobby, on any vertical surface within 10 feet of the entrance door at a minimum height of 42" above the walking surface;
4. Located inside the building's fire command center;
5. Located on the exterior of the fire alarm panel or immediately along side the panel door on the wall if the alarm panel is located in the enclosed main lobby.

L101.1.2 Sign features. The building information sign shall consist of:

1. White reflective background with red letters;
2. Durable material;
3. Numerals shall be Roman or Latin numerals, as required, and/or alphabet letters;
4. Permanently affixed to the building or structure in an approved manner.

L101.1.3 Sign shape. The building information sign shall be a Maltese Cross as shown in Figure L101.1.3

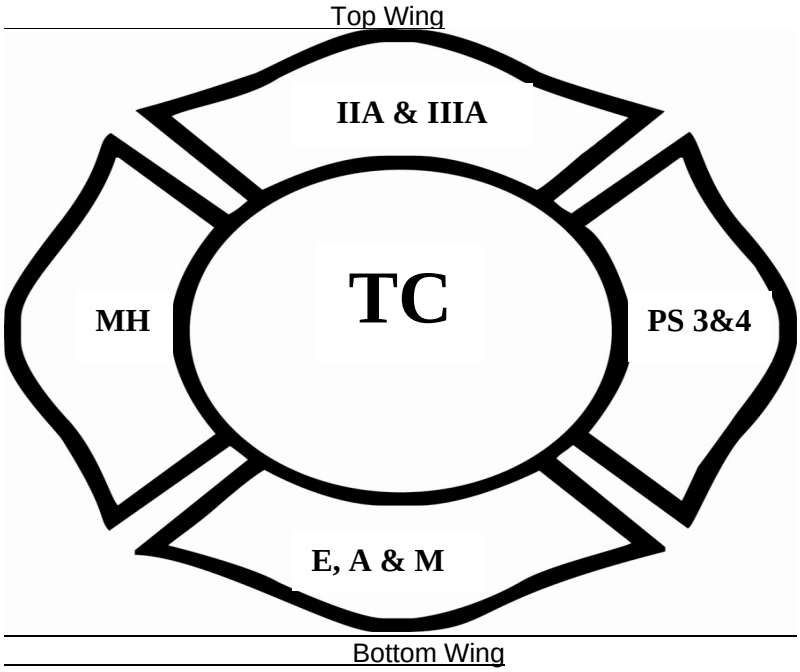

FIGURE L101.1.3
BUILDING INFORMATION SIGN

L101.1.4 Sign size and lettering. The minimum size of the building information sign and lettering shall be in accordance with the following:

1. The width and height shall be 6 inches by 6 inches
2. The height or width of each Maltese cross wing area shall be 1 1/8 inches and have a stroke width of ½ inch;
3. The center of the Maltese cross a circle of oval 3 ⅛ inches in diameter and has a stroke width of ½ inch;
4. All roman numerals and/or alphabetic designations, shall be 1 ¼ inch height and have a stroke width of ¼ inch.

L101.2 Sign designations. Designations shall be made based upon the construction type, content, hazard, fire protection systems, life safety and occupancy. Where multiple designations occur within a classification Category, the designation used shall be based on the greatest potential risk.

L101.3 Construction type (TOP WING). The construction types shall be designated by assigning the appropriate Roman numeral, and letter, placed inside the top wing of the Maltese cross. The hourly rating provided is for the structural framing in accordance with Table 601 of the *International Building Code*,

Construction Type	**Hourly Rating**
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IIB – Non-Combustible Construction -	0 Hour Rating
IIIA – Non-Combustible/Combustible Construction -	1 Hour Rating
IIIB – Non-Combustible/Combustible Construction -	0 Hour Rating
IV – Heavy Timber Construction -	
VA – Combustible Construction -	1 Hour Rating
VB – Combustible Construction –	0 Hour Rating

L101.4 Fire protection systems (RIGHT WING). The fire protection systems shall be designated by determining its level of protection and assigning the appropriate designation to the right wing of the Maltese cross. Where multiple systems are provided, all shall be listed:

AS – Automated Fire Sprinkler System installed throughout;
DS – Dry Sprinkler System and designated areas
FAS – Fire Alarm System
FP – Fire Pump
FW – Fire Wall and designated areas
PAS – Pre-Action Sprinkler System and designated floor
PS – Partial Automatic Fire Sprinkler System, and designate floor;
CES – Chemical Extinguishing System and designated area,
CS – Combination Sprinkler and Standpipe System;
S – Standpipe System;
NS – No system installed

L101.5 Occupancy type (Bottom Wing). The occupancy of a building or structure shall be designated in accordance with the occupancy classification found in Section 302.1 of the *International Building Code* and the corresponding designation shall be placed in the bottom wing of the Maltese cross. When a building or structure contains a mixture of uses and occupancies; all uses and occupancies shall be identified.

A – Assembly
B – Business
E – Educational
F – Factory or Industrial
H – High Hazard
I – Institutional
M – Mercantile
R – Residential
S – Storage

L101.6 Hazards of content (Left Wing). The hazards of building contents shall be designated by one of the following classifications as defined in NFPA 13 and the appropriate designation shall be placed inside the left wing of the Maltese cross:

LH - Light Hazard
MH - Moderate Hazard
HH - High Hazard

L101.7 Tactical considerations (Center Circle). The Center Circle shall include the name of the local Fire Service and when required the letters TC for Tactical Considerations. When fire fighters conduct pre-plan operations, a unique situation(s) for tactical considerations shall be identified and the information provided to the fire dispatch communications center to further assist fire fighters in identifying that there is special consideration(s) for this occupancy. Special consideration designations include, but are not limited to:

1. Impact resistant drywall
2. Impact resistant glazing, such as blast or hurricane type glass
3. All types of roof and floor structural members including but not limited to post tension concrete, bar joists, solid wood joists, rafters, trusses, cold-formed galvanized steel, I-joists and I-beams; Green roof with vegetation, soil & plants
4. Hazardous materials, explosives, chemicals, plastics, etc;
5. Solar Panels and DC electrical energy
6. HVAC system; and smoke management system for pressurization and exhaust methods
7. Other unique characteristic(s) within the building that are ranked according to a potential risk to occupants and firefighters

L101.8 Sign classification maintenance, Building information sign maintenance shall comply with each of the following:

1. Fire departments in the jurisdiction shall define the designations to be placed within the sign.
2. Fire departments in the jurisdiction shall conduct annual inspections to verify compliance with this section of the code and shall notify the owner, or the owners agent, of any required updates to the sign in accordance with fire department designations and the owner, or the owner's agent, shall comply within thirty (30) days.
3. The owner of a building shall be responsible for the maintenance and updates to the sign in accordance to fire department designations.
4. The owner of a building shall notify the fire department of any changes that possibly effect the classifications, of the system, within thirty (30) days of the changes and the Fire Department shall conduct an inspection.
5. The owner of a building shall change the effected classification posted on the sign within thirty (30) days of the changes.

L101.9 Training. Jurisdictions shall train all fire department personnel on Sections L101.1 through L101.9

Reason: This Building Information Sign (BIS) is designed to be utilized in the crucial initial response of fire fighters to a structure fire. Similar to the Emergency Response Guidebook, published by the Department of Transportation, the BIS placard is designed to be utilized within the initial response time frame of an incident. Firefighters are trained to size-up a situation as early as possible after notification. The outward appearances of a building can be deceiving and the type of construction may not appear to be what it really is. This is becoming a more frequent occurrence within many communities.. Having the BIS placard will allow responding fire companies to make an informed tactical decision. The responding fire company will be able to identify the type of construction, hazard level of the contents, structural framework, occupancy of the building and the building fire protection system features , as well as he extent of the protection,

In the fire service there are many times we are dispatched to a location or area without an address, I.e. A fire company is dispatched in the vicinity of: Main St. and 5th Ave.. placing this information electronically will not address those incidents. Once the fire company has located the building or structure, the company officer can relay the correct address to the Dispatching Center and exit the apparatus to begin an assessment by making tactical decisions from the BIS building placard. The company officer cannot afford to wait until Dispatch sends an electronic form of the placard to t a mobile computer unit. This sign will give the arriving fire officer information to rapidly begin his/her assessment.

Another instance where a BIS placard is valuable for a Mutual Aid response to your community. Mutual Aid fire companies do not always share the same Dispatching Centers therefore they would not have the ability to receive the electronic communication. Placing this placard in designated locations will allow arriving Mutual Aid companies to begin proper tactical assessments.

Also within the Tactical Considerations (TC) section, the BIS placard will allow fire fighters to identify additional considerations. Just by seeing that there are additional TC considerations would give firefighters pause to consider unique aspects of the situation, such as:

Are there special needs for the occupants?
Is the interior constructed of impact resistant dry wall which will make wall breeching very difficult?
Is there hurricane glazing?
Is there an above ground 1500 gallons fuel oil tank in the basement?

Does the building contain dimension lumber, trusses, I-joists, cold formed steel, etc. in the roof or floors members?

These TC concerns can be identified and placed within the Tactical Considerations section of the BIS placard. The National Institute for Occupational Safety and Health (NIOSH) released an Alert Report, 'Preventing Injuries and Deaths of Fire Fighters Due to Truss System Failures[1] and made recommendations to identifying structures by suggesting that building owners and managers "Consider placing building construction information outside the building. Include information about roof and floor type (presence of trusses, materials used), roof loads (heating, ventilation, and air conditioning (HVAC) units, sprinkler systems, utilities, hazardous materials stored on site and emergency contact numbers. Use and follow the proper building codes."

This Building Information Sign has brought many people together from various private industries and public agencies such as:

Structural Building Component,
Steel & Wood industries,
Building officials, and the
Fire Service,

So as to collaborate on a BIS system that is comprehensive and meets the need of the fire service for information that allows for a quicker building assessment on the fire ground. This addresses a key question that has been asked for quite some time -- "How do we provide building information to the fire service?". With this Building Information Sign we will be providing fire fighters crucial information at the most important time period. Fire Officers will be able to make decisions-based tactics on the knowledge provided within this building BIS placard or be prompted by other Tactical Considerations to request more information from the dispatch center.

Bibliography:

1. NIOSH Alert – "Preventing Injuries and Deaths of Fire Fighters Due to Truss System Failures" April 2005

Cost Impact: The code change proposal will have a minimal increase to the cost of construction.

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

ICCFILENAME: DECRANE-F3-APPENDIX K.DOC

F237–09/10
Appendix K (New)

Proponents: Patrick Siegman, Principal, Nelson, Nygaard Consulting Associates, representing the Congress for the New Urbanism; Peter Swift, Owner, Swift and Associates, representing the Congress for the New Urbanism; John Norquist, CEO, Congress for the New Urbanism

Add new Appendix as follows:

APPENDIX K
STREET DESIGN FOR LIFE SAFETY

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION K101
GENERAL

K101.1 Intent. The purpose of this appendix is allow jurisdictions to adopt performance-based requirements for fire apparatus access roads, in order to achieve all of the following purposes:

1. Establish the minimum requirements consistent with nationally recognized good practice for providing a reasonable level of life safety and property protection from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures and premises and to provide safety to fire fighters and emergency responders during emergency operations.
2. On the new and existing fire apparatus access roads required by and regulated by this code, establish requirements consistent with nationally and internationally recognized good practice for achieving a reasonable level of overall life safety, by taking into account and balancing the need to prevent road traffic deaths and injuries and the need to safeguard against the hazards of fire, explosions and other dangerous conditions.

K101.2 Scope. If this appendix is adopted by a jurisdiction, then the following changes to the current provisions of the code come into effect within the jurisdiction:

101.2 Scope. This code establishes regulations affecting or relating to structures, processes, premises and safeguards regarding:

1. The hazard of fire and explosion arising from the storage, handling or use of structures, materials or devices;
2. Conditions hazardous to life, property or public welfare in the occupancy of structures or premises;
3. Conditions hazardous to life, property or public welfare on or relating to the design of fire apparatus access roads, including the hazards of traffic, fire, explosion and other dangerous conditions;
4. Fire hazards in the structure or on the premises from occupancy or operation;
5. Matters related to the construction, extension, repair, alteration or removal of fire suppression or alarm systems.
6. Conditions affecting the safety of fire fighters and emergency responders during emergency operations.

101.3 Intent. The purpose of this code is to establish the minimum requirements consistent with nationally recognized good practice for providing a reasonable level of life safety and property protection from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures and premises and to provide safety to fire fighters and emergency responders during emergency operations. Additionally, on the new and existing fire apparatus access roads required by and regulated by this code, the purpose of this code is to establish requirements consistent with nationally and internationally recognized good practice for achieving a reasonable level of overall life safety, by taking into account and balancing the need to prevent road traffic deaths and injuries and the need to safeguard against the hazards of fire, explosions and other dangerous conditions.

503.2.1 Dimensions. Fire apparatus access roads shall have an unobstructed width ~~of not less than 20 feet (6096 mm), exclusive of shoulders, except for approved security gates in accordance with Section 503.6,~~ and an unobstructed vertical clearance ~~of not less than 13 feet 6 inches (4115 mm).~~ that permits passage of the

jurisdiction's fire apparatus and, wherever necessary, provides adequate space for deploying the jurisdiction's fire apparatus and for conducting fire and rescue operations.

~~**503.2.2 Authority.** The fire code official shall have the authority to require an increase in the minimum access widths where they are inadequate for fire or rescue operations.~~

503.2.4 Turning radius. The required turning radius of a fire apparatus access road shall ~~be determined by the fire code official.~~ provide for the passage of the jurisdiction's fire apparatus.

503.2.7 Grade. The grade of the fire apparatus access road shall be ~~within the limits established by the fire code official based on the fire department's apparatus.~~ limited to grades that permit passage by, and, wherever necessary, fire and rescue operations by, the jurisdiction's fire apparatus.

503.2.8 Design for road traffic safety. Fire apparatus access roads shall be designed and maintained so as to minimize road traffic deaths and injuries, while maintaining adequate provision for the passage of fire apparatus and for fire and rescue operations. To achieve these goals, fire apparatus access roads shall be designed and maintained to both: (a) permit passage of the jurisdiction's fire apparatus and, wherever necessary, provide adequate space for deploying the jurisdiction's fire apparatus and conducting fire and rescue operations; and (b) minimize excess and inappropriate vehicle speeds.

Reason: This proposed code change provides an appendix that allows, but does not require, a jurisdiction to substitute revised material for current provisions of the code. That is, if the appendix is adopted by a jurisdiction, then the jurisdiction has elected to substitute revised materials for current provisions of the code. This appendix is intended to allow jurisdictions to take an approach to the design of fire apparatus access roads that improves overall life safety, by allowing jurisdictions to adopt roadway designs that strike the best possible balance between reducing the hazards of fire and reducing road traffic deaths and injuries, given the jurisdiction's own particular circumstances and particular choice of fire apparatus.

The text below attempts to provide clear and succinct answers to the questions asked for in the "Supporting Information" Section of the Code Change Proposal Instructions. That is, the following paragraphs state the purpose of the proposed code change, justify changing the current code provisions and seek to explain why the proposed code change is superior to the current provisions of the code.

1. What is the purpose of this proposed code change (e.g., clarify the code; revise outdated material; substitute new or revised material for current provision of the code; add new requirements to the code; delete current requirements, etc.)?

Response: This proposed code change provides an appendix that allows, but does not require, a jurisdiction to substitute revised material for current provisions of the code. That is, if the appendix is adopted by a jurisdiction, then the jurisdiction has elected to substitute revised materials for current provisions of the code. This approach will allow jurisdictions to take an approach to the design of fire apparatus access roads that we believe improves overall life safety, by allowing jurisdictions to adopt roadway designs that strike the best possible balance between reducing the hazards of fire and reducing road traffic deaths and injuries, given the jurisdiction's own particular circumstances and particular choice of fire apparatus. By allowing, but not requiring, jurisdictions to adopt this proposed appendix, the ICC will make it possible for jurisdictions to demonstrate the efficacy of this approach, without taking the more far-reaching step of simply altering the basic code.

2. What is the justification for changing the current code provisions? Why is the proposal superior to the current provisions of the code? Proposals that 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.

Response: The current International Fire Code specifies dimensions for fire apparatus access roads. Three key points about fire apparatus access roads should be noted:

1. The code requires that at least one fire apparatus access road be provided for every facility, building or a portion of the building hereafter constructed or moved into within a jurisdiction.
2. The code defines a fire apparatus access road as a road that provides fire apparatus access from a fire station to a facility, building or portion thereof.
3. The code defines fire apparatus access road as a general term inclusive of all other terms such as fire lane, public street, private street, parking lot lane and access roadway.

Therefore, since at least one fire apparatus access road must reach from a fire station to every building and facility constructed once the code is adopted, **the current International Fire Code specifies the key dimensions of many, if not most, public and private streets.** This is significant not only for fire safety, but also for road safety. A substantial body of traffic safety research literature has found conclusively that the dimensions of streets significantly affect road safety. Therefore, **the current International Fire Code sets specifications for the design of many, if not most, public and private streets, and these specifications significantly affect traffic safety.**

Since the essential purpose of the International Fire Code is to provide for a reasonable level of life safety and property protections from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures and premises and to provide safety to fire fighters and emergency responders during emergency operations, the code may not always be thought of as a code that has significant and far-reaching effects on road safety. The reality, however, is that the International Fire Code does significantly affect road design, and therefore, significantly affects road traffic deaths and injuries.

We believe that the International Code Council can substantially advance the cause of improving overall life safety by taking the following actions:

1. ***Embrace the goal of improving overall life safety***, including preventing not only the tragedies caused by fire, structural collapse and other hazards that have long been explicitly focused on by code enforcement and fire officials, but also road traffic deaths and injuries.

2. ***Dedicate itself to reducing the burden of global road traffic deaths and injuries***, by committing itself to work in partnership with a broad range of organizations and governments to develop and implement road safety strategies, plans and codes.
3. ***Work together with road safety organizations to thoroughly review the existing codes promulgated by the International Code Council to ensure that the codes embrace internationally recognized good practices for protecting life safety, including not only reducing the hazards of fire, explosion and other dangerous conditions in buildings, but also reducing road safety hazards.***

While the International Code Council may never wish to expand its mission to include the task of writing full road safety codes, the Council can and we believe should work closely with road safety organizations to ensure that building codes and regulations, such as the fire apparatus access road provisions of the International Fire Code, allow for and encourage best practices in road safety.

The attached code change proposal is submitted in the spirit of cooperation between code enforcement and fire officials and road safety professionals. It was drafted out of our concern that the current provisions of the International Fire Code for fire apparatus access roads do not strike the best possible balance between reducing the hazards of fire and other building-related hazards, and reducing road traffic deaths and injuries. This submission is intended as a first step in bringing road safety professionals and fire service professionals together to work on an area of mutual concern: fire apparatus access roads are not only the areas where firefighters must set up equipment and fight conflagrations, but also the site of innumerable traffic deaths and injuries. The design of fire apparatus access roads (that is, the design of many public and private streets) is necessarily a balancing act, where there are frequently conflicts, tensions and trade-offs between the goals of improving road safety and improving fire safety. The very best design for bringing fire engines quickly to the scene of an incident, or the very best design for providing room to deploy equipment at the scene of a fire, is often not the best design for ensuring low motor vehicle speeds and pedestrian safety at a school crosswalk, or on a quiet residential street.

In drafting this code change proposal, we sought to recognize these tensions and trade-offs regarding fire apparatus access roads, and then to draft a code change proposal that would allow jurisdictions to do a better job of overcoming these conflicts. This code change proposal is intended to allow jurisdictions to design roads for overall life safety, including both fire safety and road safety. It is based on the following principles:

1. The necessary minimum dimensions of fire apparatus access roads are driven in large part by the size, weight, configuration and capabilities of a jurisdiction's fire apparatus.
2. The necessary minimum dimensions of fire apparatus access roads also depend on the staffing, strategies and tactics employed by a jurisdiction.
3. The characteristics of fire apparatus, and the staffing, strategies, and tactics of firefighters and emergency responders, vary widely from jurisdiction to jurisdiction, both internationally and within nations.
4. Roadway dimensions and design significantly affect road safety.
5. Therefore, the roadway designs that can be used by a jurisdiction to improve road safety on fire apparatus access roads vary depending on the fire apparatus employed by that community. Designs for road safety that work well in one jurisdiction may introduce significant difficulties for fire fighting in another jurisdiction where the fire apparatus that is in use is significantly larger, less maneuverable or less capable of deploying in a smaller space.
6. Therefore, rather than employing a one-size-fits-all approach to fire apparatus access roads, which assumes that all jurisdictions around the world and across the nation employ similar fire apparatus, this proposed code change recommends a performance-based approach.
7. Employing a more performance-based approach will make it possible to better balance the goals of improving road safety and improving fire and building safety, while taking into account the major differences between jurisdictions in fire apparatus, staffing, strategies and tactics.

We note that the existing provisions for fire apparatus access roads in Section 503 contain a mix of prescriptive and performance-based requirements. This proposed code change moves further in the direction of a performance-based approach, in the interest of making it more feasible to adopt roadway design solutions that resolve conflicts between road safety and fire safety, are carefully tailored to the fire apparatus in use in a jurisdiction, and improve overall life safety.

As background, the following sections briefly review several considerations that are crucial for designing streets that improve overall life safety. These sections briefly review:

- the magnitude of road traffic deaths and injuries
- road safety risk factors
- the relationship between street design and road safety
- examples of roadway design elements that improve road safety
- the tensions and trade-offs between accommodating needed access for and operations of fire apparatus, and designing streets that improve road safety

First, what is the magnitude of the road traffic safety problem, and why should the ICC be concerned about it?

Why should the International Code Council be concerned about road safety?

The Commission for Global Road Safety succinctly describes the reasons why all citizens, and particularly those of us who dedicate their professional lives to improving public safety, should focus our attention on road safety. According to the Commission's 2006 report, *Make Roads Safe*[1]:

> *Deaths and injuries from road traffic crashes are a major and growing public health epidemic. The World Health Organization has estimated that in 2002 almost 1.2 million people died in road crashes worldwide and as many as 50 million were injured. Unless action is taken, global road deaths are forecast to double by 2020 and yet many of these deaths and injuries are known to be preventable…*
> *High income countries have developed effective road safety measures after decades of trial and error and human tragedy. While more effort is still needed in the industrialised nations the major challenge now is to ensure through early intervention that low and middle income countries do not have to experience the same bitter learning curve…*
> *The World Report on road traffic injury prevention, published by WHO and the World Bank in 2004, details the key road injury 'risk factors', the major contributing factors to road crashes and injury severity, including drink driving; lack of helmet use; seat belt non compliance; excessive speed; and poor infrastructure design and management.*

1 Commission for Global Road Safety. *Make Roads Safe*. London, United Kingdom. Commission for Global Road Safety, 2006, p. 2. [Accessed June 1, 2009]. Available at http://www.makeroadssafe.org/publications/Documents/mrs_report_2007.pdf

As a leading international organization -- if not the leading international organization -- devoted to building a safer world, the International Code Council can play an important role in solving this epidemic. At a minimum, even if it seeks no active role, the ICC will nonetheless be involved, because by specifying the key dimensions of so many public streets (i.e., the dimensions of fire apparatus access roads), the ICC's codes now play a major role in street design and therefore in road safety.

What Are Road Safety Risk Factors?
As the Commission for Global Road Safety's *Make Roads Safe* report notes, road safety specialists frequently refer to risk factors.

Primary Risk
The report notes that, "Primary risk describes the factors that contribute to the risk of occurrence of a road crash." Two of the four primary risk factors are *behavioral factors*, which are influenced by roadway dimensions and design, and the *road environment*, which is directly determined by roadway dimensions and design.[2]
According to the report, regarding behavioral factors:

> *Excessive or inappropriate speed is a key contributor to crash risk. Speed choice is influenced by the legal speed limit, but also by road layout...*

According to the report, regarding road environment:

> *Road safety engineering and traffic management make a direct contribution to reduction of crash risk. Crash risk is increased by lack of attention to safety in both planning and design of new road networks and new roads. Road design affects road user behavior and crash risk through the speed the drivers will perceive as appropriate, through detailed design factors such as curves...*
> *In modern road systems, vulnerable road users are disadvantaged because such systems are largely designed for the motor vehicle. The absence of footpath and cycle tracks, or traffic calming measures to reduce speed where pedestrians and cyclists mix with motorized traffic, increases the risk of a crash occurring and its severity.*

Secondary Risk
"Secondary risk", the report explains, "includes the likelihood of injury occurring and its severity." As with primary risk, two of the major risk factors are behavioral factors, which are influenced by roadway dimensions and design, and the road environment, which is directly determined by roadway dimensions and design. As the report explains:

> *Impact speed is a crucial determinant of injury severity for vulnerable road users. For example, 90% of pedestrian survive impacts with cars at speeds up to 30 km/hour [18 mph], but more than half will die at speeds of 45 km/hour [27 mph] or more…*
> *[F]or vehicle occupants also, injury severity increases with impact speed. The probability of fatal injury increases from close to zero to almost 100% as the change in impact speed increases from 20 km/hour to 100 km/hour…*
> *Road design can also provide protection for vulnerable road users by reducing impact speed through traffic calming measures.*

Other traffic safety research arises similar conclusions. For example, other research studies have found that when people walking are hit by a car:

- At 20 mph, only 5 percent of walkers are killed, most injuries are slight, and 30 percent suffer no injury;
- At 30 mph, 45 percent of walkers are killed, and many are seriously injured;
- At 40 mph, 85 percent of walkers are killed.[3]

Understanding the links between the dimensions of fire apparatus access roads and the likelihood of road traffic deaths and injuries on these roads
The transportation safety research literature makes clear that:

1. The behavior of motor vehicle drivers, bicyclists, pedestrians and other road users is substantially affected by the dimensions of streets.
2. Key roadway dimensions which have been found to significantly affect driver behavior include the following:

    a. roadway widths,
    b. lane widths,
    c. the presence or absence of raised medians, pedestrian refuges and similar measures (note that feasibility of including such measures in a roadway design is often dependent upon the requirements for roadway widths in the vicinity of these measures)
    d. the presence or absence of roundabouts, traffic circles, splitter islands and similar intersection design measures (again, note that feasibility of such intersection designs is highly dependent upon the requirements for roadway widths in the vicinity of these measures)
    e. turning radii (a.k.a. horizontal curvature) at curves in a roadway,
    f. turning radii (i.e., horizontal deflection) at roundabouts, traffic circles, median islands and channelized turns,
    g. curb radii at intersections,

3. The roadway dimensions and features described above affect important aspects of driver and pedestrian behavior. For example, the presence or absence of a raised median on a roadway affects the ability of drivers to make passing maneuvers, midblock turns or to drift into oncoming traffic.
4. It is particularly important to note that the key roadway dimensions mentioned above affect the speed at which motor vehicle drivers choose to drive. As described above, motor vehicle speed is a key determinant of both the likelihood of a crash occurring and crash severity.
5. Because the dimensions of streets strongly affect the behavior of motorists, bicyclists, pedestrians and other road users, the dimensions of streets significantly affect traffic safety.

Section 503.2 of the current code sets specifications for the dimensions of fire apparatus access roads, including specifying the following key dimensions:

- fire apparatus access roads shall have an unobstructed width of not less than 20 feet;
- the required turning radii of fire apparatus access roads shall be determined by the fire code official.

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[2] Ibid. p. 60.
3 Limpert, Rudolph. *Motor Vehicle Accident Reconstruction and Cause Analysis*. Fourth Edition. Charlottesville, VA. The Michie Company, 1994, p. 663. See also *Killing Speed and Saving Lives*, United Kingdom Dept. of Transportation, London, England.

While these two specifications are brief, their effect is far-reaching. By setting specifications for the key dimensions of road width and turning radii, Section 503.2 of the code sets specifications for many of the roadway dimensions and street design features (mentioned above) which are known to significantly affect traffic safety.

The following paragraphs provide several examples of the relationship between these two crucial street dimensions (roadway width and turning radii) and the ability to include important design features for traffic safety in a roadway design. In many circumstances, an absolute requirement to provide an unobstructed width of not less than 20 feet at every point along a roadway creates significant conflicts with the need to include roadway design features that improve traffic safety.

Often, these conflicts can be and have been resolved through careful design that consciously balances the need for traffic safety and the needs of firefighters to reach incidents and conduct fire and rescue operations. For example, while particular critical points along a roadway may be intentionally designed with a width of less than 20 foot clear, in order to reduce vehicle speeds and improve traffic safety, other areas along the same block will be provided with at least 20 foot clear, in order to provide, wherever necessary, sufficient space to set up equipment and fight fires.

The proposed appendix, by creating performance-based standards for fire apparatus access roads, will assist in the process of reconciling these conflicts. It provides more flexibility for street design, while still ensuring that streets are designed to allow for the passage of fire apparatus, and space to conduct fire and rescue operations.

Street Design for Traffic Safety: Examples

A few examples of roadway designs that can significantly improve traffic safety, but that frequently require roadway designs with less than 20 foot clear (at some, though not all places along a roadway) include the following:

1. Modern roundabouts
2. Raised medians
3. Low-volume local streets

Each is described in turn below.

1. Modern Roundabouts: The California Department of Transportation recently concluded, "The modern roundabout is now recognized nationally as an intersection type and traffic control treatment capable of providing unique and significant operational and safety benefits over a wide range of traffic volume and conditions. In particular, national research has confirmed that the single-lane version is especially effective in reducing collision frequency and/or severity for all highway users."[4]

Safety of modern roundabouts: Both overseas and in the United States, modern roundabouts have achieved a 50% to 90% reduction in injury accidents compared with intersections using stop control or traffic signals. The most comprehensive survey of roundabout safety in the United States was carried out in 1997 by the Transportation Research Board, and found that at intersections which were converted to roundabouts, overall crashes were reduced by 37% and injury accidents by 51%. The study also broke the results down for large roundabouts with three-lane entries, and smaller roundabouts with one- or two-lane entries. At these smaller roundabouts, crash reductions were even more pronounced: total crashes fell by 51%, with injury crashes reduced by 73%.

Capacity: roundabouts can often offer higher traffic-moving capacity than traffic signals, which in many circumstances leads to significantly reduced delays. The Transportation Research Board survey of intersections converted to roundabouts in the United States, for example, found that in the eight cases where vehicle delays had been measured, rush hour delays had been reduced by an average of 77%.

[4] *California Department of Transportation Design Information Bulletin #80-01: Roundabouts*. October 3, 2003, p. 1. [Accessed June 1, 2009]. Available at http://www.dot.ca.gov/hq/oppd/dib/dib80-01.pdf.

A typical modern roundabout in University Place, WA. At the roundabout entry, the clear width provided is only approximately 13 feet: this is an intentional design element to keep vehicle speeds low. Photo: IMG0032.jpg

Another modern roundabout near a school in Montpelier, VT. Again, note that the entry widths are kept to no more than 13 feet, to ensure low speeds both at the pedestrian crosswalks and within the intersection. Photo: IMG0027.jpg

The conflict between the current code requirement for 20 foot clear width at all points along every fire apparatus access road and the design of roundabouts occurs primarily with the design of roundabouts with one-lane entries. Roundabouts *are* designed to ensure that the largest fire apparatus (as well as tractor-trailer trucks and other large vehicles) that will use the roundabout are accommodated. However, as explained in

Roundabouts: an Informational Guide, the Federal Highway Administration's widely-used guide to roundabout design:

> *Roundabouts operate most safely when the geometry forces traffic to enter and circulate at slow speeds. Horizontal curvature and narrow pavement widths are used to produce this reduced-speed environment.* [5]

Furthermore, the Guide explains:

> *To maximize the roundabout's safety, entry widths should be kept to a minimum..The design should provide the minimum width necessary for capacity and accommodation of the design vehicle in order to maintain the highest level of safety. Typical entry widths for single-lane entrances range from 4.3 to 4.9m (14 to 16 ft); however, values…lower than this range may be required for site-specific design vehicle and speed requirements for critical vehicle paths.*

Thus, to design safe single-lane roundabouts, it is routinely necessary that at the roundabout entries, entry widths must be kept below 20 foot clear. This particular circumstance occurs only for a short distance at the intersection entry. However, it is a critical dimension and one that constantly conflicts with a requirement of 20 foot unobstructed width at all points along fire apparatus access roads.

2. Landscaped medians: There are important advantages to raised and landscaped medians, beyond their aesthetic appeal. In general, published studies conclude that on major roadways, raised central medians provide significant safety benefits when compared to undivided roads and roads with two-way left-turn lanes.

For example, examining overall crash rates – both midblock and intersection – for suburban arterials, Bowman & Vecellio's comprehensive study[6] found a rate of 373 vehicular crashes per million vehicle miles for roadways with a raised median, versus 676 vehicular crashes per million vehicle miles (or some 80% higher) for roadways with a two-way left-turn lane. Overall rates of rear end, right angle, head-on and left-turn crashes were all significantly reduced by the use of a median. Medians also ease crossings for pedestrians, and studies have found medians to be significantly safer for them. On suburban arterials, Bowman & Vecellio found the pedestrian crash rate for suburban arterials with raised medians to be 6.3 per million vehicle miles, versus 12.9 pedestrian crashes per million vehicle miles for those with two-way left-turn lanes. The conflict that occurs here with the requirement for 20 foot clear is that many roadways only have room within the right-of-way for, and also function most safely (from the point of view of traffic safety) with one traffic lane and one bicycle lane in each direction on each side of the median. This results in a roadway cross section typically provides 17 feet of clear width on each side of the median.

An example of an undivided roadway. Photo: IMG0064.jpg

[5] *Roundabouts: An Informational Guide*. US Department of Transportation Federal Highway Administration Publication No. FHWA-RD-00-067. Washington, D.C., 2000. , p. 130. [Accessed June 1, 2009]. Available at http://www.tfhrc.gov/safety/00-0676.pdf.

6 B. L. Bowman and R.L. Vecellio. *Effect of Urban and Suburban Median Types on Both Vehicular and Pedestrian Safety*. Transportation Research Record No. 1445. TRB, National Research Council. Washington D.C., 1994.

An example of a roadway with a raised median and approximately 17 feet of clear width on each side of the median. Photo: median.jpg

3. Local Street Standards: Low-volume local streets are often purposefully designed to enforce low-driving speeds, obviating the need for future retrofits with speed bumps and other harsh traffic calming measures that can severely impact fire apparatus. For best traffic safety result, these minor residential streets are consciously designed to maintain average speeds of 20 mph or less. To achieve this, low-volume local streets are designed as traditional "yield streets". As the Institute of Transportation Engineers' Residential Streets, Third Edition explains:

> *Yield flow occurs when two-way traffic is impossible where parked vehicles are present. Thus, some motorists must stop and yield the right-of-way to oncoming vehicles. For decades prior to the 1960's, yield flow was the widely accepted norm for local streets. …Most local streets with low ADT [average daily traffic] may have yield-flow operation.*[7]

The AASHTO Greenbook, the standard reference on the geometric design of streets, also explicitly endorses yield streets:

> *The level of user inconvenience occasioned by the lack of two moving lanes is remarkably low in areas where single-family units prevail… In many residential areas a 26-ft.-wide roadway is typical. This curb-face-to-curb-face width provides for a 12-ft. center travel lane and two 7-ft. parking lanes. Opposing conflicting traffic will yield and pause on the parking lane area until there is sufficient width to pass*.[8]

The traffic safety research literature finds that yield streets result in a strong reduction in injury accident rates. Recent research compared injury accidents per mile per year on local streets against thirteen physical characteristics.[9] Street width was found to be significantly related to injury accidents, with the authors concluding that, "as street width widens, accidents per mile per year increases exponentially." The study's regression analysis found that a typical 36-foot wide residential street has 0.16 accidents per mile per year as opposed to 0.03 accidents per mile per year for a 24 foot wide street. This difference is about a 487 percent increase in accident rates (see figure, below). The safest streets were the narrow, 24-foot wide streets, with parking allowed on both sides, resulting in a clear width of approximately 10 feet.

[7] Kulash, Walter. *Residential Streets, 3rd Edition*. Washington, D.C.: Institute of Transportation Engineers, National Association of Home Builders, American Society of Civil Engineers, and Urban Land Institute, 2001.
[8] American Association of State Highway and Transportation Officials. A Policy on Geometric Design of Highways and Streets (a.k.a. the AASHTO Greenbook). Washington, D.C.: AASHTO, 1990.
[9] Swift, Peter, Dan Painter, AICP and Matthew Goldstein. *Residential Street Typology and Injury Accident Frequency*. Denver, Colorado: Swift & Associates, 2006.

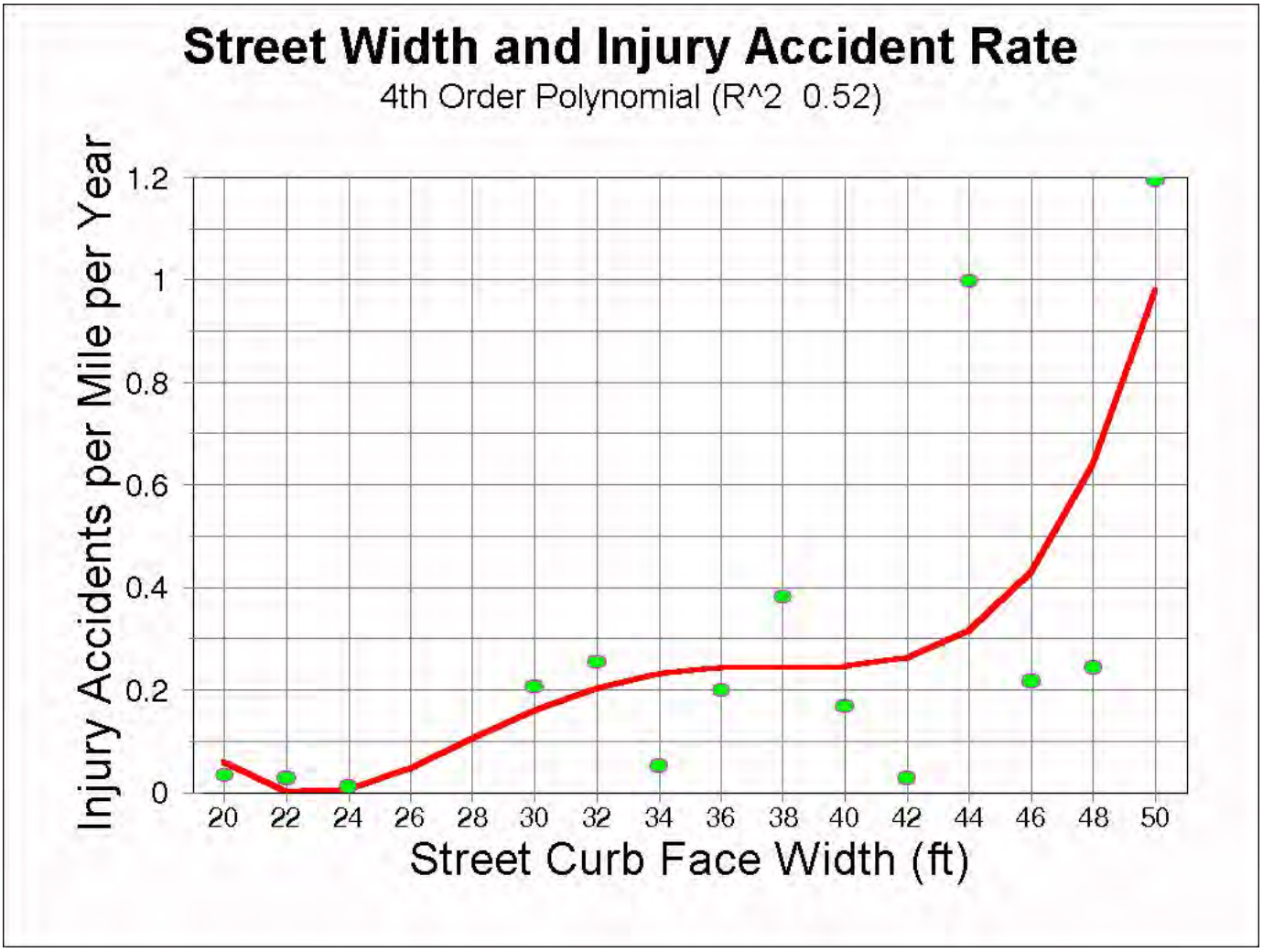

Photo: 4THORDER.JPG

On low-volume local streets, providing widths of less than 20 foot clear can clearly provide numerous traffic safety benefits. The conflict between creating yield streets to meet this traffic safety goal, and the goal of ensuring safe access for fire and rescue operations, has been reconciled in numerous different ways by different jurisdictions. Frequent solutions include requiring that such streets always be through streets (rather than cul-de-sacs); requiring such streets to provide locations with 20 foot clear width at regular intervals (e.g., at all fire hydrants), so that areas exist to allow fire engines to set up and hook up hoses; and limiting building heights on such streets, so that is not necessary to deploy aerial ladders.

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

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

ICCFILENAME: SIEGMAN-SWIFT-NORQUIST-F1-APPENDIX K.DOC

F238–09/10
Appendix K (New)

Proponent: Mark Nelson, Fire Marshal, County of Los Angeles, CA Fire Department

Add new appendix as follows:

APPENDIX K
ROOF OBSTRUCTIONS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION K101
GENERAL

K101.1 Scope: This Appendix shall apply to the design, construction, and installation of solar photovoltaic systems, roof gardens and landscaped roofs on building roofs that obstruct more than 50% or 10,000 square feet of the total roof surface area.

Exception: Buildings that are four or more stories in height and protected with an approved automatic fire extinguishing system throughout.

SECTION K102
REVIEW

K102.1 Review: The fire code official shall review and approve the installation of solar photovoltaic systems, roof gardens, landscaped roofs or similar equipment or conditions as defined in the scope of this appendix prior to the building code official issuing a permit for the installation for such roof obstructions.

SECTION K103
SOLAR PHOTOVOLTAIC SYSTEMS SPECIFICATIONS

K103.1. Solar photovoltaic systems specifications: The California Office of the State Fire Marshal Solar Photovoltaic Installation Guideline, April 22, 2008, shall apply to the design, construction and installation of solar photovoltaic systems on roofs.

SECTION K104
ROOF GARDEN AND LANDSCAPED ROOFS
SPECIFICATIONS

K104.1 Roof gardens and landscaped roofs: Roof gardens and landscaped roofs shall be designed, constructed and installed in accordance with Sections J101.4.1.1 through J104.1.2.4.

K104.1.1 Single and two-unit residential dwellings: Installation of roof gardens and landscaped roofs on single and two-unit residential dwellings shall be in accordance with Sections J104.1.1.1 through J104.1.1.3.

K104.1.1.1 Hip roof design: Planted sections shall be located in a manner that provides a three (3') foot wide clear access pathway from the eave to the ridge on each roof slope where the planted sections are located. The access pathway shall be located at a structurally strong location on the building such as a bearing wall.

K104.1.1.2 Single ridge roof design: Planted sections shall be located in a manner that provides two (2) three (3') foot wide access pathways from the eave to the ridge on each roof slope where the planted sections are located.

K104.1.1.3 Hips and valleys: Planted sections shall be located no closer than one and one half (1.5') feet to a hip or a valley if planted sections are to be placed on both sides of a hip or valley. If the planted sections are to be located on only one side of a hip or valley that is of equal length then the planted sections may be placed directly adjacent to the hip or valley. Planted sections shall not be located closer than three feet (3') below the ridge.

K104.1.2 Commercial, industrial and multi-residential buildings. Installation of roof gardens and landscaped roofs on commercial, industrial and multi-residential buildings comprised of three or more dwelling units shall be in accordance with Sections J104.1.2.1 through J104.1.2.4.

> **Exception:** If the fire code official determines that the roof configuration is similar to that found in single and two-unit residential dwellings, the design requirements found in J101.3.2.1 may be utilized.

K104.1.2.1 Access: There shall be a minimum six (6') foot wide clear perimeter around the edges of the roof.

> **Exception:** If either axis of the building is 250 feet or less, there shall be a minimum four feet (4') wide clear perimeter around the edges of the roof.

K104.1.2.2 Pathways: Pathways shall be established in the design of the roof garden or landscaped roof installation. Pathways shall meet the following requirements:

K104.1.2.2.1 Location: The center line axis of pathways shall run on structural members or over the next closest structural member nearest to the center lines of the roof.

K104.1.2.2.2 Center line: The center line axis of pathways shall be provided in both axis of the roof.

K104.1.2.2.3 Alignment and Access: Pathways shall be in a straight line and provide not less than four (4') feet clear to skylights, ventilation hatches or roof standpipes.

K104.1.2.2.4 Clearance Around Roof Access Hatch: Pathways shall provide not less than four (4') feet of clearance around roof access hatch with at least one not less than four feet (4') clear pathway to parapet or roof edge.

K104.1.2.3 Size: Planted sections shall be no greater than 150 by 150 feet in distance in either axis.

K104.1.2.4 Emergency Fire Ventilation: Areas for emergency fire ventilation between planted sections shall be either:

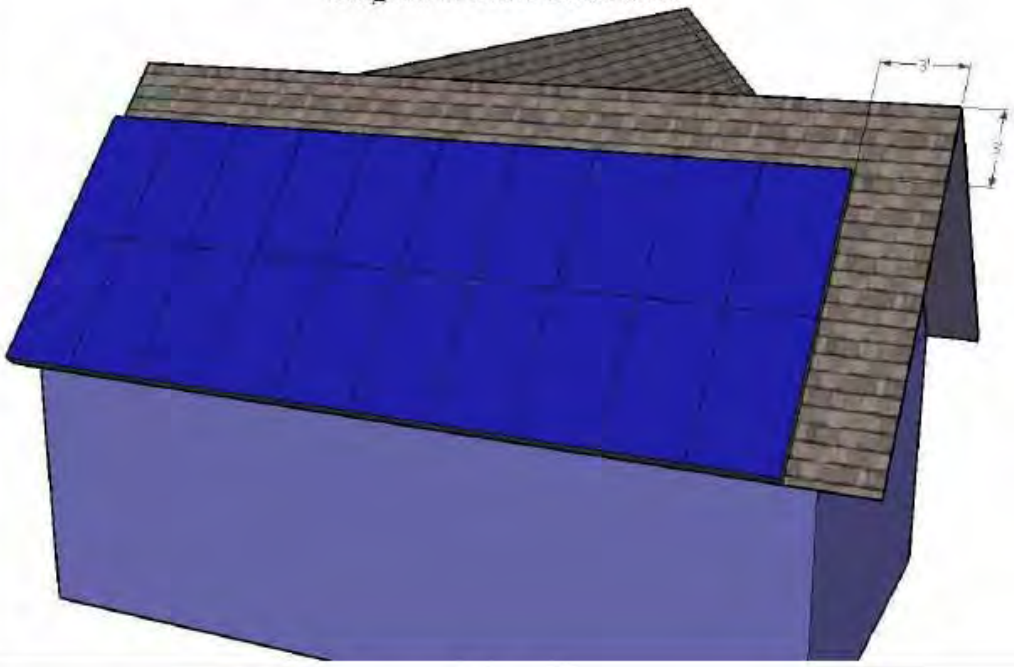
1. A pathway that is eight (8') feet or greater in width.
2. A pathway that is four (4') feet or greater in width and bordering on existing roof skylights for ventilation hatches.
3. A pathway that is four (4') feet or greater in width with bordering four (4') feet by eight (8') feet "venting cutouts" every twenty (20') feet on alternating sides of the pathway.

SECTION K105
REFERENCED STANDARD

CSFM	*Solar Photovoltaic Installation Guideline*, April 22, 2008, Office of the State Fire Marshal, California Department of Forestry and Fire Protection	K103

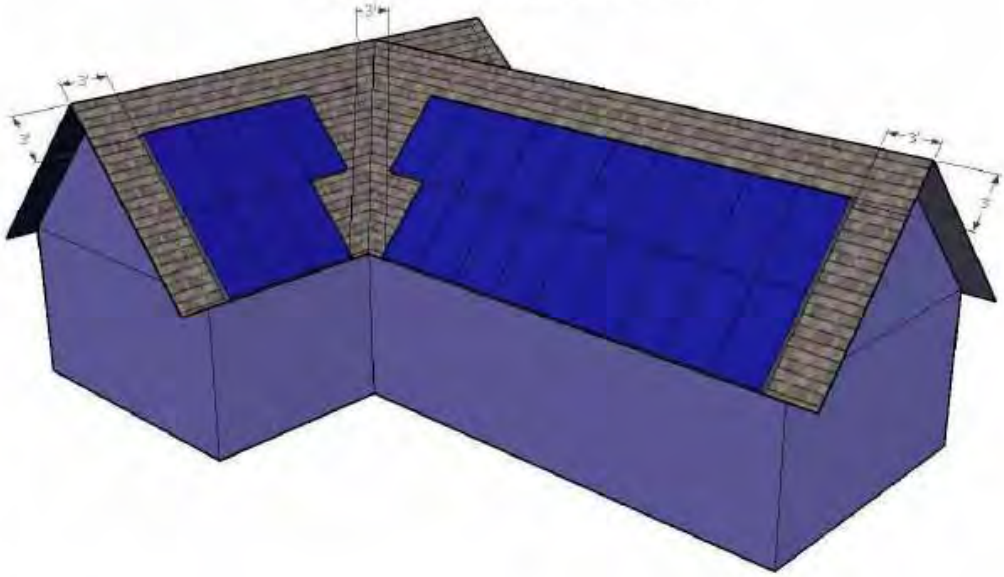
EXAMPLE 1

Diagram 1: Cross Gable Roof



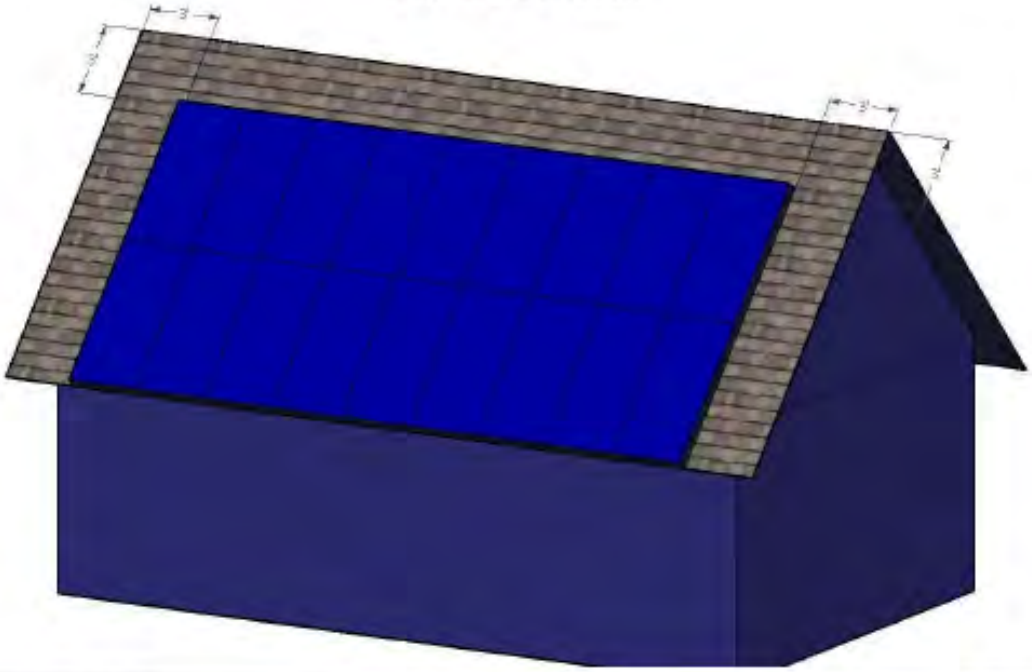
EXAMPLE 2

Diagram 2: Cross Gable with Valley



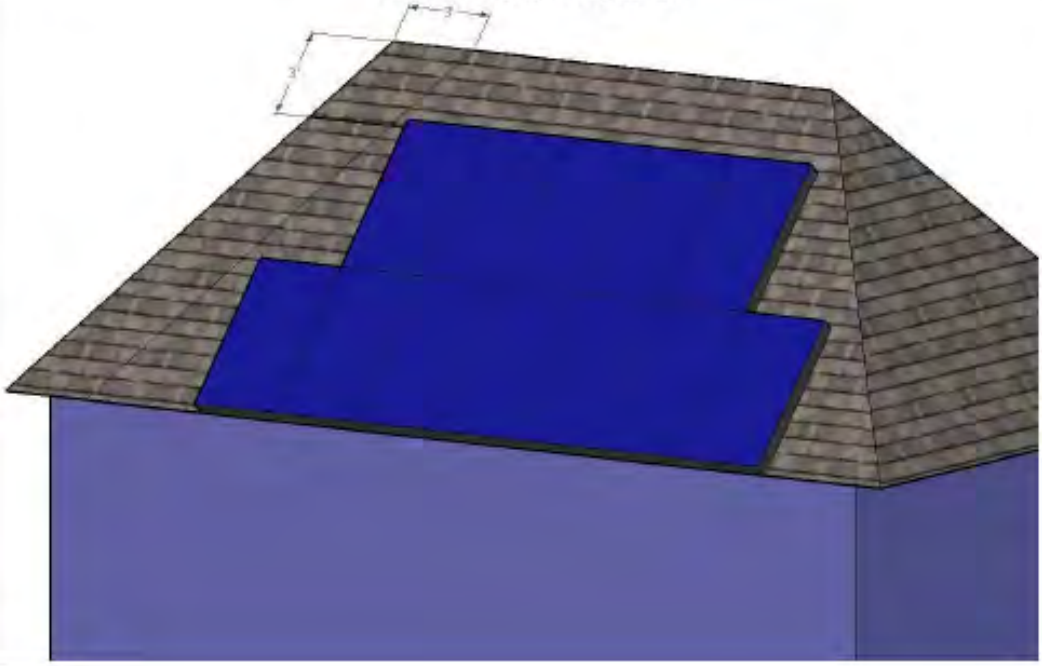
EXAMPLE 3

Diagram 3: Full Gable



EXAMPLE 4

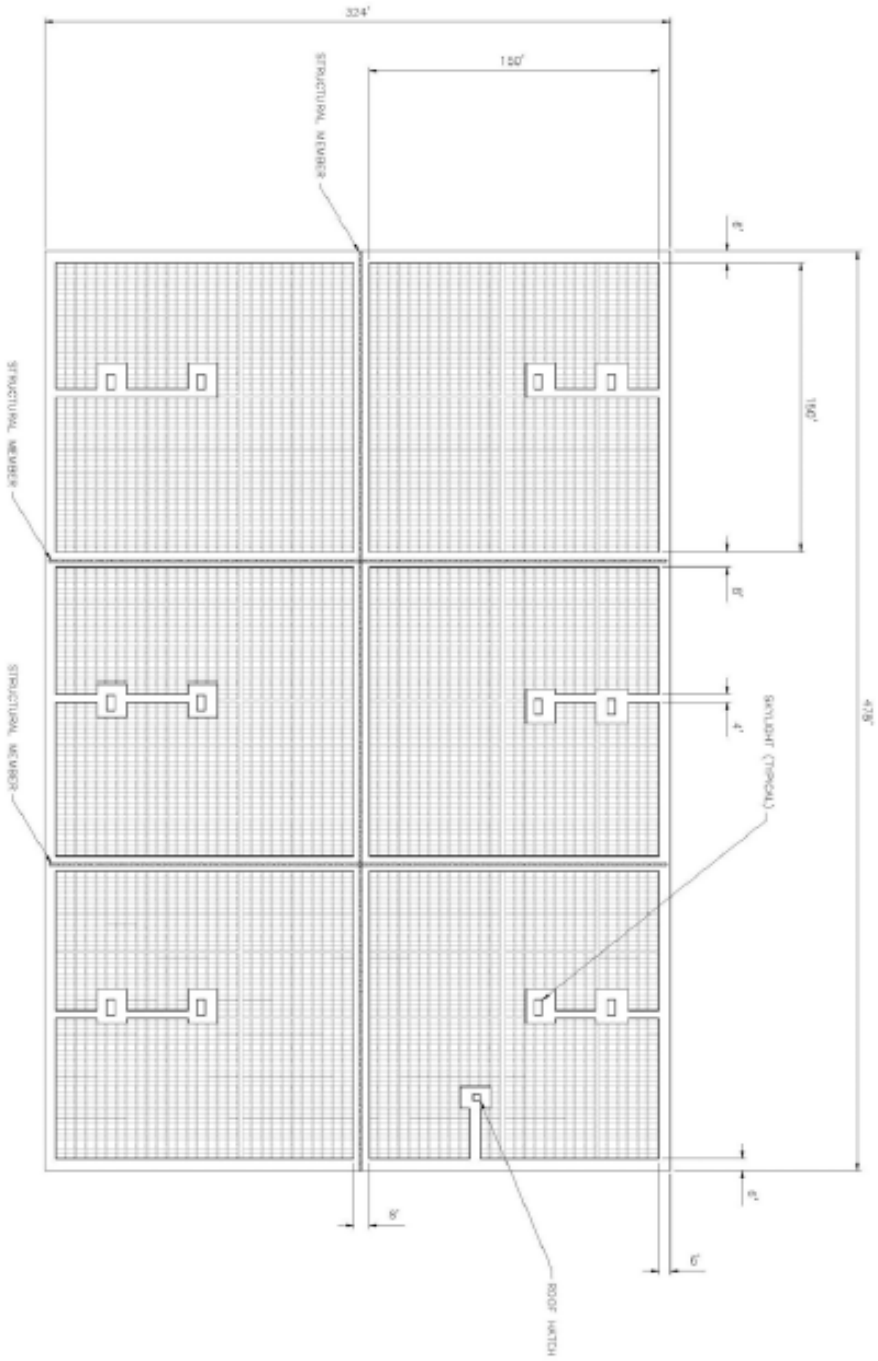
Example 4: Full Hip Roof



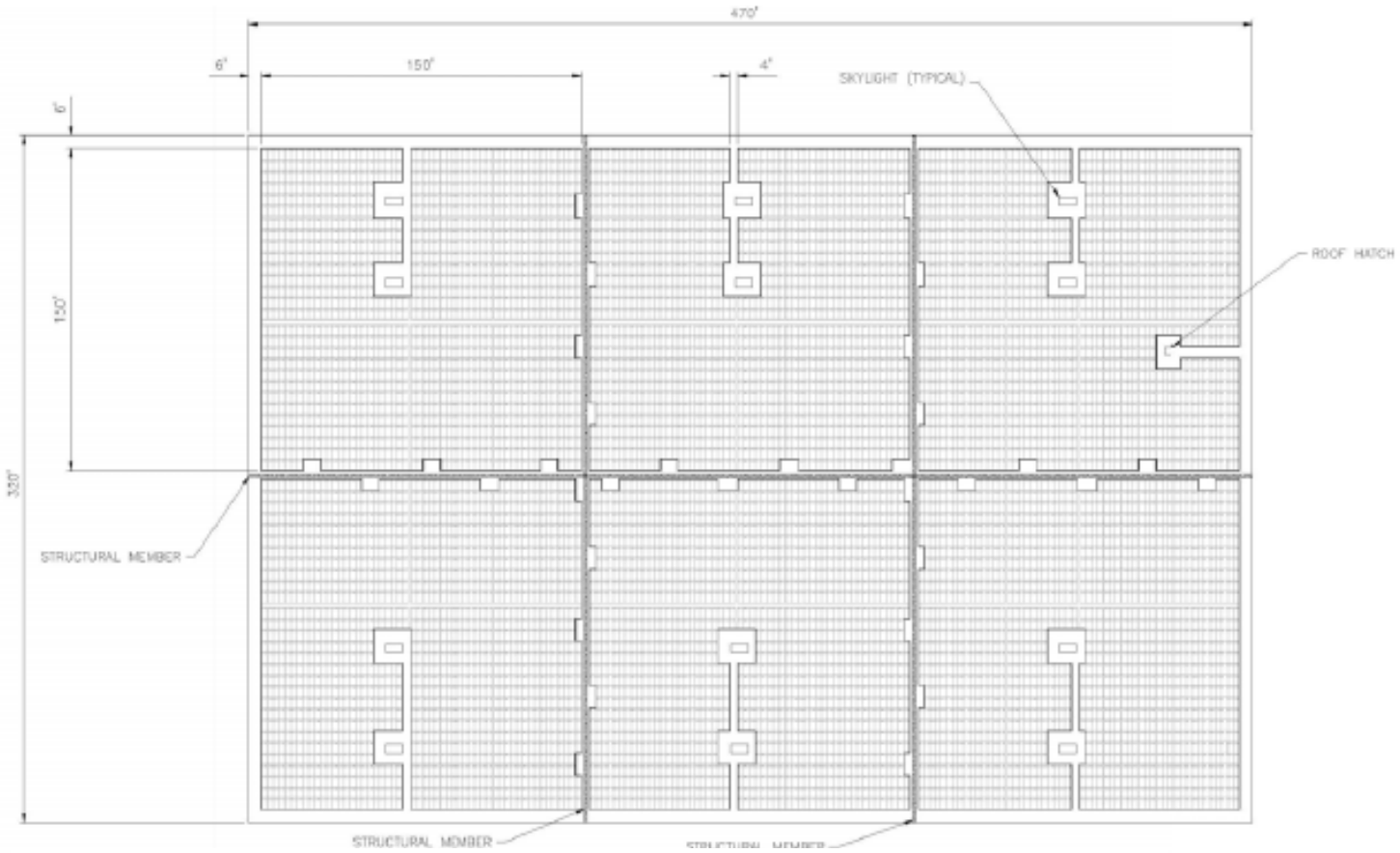
EXAMPLE 5

SOLAR ARRAY, ROOF GARDEN OR LANDSCAPED ROOF EXAMPLE

- LARGE COMMERCIAL
- 8 FOOT WALKWAYS



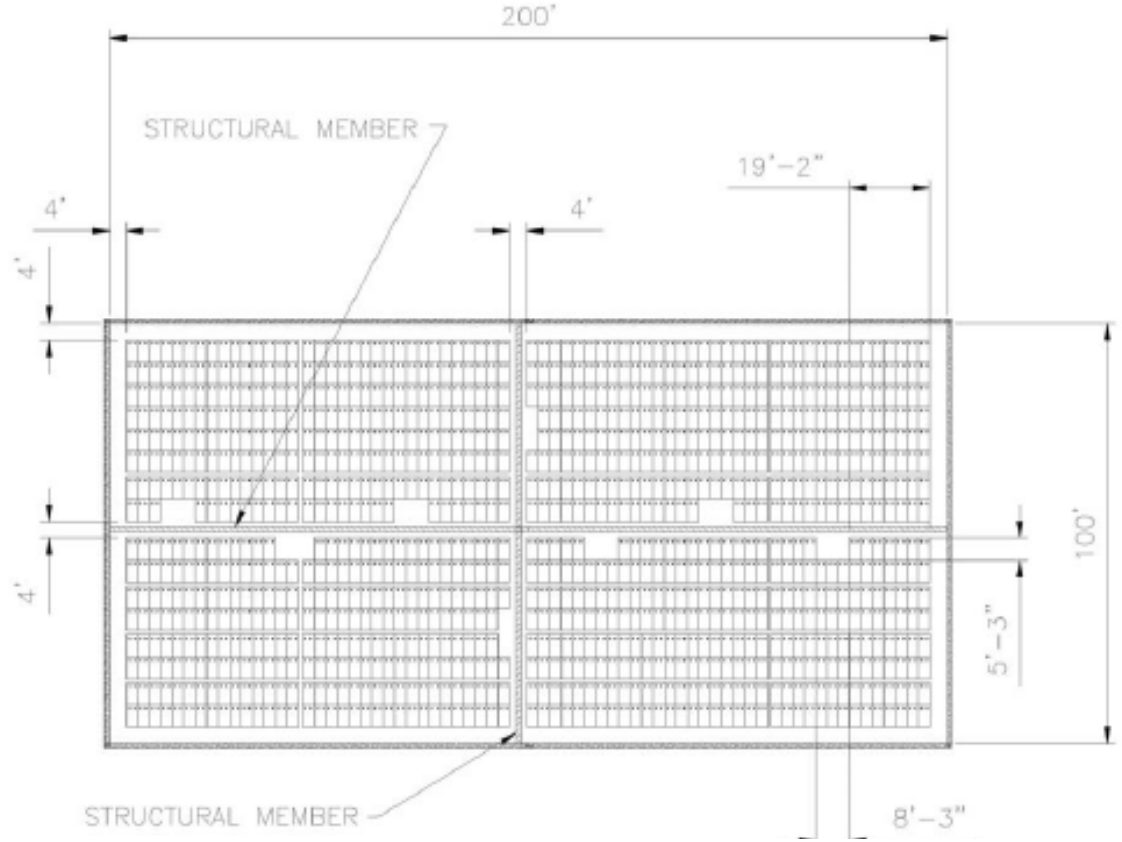
EXAMPLE 6



SOLAR ARRAY, ROOF GARDEN OR LANDSCAPED ROOF EXAMPLE

- LARGE COMMERCIAL
- 4’ WALKWAYS WITH 4’ X 8’ VENTING OPPORTUNITIES EVERY 20’

EXAMPLE 7



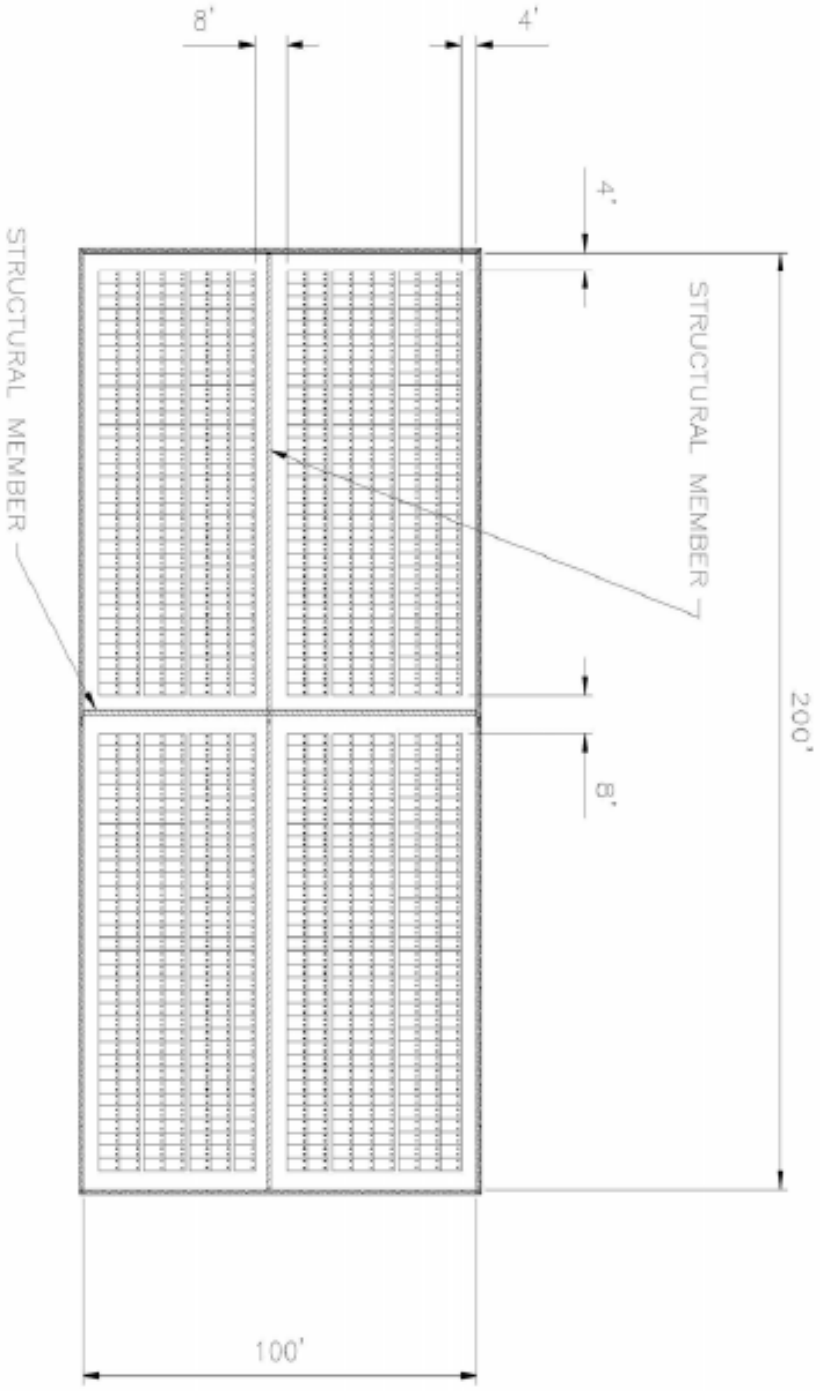
SOLAR ARRAY, ROOF GARDEN OR LANDSCAPED ROOF EXAMPLE

- SMALL COMMERCIAL
- 4' WALKWAYS WITH 4' X 8' VENTING OPPORTUNITIES EVERY 20' ALONG WALKWAYS

EXAMPLE 8

SOLAR ARRAY, ROOF GARDEN OR LANDSCAPED ROOF EXAMPLE

- SMALL COMMERCIAL
- 8 ' WALKWAYS



Reason: Unregulated installations of solar photovoltaic systems, gardens, and landscaping located on the roofs of buildings can create conditions which severely hinder firefighting ventilation operations. Firefighting ventilation allows the escape of heat, smoke, and gases from the interior compartments of a building, reduces the chances of a flashover condition, and greatly helps to restore and maintain a tenable interior environment in a building during a fire.

In many firefighting situations, roof top vertical ventilation is the only form of ventilation that can be employed to meet the need to quickly and effectively ventilate a building's interior. Rapid ventilation is often a critical element in allowing firefighters to enter a burning building to search for and rescue occupants, control the spread of fire, and create a tenable environment to extend the time a person could survive within a burning building.

In order to traverse a roof to place an effective ventilation opening near a fire, firefighters require access to the roof surface. Firefighters utilize techniques including "sounding" roofs with tools such as a rubbish hook, cutting small inspections holes with power saws in roofs to check for fire extension, and by using infrared cameras to check for heat concentrations on the surface of a roof. Installing roof obstructions without regard for firefighting ventilation operations may prevent firefighters from safely traveling along strong underlying roof structural members. Installing layers of waterproofing, building material, soil, and vegetation to the surface of a roof will very likely delay or preclude firefighting roof top ventilation operations unless consideration for ventilation operations were incorporated into the layout design of the roof obstruction.

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

Analysis: Code Change S10-09/10 appears on the hearing order of the IBC-Fire Safety Committee and proposes revisions to IBC Table 1505.1 and Section 1507.16 on this topic. Code changes F8-09/10 and F30-09/10 propose similar requirements. A review of the standard proposed for inclusion in the code, CSFM Solar Photovoltaic Installation Guideline, for compliance with ICC criteria for referenced standards given in Section 3.6 of Council Policy #CP 28 will be posted on the ICC website on or before September 24, 2009.

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

ICCFILENAME: NELSON-F1-APPENDIX J.DOC