

# INTERNATIONAL CODE COUNCIL

## 2009/2010 CODE DEVELOPMENT CYCLE

### PROPOSED CHANGES TO THE 2009 EDITIONS OF THE

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

**October 24 2009 – November 11, 2009**

Hilton Baltimore  
Baltimore, MD



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# INTRODUCTION

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

This compilation of code change proposals is available in electronic form only. As part of ICC's green initiative, ICC will no longer print and distribute this document. The compilation of code change proposals will be posted on the ICC website, and CD copies will be distributed to all interested parties on our list.

## 2009 ICC CODE DEVELOPMENT HEARINGS

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

## REGISTRATION AND VOTING

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

Friday, October 23 <sup>rd</sup>	3:00 pm to 6:00 pm
Saturday, October 24 <sup>th</sup> through Wednesday November 11 <sup>th</sup>	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](http://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](http://www.iccsafe.org/codesforum).

## CODE DEVELOPMENT PROCESS CHANGES

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

## PROCEDURES

The procedures for the conduct of the public hearing are published in *Council Policy #28-Code Development (CP#28)* ("Procedures") on page xii. The attention of interested parties is specifically directed to Section 5.0 of the Procedures. These procedures indicate the conduct of, and opportunity to participate in the ICC Code Development Process. Please review these procedures carefully to familiarize yourself with the process.

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

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

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

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

## **ASSEMBLY ACTION**

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

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

## **MULTIPLE PART CODE CHANGE PROPOSALS**

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

## **ADMINISTRATIVE CODE DEVELOPMENT COMMITTEE**

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

## **ANALYSIS STATEMENTS**

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

## REFERENCE STANDARDS

Proposed changes that include the addition of a reference to a new standard (i.e. a standard that is not currently referenced in the I-Codes.) will include in the proposal the number, title and edition of the proposed standard. This identifies to all interested parties the precise document that is being proposed and which would be included in the referenced standards chapter of the code if the proposed change is approved. Proponents of code changes which propose a new standard have been directed to forward copies of the standard to the Code Committee and an analysis statement will be posted on the ICC website indicating the status of compliance of the standard with the ICC referenced standards criteria in Section 3.6 of CP #28 (see page xiv). (See the ICC Website page xi) The analysis statements for referenced standards will be posted on or before September 24, 2009. This information will also be published and made available at the hearings.

## REFERENCED STANDARDS UPDATES

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

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

## MODIFICATIONS

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

## CODE CORRELATION COMMITTEE

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

## 2009/2010 ICC CODE DEVELOPMENT SCHEDULE

STEP IN CODE DEVELOPMENT CYCLE	DATE	
DEADLINE FOR RECEIPT OF APPLICATIONS FOR CODE COMMITTEES	January 2, 2009	
DEADLINE FOR RECEIPT OF CODE CHANGE PROPOSALS	June 1, 2009	
WEB POSTING OF "PROPOSED CHANGES TO THE I-CODES"	August 24, 2009	
DISTRIBUTION DATE OF "PROPOSED CHANGES TO THE I-CODES" (Limited distribution – see notes)	October 3, 2009	
CODE DEVELOPMENT HEARING (CDH)  ALL CODES – see notes	<b>October 24 2009 – November 11, 2009</b> 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)	<b>May 14 – 23, 2010</b> Dallas, TX	<b>Oct 28 – Nov 1, 1020</b> Charlotte, NC
ANNUAL CONFERENCES	<p><b><u>October 24 – November 11, 2009</u></b> 2009 ICC Annual Conference and Code Development Hearing Balitmore, MD</p> <p><b><u>October 25 – November 1, 2010</u></b> 2010 ICC Annual Conference and Final Action Hearing Charlotte, NC</p>	
RESULTING PUBLICATION	2012 – I-Codes (available April, 2011)	



### **Code Development Process Notes:**

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

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

### **2009/2010 Cycle Notes:**

- Revised code change deadline of June 1<sup>st</sup> posted on March 19<sup>th</sup>
- 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

<b>IBC-General Chapters 1-6, 12, 13, 27-34</b>	<b>IBC-Fire Safety Chapters 7, 8, 9, 14, 26</b>	<b>IBC-Means of Egress Chapters 10, 11</b>	<b>IBC-Structural Chapters 15-25</b>
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## SCOPING REVISIONS – WITHIN THE IBC

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

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

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

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

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



## CP# 28-05 CODE DEVELOPMENT

Approved: 9/24/05

Revised: 2/27/09

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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.

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## 2009/2010 ICC CODE DEVELOPMENT CYCLE CROSS INDEX OF PROPOSED CODE CHANGES

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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:

<b>PREFIX</b>	<b>PROPOSED CHANGE GROUP (see monograph table of contents for location)</b>
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



<b>INTERNATIONAL BUILDING CODE</b>	
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102.4	ADM4 Part I
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105.2	ADM6 Part I
105.2.4	ADM7 Part I
106.1	S55-09/10
107.2	ADM9 Part I
107.2.2	ADM10
107.2.3	ADM11
107.2.6	ADM12
108.1	ADM13
109.3.10.1	ADM14 Part I
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110.3.6	ADM23 Part I (Heard by IBC-FS Committee)
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403.2.3.1	E5 – Part I
403.2.3.2	E5 – Part I
403.3.1.1 (IFC 914.3.1.1.1)	E5 – Part II
403.5.1	E5 – Part I
403.5.4	E5 – Part I
406.2.2	E151 Part I
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406.6.6.1.1 (New)	F178
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415.8.4.6.2 (IFC 1803.12.1.2)	E5 – Part II
415.8.11.2	F161
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505.3	E6
505.4	E6

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707.3.2	E5 – Part I
707.3.3 (New)	E5 – Part I
707.3.10 new	G81
707.3.10 (New)	E132
707.4	E5 – Part I
707.5.1	G178
707.5.1	E5 – Part I
707.6	E5 – Part I
707.7.1	E5 – Part I
708.1	E5 – Part I
708.2	E5 – Part I
708.3 (New)	E5 – Part I
708.6	E5 – Part I
708.14.1	G44 Part I
709.1	G82
709.3	G81
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710.5	G15, G21
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715.4.4	E5 – Part I
715.4.6.1	E5 – Part I
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716.5.1	F162, Part II
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Table 803.9	E5 – Part I
804.4	E5 – Part I
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909.5 (IFC 909.5, IMC 513.5)	E5 – Part II
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110.3	ADM8 Part I
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101.3	ADM3
102.4	ADM4
115 (New)	ADM16 Part I
Chapter 15	ADM39
<b>INTERNATIONAL ZONING CODE</b>	
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
<b>TRACK 1</b>	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
<b>TRACK 2</b>	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
<b>TRACK 1</b>	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
<b>TRACK 2</b>	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**

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



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Hearings: October 24–31 and November 4–11  
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Baltimore Convention Center

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### NEW YORK

- Department of State, Codes Division  
Requires Social Security # \_\_\_\_\_  
ID Number \_\_\_\_\_
- Department of State, Office of Fire Prevention  
Requires Social Security # \_\_\_\_\_  
FDID #/City Code \_\_\_\_\_  
County Code \_\_\_\_\_  
ID Number \_\_\_\_\_

### NORTH CAROLINA

- Code Officials Qualification Board  
Requires Driver's License # \_\_\_\_\_  
ID Number \_\_\_\_\_

### OHIO

- Ohio Department of Commerce, Board of Building Standards  
ID Number \_\_\_\_\_
- Ohio Department of Commerce, Division of Industrial Compliance, Plumbing Section  
ID Number \_\_\_\_\_

### OKLAHOMA

- Construction Industries Board, Inspector Examining Committee  
ID Number \_\_\_\_\_

### PENNSYLVANIA

- Department of Labor and Industry  
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 \_\_\_\_\_

### TENNESSEE

- Commerce and Insurance, Fire Prevention Division (aka State Fire Marshal's Office)  
ID Number \_\_\_\_\_

### TEXAS

- Department of Licensing and Regulation, Electrical Safety and Licensing Advisory Board  
ID Number \_\_\_\_\_

### UTAH

- Division of Occupational and Professional Licensing, Contractor Licensing  
ID Number \_\_\_\_\_

### WISCONSIN

- Safety and Buildings Division  
ID Number \_\_\_\_\_

### AMERICAN INSTITUTE OF ARCHITECTS

- ID Number \_\_\_\_\_

### AMERICAN SOCIETY OF HOME INSPECTORS

- ID Number \_\_\_\_\_

### INTERNATIONAL CODE COUNCIL

- ID Number \_\_\_\_\_

### OTHER

- ID Number \_\_\_\_\_

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**2007/2008 PROPOSED CHANGES TO THE  
INTERNATIONAL MECHANICAL CODE**

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Chief Mechanical Inspector  
City of Mobile  
Mobile, AL

**Tony Longino, CBO – *Vice Chair***

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New York City Dept. of Bldgs  
New York, NY

**Ernest Filippone**

Chief Plumbing & Mechanical Inspector  
Irving, TX Dept. 11  
Irving, TX

**Richard Grace, MCP**

Engineer III  
Fairfax County Government  
Fairfax, VA

**Billy Hinton, Jr., PE**

Code Official - Chief Mechanical  
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- Engineering Division  
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President/Owner  
Dimension 4 Design  
Twentynine Palms, CA

**Staff Secretariat:**

**Gregg Gress**

Senior Technical Staff  
International Code Council

# TENTATIVE ORDER OF DISCUSSION

## 2009/2010 PROPOSED CHANGES TO THE INTERNATIONAL MECHANICAL CODE

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

Proposed change numbers that are indented are those which are being heard out of numerical order. Indentation does **not** necessarily indicate that one change is related to another. Proposed changes may be grouped for purposes of discussion at the hearing at the discretion of the chair.

ADM36-09/10			
ADM37-09/10			
M1-09/10, Part I	M44-09/10	M86-09/10	M128-09/10, Part I
M2-09/10	M45-09/10, Part I	M87-09/10	M129-09/10
M3-09/10	M46-09/10, Part I	M88-09/10	M130-09/10, Part I
M4-09/10	M47-09/10	M89-09/10	M131-09/10, Part I
M5-09/10	M48-09/10	M90-09/10	M132-09/10
M6-09/10, Part I	M49-09/10	M91-09/10	M133-09/10, Part I
M7-09/10, Part I	M50-09/10	M92-09/10	M134-09/10
M8-09/10	M51-09/10	M93-09/10	M135-09/10
M9-09/10, Part I	M52-09/10	M94-09/10	M136-09/10
M10-09/10, Part I	M53-09/10	M95-09/10	M137-09/10
M11-09/10, Part I	M54-09/10	M96-09/10	M138-09/10
M12-09/10	M55-09/10	M97-09/10, Part I	M139-09/10
M13-09/10	M56-09/10	M98-09/10, Part I	M140-09/10, Part I
M14-09/10	M57-09/10	M99-09/10	M141-09/10, Part I
M15-09/10	M58-09/10	M100-09/10	M142-09/10, Part I
M16-09/10	M59-09/10	M101-09/10	M143-09/10
M17-09/10	M60-09/10	M102-09/10, Part I	M144-09/10
M18-09/10	M61-09/10	M103-09/10, Part I	M145-09/10
M19-09/10	M62-09/10	M104-09/10	M146-09/10
M20-09/10	M63-09/10	M105-09/10, Part I	M147-09/10
M21-09/10	M64-09/10	M106-09/10	M148-09/10, Part I
M22-09/10	M65-09/10	M107-09/10	M149-09/10
M23-09/10	M66-09/10	M108-09/10	M150-09/10
M24-09/10	M67-09/10	M109-09/10	M151-09/10, Part I
M25-09/10	M68-09/10	M110-09/10, Part I	M152-09/10, Part I
M26-09/10	M69-09/10	M111-09/10, Part I	M153-09/10
M27-09/10	M70-09/10	M112-09/10, Part I	M154-09/10
M28-09/10	M71-09/10	M113-09/10	
M29-09/10	M72-09/10	M114-09/10, Part I	
M30-09/10	M73-09/10	M115-09/10	
M31-09/10, Part I	M74-09/10	M116-09/10	
M34-09/10	M75-09/10	M117-09/10, Part I	
M35-09/10, Part I	M76-09/10	M118-09/10	
M36-09/10, Part I	M77-09/10	M119-09/10, Part I	
M37-09/10	M78-09/10	M120-09/10, Part I	
M38-09/10, Part I	M79-09/10	M121-09/10, Part I	
M39-09/10, Part I	M80-09/10	M122-09/10	
M40-09/10, Part I	M81-09/10	M123-09/10	
M41-09/10	M82-09/10	M124-09/10	
M42-09/10	M83-09/10	M125-09/10	
M43-09/10	M84-09/10	M126-09/10, Part I	
	M85-09/10	M127-09/10, Part I	

# M1-09/10

## 202 (New); IRC R202 (New)

**Proponent:** Guy Tomberlin, Fairfax County, VA, representing the Virginia Plumbing and Mechanical Inspectors/Virginia Building and Code Officials

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

### PART I – IMC

**Add new definitions as follows:**

**CONTINUOUS OPERATION.** Automatically activated and operating 24 hours a day or whenever the space is occupied.

**INTERMITTENT OPERATION.** Manually activated.

### PART II – IRC MECHANICAL

**Add new definitions as follows:**

**CONTINUOUS OPERATION.** Automatically activated and operating 24 hours a day or whenever the space is occupied.

**INTERMITTENT OPERATION.** Manually activated.

**Reason:** Currently the IMC and the IRC has several sections that require continuous or intermittent operation but never provides the guidance for how either is to be achieved. This addition to the definition section clearly provides the guidance necessary to address these specific sections.

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

### PART I – IMC

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

### PART II – IRC MECHANICAL

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

ICCFILENAME: TOMBERLIN-M-4-M-13-202-RB-3-R202

# M2-09/10

## 202

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

**Revise as follows:**

**ENVIRONMENTAL AIR.** Air that is conveyed to or from occupied areas through ducts which are not part of the heating or air-conditioning system, such as ventilation for human usage, domestic kitchen range exhaust, bathroom exhaust, and domestic clothes dryer exhaust and parking garage exhaust.

**Reason:** Currently, parking garage exhaust ducts and terminals may be considered to be environmental air or product conveyance. Adding parking garage exhaust to the list of items considered to be environmental air will reduce ambiguity for enforcement of location of exhaust air outlets specified in IMC Section 501.2.1. Exhaust air conveyed from parking garages is of the same concentration or ratio as the air contained within the occupied space of the garage and should not be considered to be product conveying.

**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-M-1-202

## M3-09/10 202

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Delete definitions and substitute as follows:**

~~**JOINT, MECHANICAL.** A general form of gas-tight joints obtained by the joining of metal parts through a positive-holding mechanical construction, such as flanged joint, screwed joint or flared joint.~~

~~**MECHANICAL JOINT.** A connection between pipes, fittings, or pipes and fittings, which is neither screwed, caulked, threaded, soldered, solvent cemented, brazed nor welded. Also, a joint in which compression is applied along the centerline of the pieces being joined. Some joints are part of a coupling, fitting or adapter. These joints include both the press-type and push-fit joining systems.~~

### MECHANICAL JOINT.

- A) A connection between pipes, fittings, or pipes and fittings that is not welded, brazed, caulked, soldered or solvent cemented.
- B) A general form of gas or liquid-tight connections obtained by the joining of parts through a positive holding mechanical construction such as but not limited to flanged, screwed, clamped or flared connections.

**Reason:** There is no good reason to have two definitions covering the same subject matter. The "mechanical joint" definition is in direct conflict with the same definition located in the IPC. That definition excludes threaded joints and rightly so. A mechanical joint is one that can be generally disassembled. Welded, cemented, braised and solvent cemented connections cannot be separated without cutting. A little cleanup was undertaken in the form of not including the last sentence in "mechanical joint" as this is commentary and should not be included in the definition. Also, the term being defined should not be used in the definition.

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

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

ICCFILENAME: MCMANN-M-16-202

## M4-09/10 202

**Proponent:** Bob Glaze, Chief Plumbing, Gas and Mechanical Inspector (Retired)

**Delete definition without substitution:**

~~**MECHANICAL JOINT.** A connection between pipes, fittings, or pipes and fittings, which is neither screwed, caulked, threaded, soldered, solvent cemented, brazed nor welded. Also, a joint in which compression is applied along the centerline of the pieces being joined. Some joints are part of a coupling, fitting or adapter. These joints include both the press-type and push-fit joining systems.~~

**Reason:** Definition of 'MECHANICAL JOINT' and 'JOINT, MECHANICAL' disagree with each other, therefore it can be confusing and contradicting. For Mechanical systems ground joints should be used where slip-joints, caulked and solvent cemented joint should not be used except in Plumbing systems.

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

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

ICCFILENAME: GLAZE-M-1-202



## M5–09/10 202 (New)

**Proponent:** Andrew Granzow, Viega, LLC

### Add new definition as follows:

**PRESS JOINT.** A permanent mechanical joint incorporating an elastomeric seal or an elastomeric seal and corrosion-resistant grip ring. The joint is made with a pressing tool and jaw or ring approved by the fitting manufacturer.

**Reason:** This change will clarify the difference between a press joint and other connection types.

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

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

ICCFILENAME: GRANZOW-M-5-202

## M6–09/10 301.6; IRC M1303.1

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

### PART I – IMC

#### Revise as follows:

**301.6 Label information.** A permanent factory-applied name plate(s) shall be affixed to appliances on which shall appear in legible lettering, the manufacturer's name or trademark, the model number, serial number and the seal or mark of the approved agency. A label shall also include the following:

1. Electrical equipment and appliances: Electrical rating in volts, amperes and motor phase; identification of individual electrical components in volts, amperes or watts, motor phase; Btu/h (W) output; and required clearances.
2. Absorption units: Hourly rating in Btu/h (W); minimum hourly rating for units having step or automatic modulating controls; type of fuel; type of refrigerant; cooling capacity in Btu/h (W); and required clearances.
3. Fuel-burning units: Hourly rating in Btu/h (W); type of fuel approved for use with the appliance; and required clearances.
4. Electric comfort heating appliances: ~~Name and trade-mark of the manufacturer; the model number or equivalent; the electric rating in volts, ampacity amperes and phase; Btu/h (W) output rating; individual marking for each electrical component in amperes or watts, volts and phase; and required clearances from combustibles; and a seal indicating approval of the appliance by an approved agency.~~ Name and trade-mark of the manufacturer; the model number or equivalent; the electric rating in volts, amperes and phase; Btu/h (W) output rating; individual marking for each electrical component in amperes or watts, volts and phase; and required clearances from combustibles; and a seal indicating approval of the appliance by an approved agency.

### PART II – IRC MECHANICAL

#### Revise as follows:

**M1303.1 Label information.** A permanent factory-applied nameplate(s) shall be affixed to appliances on which shall appear, in legible lettering, the manufacturer's name or trademark, the model number, a serial number and the seal or mark of the testing agency. A label shall also include the following:

1. Electrical appliances. Electrical rating in volts, amperes and motor phase; identification of individual electrical components in volts, amperes or watts and motor phase; and in Btu/h (W) output and required clearances.
2. Absorption units. Hourly rating in Btu/h (W), minimum hourly rating for units having step or automatic modulating controls, type of fuel, type of refrigerant, cooling capacity in Btu/h (W) and required clearances.
3. Fuel-burning units. Hourly rating in Btu/h (W), type of fuel approved for use with the appliance and required clearances.

4. Electric comfort heating appliances. ~~Name and trademark of the manufacturer; the model number or equivalent; the electric rating in volts, amperes and phase; Btu/h (W) output rating; individual marking for each electrical component in amperes or watts, volts and phase; and required clearances from combustibles and a seal indicating approval of the appliance by an approved agency.~~
5. Maintenance instructions. Required regular maintenance actions and title or publication number for the operation and maintenance manual for that particular model and type of product.

**Reason: (Part I)** The wording in Item 4 is already in the main paragraph. This proposal removes language that is redundant.

**(Part II)** Requirement is already covered in the main section. This proposal removes language that is redundant.

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

#### PART I – IMC

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

#### PART II – IRC MECHANICAL

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

ICCFILENAME: EUGENE-M-6-301.6-RM-1-M1303.1

## M7–09/10

### 302.2

**Proponent:** Vickie Lovell, InterCode, Inc., representing the 3M Company

#### Revise as follows:

**302.2 Penetrations of floor/ceiling assemblies and fire-resistance-rated assemblies.** Penetrations of floor/ceiling assemblies and assemblies required to have a fire-resistance rating shall be protected in accordance with Chapter 7 of the International Building Code.

**Reason:** This change directs the code user to the specific chapter for protection of ducts.

**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-M-4-303.2

## M8–09/10

### 202 (New), 303.3, 927 (New), 927.1 (New); IFC 603.4

**Proponent:** Byron “BJ” Foster, The McMullen Company, Inc., representing the Fire Company, Pty. Ltd., Warriewood, Australia

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

#### PART I – IMC

##### 1. Add new definition as follows:

**UNVENTED DECORATIVE APPLIANCE.** An appliance designed and listed for burning alcohol or ethanol. Such appliances are not vented to the outdoors and have passed an indoor air quality test in accordance with the National Ambient Air Quality Standards as published by the Environmental Protection Agency and the Consumer Product Safety Commission standard for reportable levels of carbon monoxide.

## 2. Revise as follows:

**303.3 Prohibited locations.** Fuel-fired appliances shall not be located in, or obtain *combustion* air from, any of the following rooms or spaces:

1. Sleeping rooms.
2. Bathrooms.
3. Toilet rooms.
4. Storage closets.
5. Surgical rooms.

**Exception:** This section shall not apply to the following appliances:

1. *Direct-vent appliances* that obtain all *combustion air* directly from the outdoors.
2. Solid fuel-fired appliances, provided that the room is not a confined space and the building is not of unusually tight construction.
3. Appliances installed in a dedicated enclosure in which all *combustion air* is taken directly from the outdoors, in accordance with Chapter 7. *Access to* such enclosure shall be through a solid door, weather-stripped in accordance with the exterior door air leakage requirements of the *International Energy Conservation Code* and equipped with an *approved self-closing device*.
4. Unvented alcohol or ethanol burning decorative appliances that are listed and labeled for indoor applications and pass an indoor air quality test in accordance with the National Ambient Air Quality Standards as published by the Environmental Protection Agency and the Consumer Product Safety Commission standard for reportable levels of carbon monoxide.

## 3. Add new text as follows:

### **SECTION 927** **UNVENTED ALCOHOL AND ETHANOL BURNING APPLIANCES**

**927.1 General. Unvented decorative appliances.** Unvented decorative appliances shall be listed for indoor applications and pass an indoor air quality test in accordance with the National Ambient Air Quality Standards as published by the Environmental Protection Agency and the Consumer Product Safety Commission standard for reportable levels of carbon monoxide.

## PART II – IFC

### Revise as follows:

**603.4 Portable unvented heaters.** Portable unvented fuel-fired heating equipment shall be prohibited in occupancies in Groups A, E, I, R-1, R-2, R-3 and R-4.

#### **Exceptions:**

1. Listed and approved unvented fuel-fired heaters, including portable outdoor gas-fired heating appliances, in one- and two-family dwellings.
2. Portable outdoor gas-fired heating appliances shall be allowed in accordance with Section 603.4.2.
3. In other than one- and two-family dwellings, listed and approved unvented alcohol or ethanol fuel-fired decorative appliances that are listed for indoor applications and have passed an indoor air quality test in accordance with the National Ambient Air Quality Standards as published in the EPA and Consumer Products Safety Commission standard for carbon monoxide.

**Reason:** There is currently no category in any of the ICC codes for alcohol burning appliances. This text will allow building and fire officials to evaluate and permit the installation of unvented alcohol burning decorative appliances that are not primarily for heating purposes. This category of appliance is relatively new on the market and is considered a “green appliance”. They produce almost no detectable levels of carbon monoxide. The primary products of combustion are steam and carbon dioxide and are well below the minimum reporting levels as published by the EPA and CPSC. Even in unusually tight construction and very small spaces, these units produce less than half the reportable levels of CO over an eight (8) hour burn period.

#### **Bibliography**

UL Listing Summery and listing sheet for the EcoSmart Fire Unit

Indoor Air Quality Test Summery by Air Quality Sciences

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

**Analysis:** The proponent did not provide Code of Federal Regulations (CFR) citations for either the "National Ambient Air Quality Standards as published in the EPA or the Consumer Products Safety Commission standard for carbon monoxide". Review copies were also not provided in accordance with Section 3.6 of ICC CP-28.

## PART I – IMC

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

## PART II – IFC

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

ICCFILENAME: FOSTER-M-3-202-M-2-303-M-1-927-IFC 603.4

# M9-09/10

## 304.1, Chapter 15; IRC M1401.1, Chapter 44

**Proponent:** Brent Ursenbach, Salt Lake County, representing the Utah Chapter of ICC

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

## PART I – IMC

### 1. Revise as follows:

**304.1 General.** *Equipment* and appliances shall be installed as required by the terms of their approval, in accordance with the conditions of the listing, the manufacturer's installation instructions, the requirements of ANSI/ACCA 5 Q1-2007 where applicable and this code. Manufacturer's installation instructions shall be available on the job site at the time of inspection.

### 2. Add new standard to Chapter 15 as follows:

ACCA 5 Q1-2007 HVAC Quality Installation Specification Residential and Commercial Heating, Ventilating and Air Conditioning (HVAC) Applications

## PART II – IRC MECHANICAL

### 1. Revise as follows:

**M1401.1 Installation.** Heating and cooling *equipment* and *appliances* shall be installed in accordance with the manufacturer's installation instructions, the requirements of ACCA Standard 5 and the requirements of this code.

### 2. Add new standard to Chapter 44 as follows:

ACCA 5 Q1-2007 HVAC Quality Installation Specification Residential and Commercial Heating, Ventilating and Air Conditioning (HVAC) Applications

**Reason:** Maximum energy efficiency from heat and cooling equipment will not be realized until such systems are properly installed. Quoting the *Foreword of Standard 5*:

"There is a need to establish a raised bar to improve the core competencies of contractors to ensure that quality installations ensue. This is beneficial not only as a process improvement for contracting businesses, but, more importantly, for fulfilling the needs of building owners/operators in quality installations – comfortable, healthy, safe, energy-efficient indoor environments. Yet, until now, across the broad spectrum of the industry (manufacturers, distributors, contractors, user groups, customers, utilities, environmental groups, associations/professional societies, governmental agencies, etc.), there has been no universally accepted definition of a quality contractor or a quality installation. Full observance of the quality installation elements may increase the initial "cost" to the residential or commercial building owner/operator. However, the increased "value" – resulting from improved energy efficiency, better comfort, enhanced IAQ, improved equipment reliability, longer equipment life, etc. – is expected to far exceed any added upfront price. Additionally, adherence to the elements in this specification provides intangible societal benefits in the form of reduced power grid energy demand that aids in reducing pollution and dependence on foreign oil."

**Cost Impact:** The code change proposal will increase the cost of construction; however it will decrease the operating cost for HVAC equipment throughout the life of the appliances.

**Analysis:** Review of proposed new standard, ACCA 5 Q1-9-2007, 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.

## PART I – IMC

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

## PART II – IRC MECHANICAL

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

ICCFILENAME: URSENBACH-M-1-304.1-RM-1-M1401.1

# M10–09/10

## 304.3; IRC M1307.3, P2801.6

**Proponent:** Don Surrena, CBO, representing the National Association of Home Builders (NAHB)

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC PLUMBING/MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

## PART I – IMC

### Revise as follows:

**304.3 Elevation of ignition source.** Equipment and appliances having an *ignition source* and located in hazardous locations and public garages, private garages, repair garages, automotive motor fuel-dispensing facilities and parking garages shall be elevated such that the source of ignition is not less than 18 inches (457 mm) above the floor surface on which the *equipment* or *appliance* rests. For the purpose of this section, rooms or spaces that are not part of the living space of a *dwelling unit* and that communicate directly with a private garage through openings shall be considered to be part of the private garage.

**Exception:** Elevation of the ignition source is not required for appliances that are listed as flammable vapor ignition resistant.

**Reason:** This change provides uniformity between the IFGC the IRC and the IMC for consistence of the codes to allow “flammable vapor ignition resistant” appliances to not be required to be elevated. As currently written the provisions for elevation from ignition source is covered in the IRC Section 2408.2 and the IFGC in Section 305.3. The IMC and the IRC Section P2801.6 do not recognize the flammable vapor ignition resistant technology.

### Bibliography

ANSI Z21.10.1a-2002/CSA4.1a-2002

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

## PART II – IRC PLUMBING/MECHANICAL

### Revise as follows:

**M1307.3 Elevation of ignition source.** *Appliances* having an *ignition source* shall be elevated such that the source of ignition is not less than 18 inches (457 mm) above the floor in garages. For the purpose of this section, rooms or spaces that are not part of the living space of a *dwelling unit* and that communicate with a private garage through openings shall be considered to be part of the garage.

**Exception:** Elevation of the ignition source is not required for appliances that are listed as flammable vapor ignition resistant.

**P2801.6 Water heaters installed in garages.** Water heaters having an ignition source shall be elevated such that the source of ignition is not less than 18 inches (457 mm) above the garage floor

**Exception:** Elevation of the ignition source is not required for appliances that are listed as flammable vapor ignition resistant.

**Reason:** This change provides uniformity between the IFGC the IRC and the IMC. If adopted the requirements regarding “flammable vapor ignition resistant” appliances will be consistent throughout the codes. As currently written the provisions for elevation from ignition source is covered in the IRC Section G2408.2 and the IFGC in Section 305.3.

**Bibliography**

ANSI Z21.10.1a-2002/CSA4.1a-2002

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

**PART I – IMC**

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

**PART II – IRC PLUMBING/MECHANICAL**

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

ICCFILENAME: SURRENA-M-1-304.3-RM-1-M1307.3-RP-1-P2801.6

**M11–09/10**  
**306.5 (IFGC 306.5)**

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Revise as follows:**

**306.5 (IFGC 306.5) Equipment and appliances on roofs or elevated structures.** Where equipment requiring access or appliances are located on an elevated structure or the roof of a building such that personnel will have to climb higher than 16 feet above grade to access such equipment or appliances, an interior or exterior means of access shall be provided. Such access shall not require climbing over obstructions greater than 30 inches (762 mm) high or walking on roofs having a slope greater than 4 units vertical in 12 units horizontal (33-percent slope). Such access shall not require the use of portable ladders.

~~Where equipment requiring access and appliances are installed on roofs or elevated structures at a height exceeding 16 feet (4877 mm), such access shall be provided by a permanent approved means of access, the extent of which shall be from grade or floor level to the equipment and appliances’ level service space. Such access shall not require climbing over obstructions greater than 30 inches (762 mm) high or walking on roofs having a slope greater than 4 units vertical in 12 units horizontal (33-percent slope) Where access involves climbing over parapet walls, the height shall be measured to the top of the parapet wall.~~

Permanent ladders installed to provide the required access shall comply with the following minimum design criteria:

1. The side railing shall extend above the parapet or roof edge not less than 30 inches (762 mm).
2. Ladders shall have rung spacing not to exceed 14 inches (356 mm) on center.
3. Ladders shall have a toe spacing not less than 6 inches (152 mm) deep.
4. There shall be a minimum of 18 inches (457 mm) between rails.
5. Rungs shall have a minimum 0.75-inch (19 mm) diameter and be capable of withstanding a 300-pound (136.1 kg) load.
6. Ladders over 30 feet (9144 mm) in height shall be provided with offset sections and landings capable of with standing 100 pounds per square foot (488.2 kg/m<sup>2</sup>). Landing dimensions shall be not less than 18 inches (457 mm) and not less than the width of the ladder served. A guard rail shall be provided on all open sides of the landing.
7. Ladders shall be protected against corrosion by *approved* means.

Catwalks installed to provide the required access shall be not less than 24 inches (610 mm) wide and shall have railings as required for service platforms.

**Exception:** This section shall not apply to Group R-3 occupancies.

**Reason:** This is an effort to stream-line and simplify this section and exclude unnecessary language. This text eliminates where roofs are to be measured by prescribing that if the roof is greater than 16 feet, inside or outdoor access is required regardless of how high parapets are. Prohibiting the use of portable ladders assures that the ladders associated with access are close enough to the ground or floor to access. There is nothing new in this text.

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

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

ICCFILENAME: MCMANN-M-33-306.5

## M12-09/10

### 306.5 (IFGC 306.5)

**Proponent:** Guy McMann and Troy Jones, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Revise as follows:**

**306.5 (IFGC 306.5) Equipment and appliances on roofs or elevated structures.** Where *equipment* requiring access and appliances are installed on roofs or elevated structures at a height exceeding 16 feet (4877 mm), such access shall be provided by a permanent *approved* means of access, the extent of which shall be from grade or floor level to the *equipment* and appliances' level service space. Such access shall not require climbing over obstructions greater than 30 inches (762 mm) high or walking on roofs having a slope greater than four units vertical in 12 units horizontal (33-percent slope). Where access involves climbing over parapet walls, the height shall be measured to the top of the parapet wall. Permanent ladders installed to provide the required access shall comply with the following minimum design criteria:

1. The side railing shall extend above the parapet or roof edge not less than 30 inches (762 mm).
2. Ladders shall have rung spacing not to exceed 14 inches (356 mm) on center. The upper-most rung shall be a maximum of 24 inches (610 mm) below the upper edge of the roof hatch, roof or parapet, as applicable.
3. Ladders shall have a toe spacing not less than 6 inches (152 mm) deep.
4. There shall be a minimum of 18 inches (457 mm) between rails.
5. Rungs shall have a minimum 0.75-inch (19 mm) diameter and be capable of withstanding a 300-pound (136.1 kg) load.
6. Ladders over 30 feet (9144 mm) in height shall be provided with offset sections and landings capable of withstanding 100 pounds per square foot (488.2 kg/m<sup>2</sup>). Landing dimensions shall be not less than 18 inches (457 mm) and not less than the width of the ladder served. A guard rail shall be provided on all open sides of the landing.
7. Climbing clearance. The distance from the centerline of the rungs to the nearest permanent object on the climbing side of the ladder shall be a minimum of 30 inches (762 mm) measured perpendicular to the rungs. This distance shall be maintained from the point of ladder access to the bottom of the roof hatch. A minimum clear width of 15-inches (381 mm) shall be provided on both sides of the ladder measured from the midpoint of and parallel with the rungs except where cages or wells are installed.
8. Landing required. The ladder shall be provided with a clear and unobstructed bottom landing area having a minimum dimension of 30 inches (762 mm) by 30 inches (762 mm) centered in front of the ladder.
79. Ladders shall be protected against corrosion by *approved* means.
10. Ladders shall be accessible at all times.

Catwalks installed to provide the required access shall be not less than 24 inches (610 mm) wide and shall have railings as required for service platforms.

**Exception:** This section shall not apply to Group R-3 occupancies.

**Reason:** There can be many dangers when utilizing permanently installed ladders, most notably falling down or off for one reason or another. There needs to be clear and unobstructed passage up and down the ladder. Currently there is no guidance as to climbing clearances. These requirements come directly from *OSHA Standard 1910.27*. It's hard enough for those whom access is required to properly climb without having to dodge pipes, ducts or walls that encroach on the minimum climbing clearances established in the standard. The 30" clearance makes total sense because many times tools, parts or other items must be carried at the same time while climbing. Likewise, the bottom landing area serves as a staging point for maintenance and fire personnel. These ladders many times are located in small closets or electrical rooms with little regard to accessing or exiting the ladder. There are documented cases where switch gear has been located too close to the ladder causing tail bone and back injuries when descending the ladder. Also, there is no guidance in the code as to how far the top rung needs to be from the very top of the hatch. A rung located too far down creates a tripping hazard. These minimum requirements will help ensure a safer environment when accessing, climbing and descending these ladders.

Ladders also need to be accessible at all times. As is, there is nothing prohibiting a ladder from being installed in the middle of a building or in the middle of an upper floor during the "core and shell" portion of construction. This is ok up to the point where that portion of the floor or building becomes consumed by a tenant later on, rendering the ladder inaccessible by other tenants or fire personnel when the tenant is closed for business. For obvious security reasons only the tenant themselves should access their space. These ladders need to be placed in a neutral location that all tenants and fire personnel can access at all times. This language will provide a "trigger" for plan reviewers when evaluating core and shell plans and permitting them to require a more neutral location when the need arises.



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

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

ICCFILENAME: MCMANN-M-11-306.5

## M13-09/10

### 306.5.1 (IFGC 306.5.1)

**Proponent:** Gary Buck, Salt Lake City Corporation, representing the Utah Chapter of ICC

#### Revise as follows:

**306.5.1 (IFGC 306.5.1) Sloped roofs.** Where appliances, *equipment*, fans or other components that require service are installed on a roof having a slope of ~~three~~ five units vertical in 12 units horizontal (~~25~~ 42-percent slope) or greater and having an edge more than 30 inches (762 mm) above grade at such edge, a level platform shall be provided on each side of the *appliance* or *equipment* to which access is required for service, repair or maintenance. The platform shall be not less than 30 inches (762 mm) in any dimension and shall be provided with guards. The guards shall extend not less than 42 inches (1067 mm) above the platform, shall be constructed so as to prevent the passage of a 21-inch diameter (533 mm) sphere and shall comply with the loading requirements for guards specified in the *International Building Code*. Access shall not require walking on roofs having a slope greater than four units vertical in 12 units horizontal (33-percent slope). Where access involves obstructions greater than 30 inches (762 mm) in height, such obstructions shall be provided with ladders installed in accordance with Section 306.5 or stairs installed in accordance with the requirements specified in the *International Building Code* in the path of travel to and from appliances, fans or *equipment* requiring service.

**Reason:** We feel that this requirement of the code for platforms on roofs is generally ignored because of the comparatively low threshold of the slope of the roof. We feel that slopes of 5:12 or less are relatively safe surfaces to maintain mechanical equipment. The platforms are rarely used and are unsightly. By increasing the slope we feel that this requirement will be less likely overlooked in review and inspections.

**Cost Impact:** Reduced cost.

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

ICCFILENAME: BUCK-M-1-306.5.1



# M14-09/10

## 308.5, Chapter 15

Proponent: Bob Eugene, Underwriters Laboratories, Inc.

### 1. Revise as follows:

**308.5 Labeled assemblies.** The allowable clearance reduction shall be based on an approved reduced clearance protective assembly that ~~has been tested and bears the~~ is listed and labeled in accordance with UL 1618 of an approved agency.

### 2. Add new standard to Chapter 15 as follows:

**UL**  
618-09 Wall Protectors, Floor Protectors, and Hearth Extensions

Reason: The UL 1618 standard includes a comprehensive set of construction and performance requirements that are used to evaluate and list wall protectors, floor protectors, and hearth extensions that are intended for use with heat producing devices, such as fireplaces, fireplace stoves, fireplace inserts, and solid-fuel type room heaters.

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

**Analysis:** Review of proposed new standard, UL 1618-09, 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.

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

ICCFILENAME:E UGENE-M-10-308.5-CH 15

# M15-09/10

## Table 308.6 (New), Figure 308.6(1) (New), Figure 308.6(2) (New)

Proponent: John England, MCO, England Enterprises, Inc.

### 1. Delete existing table and substitute with Table M1306.2 from the IRC as follows:

**TABLE 308.6  
CLEARANCE REDUCTION METHODS**

TYPE OF PROTECTIVE ASSEMBLY <sup>a</sup>	REDUCED CLEARANCE WITH PROTECTION (inches) <sup>a</sup>							
	Horizontal combustible assemblies located above the heat source				Horizontal combustible assemblies located beneath the heat source and all vertical combustible assemblies			
	Required clearance to combustibles without protection (inches) <sup>a</sup>				Required clearance to combustibles without protection (inches)			
	36	18	9	6	36	18	9	6
Galvanized sheet steel, having a minimum thickness of 0.0236 inch (0.6010 mm) (No. 24 gage), mounted on 1-inch glass fiber or mineral wool batt reinforced with wire on the back, 1 inch off the combustible assembly	48	9	5	3	12	6	3	3
Galvanized sheet steel, having a minimum thickness of 0.0236 inch (0.6010 mm) (No. 24 gage), spaced 1 inch off the combustible assembly	48	9	5	3	12	6	3	2
Two layers of galvanized sheet steel, having a minimum thickness of 0.0236 inch (0.6010 mm) (No. 24 gage), having a 1-inch airspace between layers, spaced 1 inch off the combustible assembly	48	9	5	3	12	6	3	3
Two layers of galvanized sheet steel, having a minimum thickness of 0.0236 inch (0.6010 mm) (No. 24 gage), having 1 inch of fiberglass insulation between layers, spaced 1 inch off the combustible assembly	48	9	5	3	12	6	3	3
0.5-inch inorganic insulating board, over 1 inch of fiberglass or mineral wool batt, against the combustible assembly	24	12	6	4	18	9	5	3
3 1/2-inch brick wall, spaced 1 inch off the combustible wall	—	—	—	—	12	6	6	6
3 1/2-inch brick wall, against the combustible wall	—	—	—	—	24	12	6	5

For SI: 1 inch = 25.4 mm, °C = [(°F) - 32]/1.8, 1 pound per cubic foot = 16.02 kg/m<sup>3</sup>, 1.0 Btu • in/ft<sup>2</sup>

• h • °F = 0.144 W/m<sup>2</sup>

• K.

- a. Mineral wool and glass fiber batts (blanket or board) shall have a minimum density of 8 pounds per cubic foot and a minimum melting point of 1,500°F. Insulation material utilized as part of a clearance reduction system shall have a thermal conductivity of 1.0 Btu • in/(ft<sup>2</sup> • h • °F) or less. Insulation board shall be formed of noncombustible material.
- b. For limitations on clearance reduction for solid fuel burning appliances, masonry chimneys, connector pass-throughs, masonry fireplaces and kitchen ducts, see Sections 308.7 through 308.11.

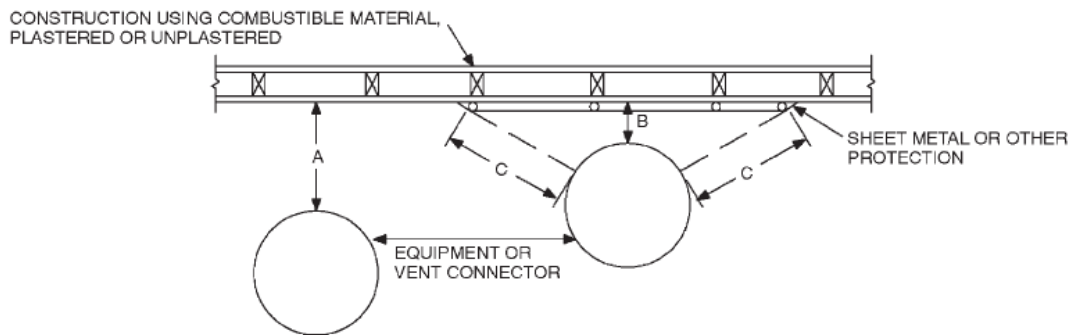
**TABLE M1306.2 308.6**  
**REDUCTION OF CLEARANCES WITH SPECIFIED FORMS OF PROTECTION<sup>a, c, d, e, f, g, h, i, j, k, l</sup>**

TYPE OF PROTECTION APPLIED TO AND COVERING ALL SURFACES OF COMBUSTIBLE MATERIAL WITHIN THE DISTANCE SPECIFIED AS THE REQUIRED CLEARANCE WITH NO PROTECTION (See Figures 308.6(1) and 308.6(2))	WHERE THE REQUIRED CLEARANCE WITH NO PROTECTION FROM APPLIANCE, VENT CONNECTOR, OR SINGLE WALL METAL PIPE IS:									
	36 inches		18 inches		12 inches		9 inches		6 inches	
	Allowable clearances with specified protection (Inches) <sup>b</sup>									
	Use column 1 for clearances above an appliance or horizontal connector. Use column 2 for clearances from an appliance, vertical connector and single-wall metal pipe.									
	Above column 1	Sides and rear column 2	Above column 1	Sides and rear column 2	Above column 1	Sides and rear column 2	Above column 1	Sides and rear column 2	Above column 1	Sides and rear column 2
3 1/2-inch thick masonry wall without ventilated air space	=	24	=	12	=	9	=	6	=	5
1/2-in. insulation board over 1-inch glass fiber or mineral wool batts	24	18	12	9	9	6	6	5	4	3
Galvanized sheet steel having a minimum thickness of 0.0236-inch (No. 24 gage) over 1-inch glass fiber or mineral wool batts reinforced with wire or rear face with a ventilated air space	18	12	9	6	6	4	5	3	3	3
3 1/2-inch thick masonry wall with ventilated air space	=	12	=	6	=	6	=	6	=	6
Galvanized sheet steel having a minimum thickness of 0.0236-inch (No. 24 gage) with a ventilated air space 1-inch off the combustible assembly	18	12	9	6	6	4	5	3	3	2
1/2-inch thick insulation board with ventilated air space	18	12	9	6	6	4	5	3	3	3
Galvanized sheet steel having a minimum thickness of 0.0236-inch (No. 24 gage) with ventilated air space over 24 gage sheet steel with a ventilated space	18	12	9	6	6	4	5	3	3	3
1-inch glass fiber or mineral wool batts sandwiched between two sheets of galvanized sheet steel having a minimum thickness of 0.0236-inch (No. 24 gage) with a ventilated air space	18	12	9	6	6	4	5	3	3	3

For SI: 1 inch = 25.4 mm, 1 pound per cubic foot = 16.019 kg/m<sup>3</sup>, °C = [(°F)-32/1.8], 1 Btu/(h ft<sup>2</sup> °F/in.) = 0.001442299 (W/cm<sup>2</sup> x °C/cm).

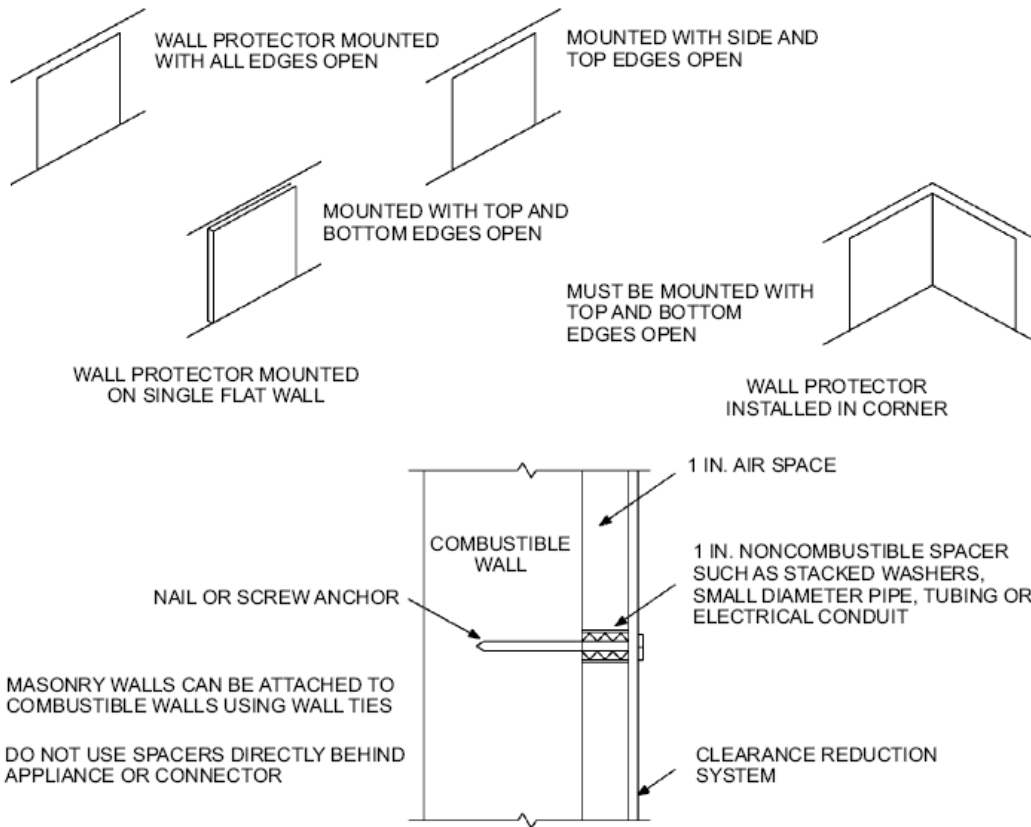
- a. Reduction of clearances from combustibles materials shall not interfere with combustion air, draft hood clearance and relief, and accessibility of servicing.
- b. Clearances shall be measured from the surface of the heat producing appliance or equipment to the outer surface of the combustible material or combustible assembly.
- c. Spacers and ties shall be of noncombustible material. No spacer or tie shall be used directly opposite appliance or connector.
- d. Where all clearance reduction systems use a ventilated air space, adequate provision for air circulation shall be provided as described. [See Figures 308.6(1) and 308.6(2)]
- e. There shall be at least 1 inch between clearance reduction systems and combustible walls and ceilings for reduction systems using ventilated air space.
- f. If a wall protector is mounted on a single flat wall away from corners, adequate air circulation shall be permitted to be provided by leaving only the bottom and top edges or only the side and top edges open with at least a 1-inch air gap.
- g. Mineral wool and glass fiber batts (blanket or board) shall have a minimum density of 8 pounds per cubic foot and a minimum melting point of 1,500 °F.
- h. Insulation material used as part of a clearance reduction system shall have a thermal conductivity of 1.0 Btu inch per square foot per hour °F or less. Insulation board shall be formed of noncombustible material.
- i. There shall be at least 1 inch between the appliance and the protector. In no case shall the clearance between the appliance and the combustible surface be reduced below that allowed in this table.
- j. All clearances and thicknesses are minimum; larger clearances and thicknesses are acceptable.
- k. Listed single-wall connectors shall be permitted to be installed in accordance with the terms of their listing and the manufacturer's instructions.
- l. For limitations on clearance reduction for solid-fuel-burning appliances, masonry chimneys, connector pass-throughs, masonry fireplaces and kitchen ducts, see Sections 308.7 through 308.11.

**2. Add new figures as follows:**



NOTE: "A" equals the required clearance with no protection. "B" equals the reduced clearance permitted in accordance with Table M1306.2. The protection applied to the construction using combustible material shall extend far enough in each direction to make "C" equal to "A."

**FIGURE 308.6(1)**  
**REDUCED CLEARANCE DIAGRAM**



For SI: 1 inch = 25.4 mm.

**FIGURE 308.6(2)**  
**WALL PROTECTOR CLEARANCE REDUCTION SYSTEM**

**Reason:** So table can be consistent with the IFGC and the mechanical and gas sections of the IRC.

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

**Analysis:** Tables M1306.2 and G2409.2 are specific to appliances, vent and chimney connectors and single-wall metal vents, whereas, Table 308.6 is applicable to any heat source.

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

ICCFILENAME: ENGLAND-M-5-T. 308.6

## M16-09/10

### 401.4 (New)

**Proponent:** Guy Tomberlin, Fairfax County, VA, representing the Virginia Plumbing and Mechanical Inspectors/Virginia Building and Code Officials

**Add new text as follows:**

**401.4 Exhaust required.** Exhaust shall be provided as specified in Table 403.3 except as otherwise specified in this code.

**Reason:** There is no current text to direct the user to Table 403.3 for exhaust system design and construction. Other sections of the IMC require exhaust for specific applications such as parking garage, commercial hood system, and hazardous exhaust system. This added wording simply provides acknowledgement that exhaust is required as specified in Table 403.3 unless there is an overriding section detailing other exhaust rates and alternatives.

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

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

ICCFILENAME: T OMBERLIN-M-14-401.4

# M17-09/10

## 401.4

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Revise as follows:**

**401.4 Intake opening location.** Air intake openings shall comply with all of the following:

1. Intake openings shall be located a minimum of 10 feet (3048 mm) from lot lines or buildings on the same lot. Where openings front on a street or public way, the distance shall be measured to the centerline of the street or public way.
2. Mechanical and gravity outdoor air intake openings shall be located not less than 10 feet (3048 mm) horizontally or 25 feet (7620 mm) vertically from any hazardous or noxious contaminant source, such as vents, streets, alleys, parking lots and loading docks, except as specified in Item 3 or Section 501.2.1.
3. Intake openings shall be located not less than 3 feet (914 mm) below contaminant sources where such sources are located within 10 feet (3048 mm) of the opening.
4. Intake openings on structures in flood hazard areas shall be at or above the design flood level.

**Reason:** Currently there is no relief provided by the code for openings located closer than 10 feet to contaminants when such openings are much higher than the contaminant source. At some point there will be little chance that anything will enter. Take an opening facing a street or alley, if the opening is located at least 25 feet above, the exhaust from a truck will disperse before being drawn in. This dimension will put an opening roughly between a 2<sup>nd</sup> and 3<sup>rd</sup> story. At some point there needs to be credit given in the code for height.

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

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

ICCFILENAME: MCMANN-M-19-401.4

# M18-09/10

## 401.4

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Revise as follows:**

**401.4 Intake opening location.** Air intake openings shall comply with all the following:

1. Intake openings shall be located a minimum of 10 feet (3048 mm) from lot lines or buildings on the same lot. ~~Where openings front on a street or public way, the distance shall be measured to the centerline of the street or public way.~~
2. Mechanical and gravity outdoor air intake openings shall be located not less than 10 feet (3048 mm) horizontally from any hazardous or noxious contaminant source, such as vents, streets, alleys, ~~parking lots~~ and loading docks. Where openings front on a street or public way, the distance shall be measured from the centerline closest edge of the street or public way.
3. Intake openings shall be located not less than 3 feet (914 mm) below contaminant sources where such sources are located within 10 feet (3048 mm) of the opening.
4. Intake openings on structures in flood hazard areas shall be at or above the design flood level.

**Reason:** The second sentence seems to be misplaced as the dialogue concerning streets and alleys is in item # 2. Another problem here is that most streets are 20 feet wide. Measuring from the center places an opening directly on the side of the street which defeats the purpose. The contaminant sources listed make sense due to constant vehicle movement and idling but parking lots don't fit. Parking lots generally have vehicles that are not running and are open on all sides preventing an accumulating emission problem. An occasional vehicle entering or leaving a lot should not present a significant concern.

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

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

ICCFILENAME: MCMANN-M-35-401.4

**M19–09/10**  
**401.5, Chapter 15**

**Proponent:** Vickie Lovell, InterCode, Inc., representing the Air Movement and Control Association

**1. Revise as follows:**

**401.5 Intake opening protection.** Air intake openings that terminate outdoors shall be protected with corrosion-resistant screens, louvers or grilles. Openings in louvers, grilles and screens shall be sized in accordance with Table 401.5, and shall be protected against local weather conditions. Louvers that protect air intake openings in structures located in hurricane-prone regions, as defined in the International Building Code, shall comply with AMCA 550. Outdoor air intake openings located in exterior walls shall meet the provisions for exterior wall opening protectives in accordance with the *International Building Code*.

**2. Add new standard as follows:**

AMCA 550-08 Test Method for High Velocity Wind Driven Rain Resistant Louvers

**Reason:** AMCA Standard 550-08 *Test Method for High Velocity Wind Driven Rain Resistant Louvers* standardizes uniform laboratory test methods and minimum performance ratings for water rejection capabilities of louvers intended to be used in high velocity wind conditions.

The tests conducted in accordance with the requirements of this standard are intended to demonstrate the acceptability of the louver for installation in facilities (essential and nonessential) that will remain in operation during a high velocity wind condition and where water infiltration must be kept to manageable amounts.

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

**Analysis:** Review of proposed new standard, AMCA 550-08, 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: LOVELL-M-3-401.5-CH 15

**M20 –09/10**  
**Table 403.3**

**Proponent:** Guy Tomberlin, Fairfax County, VA, representing the Virginia Plumbing and Mechanical Inspectors/Virginia Building and Code Officials

**Revise table as follows:**

**TABLE 403.3**  
**MINIMUM VENTILATION RATES**

OCCUPANCY CLASSIFICATION	PEOPLE OUTDOOR AIRFLOW RATE IN BREATHING ZONE $R_p$ CFM/PERSON	AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE $R_a$ CFM/FT <sup>2a</sup>	DEFAULT OCCUPANT DENSITY #/1000 FT <sup>2a</sup>	EXHAUST AIRFLOW RATE CFM/FT <sup>2a</sup>
	DEFAULT OCCUPANT DENSITY #/1000 FT <sup>2a</sup>	PEOPLE OUTDOOR AIRFLOW RATE IN BREATHING ZONE $R_p$ CFM/PERSON	AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE $R_a$ CFM/FT <sup>2a</sup>	

(The columns in the table will shift in accordance with the shift in column titles.)

**Reason:** Simplified, the DEFAULT OCCUPANT DENSITY column shifts two columns left. PEOPLE and AREA OUTDOOR AIR columns both shift one column to the right. All figures contained within (below) these columns shift accordingly. This proposed change is an attempt to make the table a little more user friendly. Putting the occupant density next to the occupant outdoor air requirement will give the table better flow.

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

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

ICCFILENAME: TOMBERLIN-M-8-T. 403.3

# M21-09/10

## Table 403.3

**Proponent:** Guy Tomberlin, Fairfax County, VA, representing the Virginia Plumbing and Mechanical Inspectors/Virginia Building and Code Officials

Revise table as follows:

**TABLE 403.3  
MINIMUM VENTILATION RATES**

OCCUPANCY CLASSIFICATION	PEOPLE OUTDOOR AIRFLOW RATE IN BREATHING ZONE CFM/PERSON	AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE R <sub>a</sub> CFM/FT <sup>2a</sup>	DEFAULT OCCUPANT DENSITY #/1000 FT <sup>2a</sup>	EXHAUST AIRFLOW RATE CFM/FT <sup>2a</sup>
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(Portions of table not shown remain unchanged)

**Reason:** The term default is unnecessary. It is simply the occupant density. By including the term default it would assume there is some other method of determining the occupant density, which there is not according to current text. The intent of this proposal is to remove any misunderstanding that may lead to any mis-application.

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

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

ICCFILENAME: TOMBERLIN-M-1-T. 403.3

# M22-09/10

## Table 403.3

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

Revise table as follows:

**TABLE 403.3  
MINIMUM VENTILATION RATES**

Occupancy Classification.	People Outdoor Airflow Rate in Breathing Zone CFM/Person	Area Outdoor Airflow rate in Breathing Zone R <sub>a</sub> CFM/FT <sup>2a</sup>	Default Occupant Density #/1000 FT. <sup>2 a</sup>	Exhaust Airflow Rate CFM Ft <sup>2 a</sup>
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(Portions of table not shown remain unchanged)

For SI: 1 cubic foot per minute = 0.0004719 m<sup>3</sup>/s, 1 ton = 908 kg, 1 cubic foot per minute per square foot = 0.00508 m<sup>3</sup>/(s \_ m<sup>2</sup>),

C = [(F) -32]/1.8, 1 square foot = 0.0929 m<sup>2</sup>.

- a. Based upon net occupiable floor area.
- b. Mechanical exhaust is required as prescribed in Table 403.3 and the recirculation of air from such spaces is prohibited (see Section 403.2.1, Item 3).
- c. Spaces unheated or maintained below 50°F are not covered by these requirements unless the occupancy is continuous.
- d. Ventilation systems in enclosed parking garages shall comply with Section 404.
- e. Rates are per water closet or urinal. The higher rate shall be provided where periods of heavy use are expected to occur, such as toilets in theaters, schools and sports facilities. The lower rate shall be permitted where periods of heavy use are not expected.
- f. Rates are per room unless otherwise indicated. The higher rate shall be provided where the exhaust system is designed to operate intermittently. The lower rate shall be permitted where the exhaust system is designed to operate continuously during normal hours of use.
- g. Mechanical exhaust is required as prescribed in Table 403.3 and recirculation is prohibited except that recirculation shall be permitted where the resulting supply airstream consists of not more than 10 percent air recirculated from these spaces (see Section 403.2.1, Items 2 and 4).
- h. For nail salons, the required exhaust shall include ventilation tables or other systems that capture the contaminants and odors at their source and are capable of exhausting a minimum of 50 cfm per station.

**Reason:** The word "default" here is a carryover from ASHRAE 62.1 and has no meaning in the context of the IMC text.. This is the only Table to be used as charged by the 2<sup>nd</sup> sentence of 403.3. The revised notes for Table 403.3 recognize the exhaust column in the table. Currently, no text refers to this column in the table.

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

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

ICCFILENAME: MCMANN-M-29-T. 403.3

## M23-09/10 Table 403.3

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

Revise table as follows:

**TABLE 403.3  
 MINIMUM VENTILATION RATES**

OCCUPANCY CLASSIFICATION	PEOPLE OUTDOOR AIRFLOW RATE IN BREATHING ZONE CFM/PERSON	AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE R <sub>A</sub> CFM/FT <sup>2</sup> A	DEFAULT OCCUPANT DENSITY #/1000 FT <sup>2A</sup>	EXHAUST AIRFLOW RATE CFM/FT <sup>2A</sup>
<b>Public Spaces</b>				
Corridors	-	0.06	-	-
<u>Stairway enclosures</u> <sup>i</sup>	-	<u>0.06</u>	-	-

a. through h. (No change)

i. The square footage of a stairway enclosure shall be the area of the bottom of the enclosure multiplied by the number of stories served by the stairway.

(Portions of table and notes not shown remain unchanged)

**Reason:** There are good reasons to ventilate a stairway enclosure and currently, there are no requirements in the IMC for such ventilation. Stairway enclosures are becoming even more occupied due to an increase in traffic by occupants who use the stairway as a means of exercise. Also, people are being encouraged to save elevator energy by choosing the stairways. A lack of ventilation could also promote an environment for mold growth. It is quite possible that in today's world, occupants could be intentionally held in a stairway enclosure by authorities as this would be considered an *area of refuge* according to IBC 1007.6, due to possible security issues that may be occurring within or outside the building. Even though IMC 601.3 calls for an independent system, this alone should not be the deciding factor for not ventilating stairway enclosures.

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

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

ICCFILENAME MCMANN-M-36-T. 403.3



# M24-09/10

## Table 403.3

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

Revise table as follows:

**TABLE 403.3  
MINIMUM VENTILATION RATES**

OCCUPANCY CLASSIFICATION	PEOPLE OUTDOOR AIRFLOW RATE IN BREATHING ZONE RP CFM/PERSON	AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE RA CFM/FT2 <sup>A</sup>	DEFAULT OCCUPANT DENSITY #/1000 FT2 <sup>A</sup>	EXHAUST AIRFLOW RATE CFM/FT2 <sup>A</sup>
Beauty and nail salons <sup>b,h</sup> <u>Nail salon stations<sup>h</sup></u>	20 -	0.12 -	25 -	0.6 <u>50 per station<sup>h</sup></u>

h. ~~For Nail Salons, the required exhaust shall include ventilation tables or other systems that capture the contaminants and odors at their source and are capable of exhausting a minimum of 50 cfm per station each nail station shall be provided with a source capture system capable of exhausting not less than 50 cfm per station.~~

(Portions of table and notes not shown remain unchanged)

**Reason:** Beauty and nail salons should not be combined and treated the same way as it relates to exhaust. Beauty salons in general do not use the same chemicals as found in nail stations. When a properly installed source capture system is employed, as defined in this code, recirculation of air should not be an issue. Source capture systems may take many forms and include ventilation tables and small hood arrangements that are intended to capture the contaminants at their source. This is why some of the language in the footnote has been removed because source capture systems include all these. The definition also states that the exhaust must be discharged to the outdoors. The general area of a nail salon should not be prohibited from recirculation because the source capture system has solved the concerns involving contamination associated with the use of acetone and other chemicals. The exhaust requirements in the table take care of the mild odors commonly found in these 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: MCMANN-M-24-T. 403.3

# M25-09/10

## Table 403.3

**Proponent:** Guy Tomberlin, Fairfax County, VA, representing the Virginia Plumbing and Mechanical Inspectors/Virginia Building and Code Officials

Revise as follows:

**TABLE 403.3  
MINIMUM VENTILATION RATES**

(Portions of table not shown remain unchanged)

- a. though d. (No change)
- e. Rates are per water closet or urinal. ~~The higher rate shall be provided where periods of heavy use are expected to occur, such as, toilets in theaters, schools, and sports facilities. The lower rate shall be permitted where periods of heavy use are not expected.~~ The higher rate shall be provided where the exhaust system is designed to operate intermittently. The lower rate shall be permitted only where the exhaust system is designed to operate continuously during occupancy.

- f. Rates are per room unless otherwise indicated. The higher rate shall be provided where the exhaust system is designed to operate intermittently. The lower rate shall be permitted only where the exhaust system is designed to operate continuously during occupancy normal hours of use.
- g. and h. (No change)

**Reason:** These revisions allow for consistent and uniform application. The current text is vague and ambiguous.

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

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

ICCFILENAME: TOMBERLIN-M-11-T. 403.3

## M26–09/10

### 403.7

**Proponent:** Eli P. Howard, III, Sheet Metal and Air Conditioning Contractors National Association, Inc.

**Revise as follows:**

**403.7 Balancing.** The *ventilation air* distribution system shall be provided with means to adjust the system to achieve at least the minimum ventilation airflow rate as required by Sections 403.3 and 403.4. Ventilation systems shall be balanced ~~by an approved method~~ as specified in SMACNA HVAC Systems Testing, Adjusting & Balancing. Such balancing shall verify that the ventilation system is capable of supplying and exhausting the airflow rates required by Sections 403.3 and 403.4.

**Reason:** The current balancing requirements in the IMC does not provide for clearly defined methods or procedures for testing, adjusting, and balancing of HVAC systems. SMACNA's *HVAC Systems Testing, Adjusting & Balancing* manual provides specific methods and procedures—a complete process—that ensures all HVAC systems have been properly adjusted and balanced.

**Cost Impact:** Using established, time-tested procedures to correctly balance HVAC airflows the first time should have no cost impact.

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

ICCFILENAME: HOWARD-M-8-403.7

## M27–09/10

### 404.1

**Proponent:** Donald R. Monahan, PE, Walker Parking Consultants, representing the National Parking Association and the Automated & Mechanical Parking Association

**Revise as follows:**

**404.1 Enclosed parking garages.** Mechanical ventilation systems for enclosed parking garages shall be permitted to operate intermittently where the system is arranged to operate automatically upon detection of ~~vehicle operation or the presence of occupants by approved automatic detection devices~~ carbon monoxide levels equal to or greater than 35 parts per million by approved automatic detection devices. Upon activation, such systems shall operate for a period of not less than 30 minutes.

**Reason:** The current language implies occupancy sensors are required to detect vehicles and/or occupants when it is the concentration of vehicle emissions that is the reason for mechanical ventilation in enclosed parking garages. Merely the presence of vehicles or occupants does not mean that there will be excessive levels of CO. Therefore, the mechanical ventilation system should operate intermittently when the carbon monoxide concentration exceeds acceptable levels. The concentration will not exceed acceptable levels if there are not moving vehicles in the garage which also indicates that there will be people going to or from those vehicles in addition to the driver being exposed to the CO levels via the vehicle's ventilation system.

**References:**

ANSI/ASHRAE Standard 62.1-2007, *Ventilation for Acceptable Indoor Air Quality*, Atlanta 2007  
 Moncef Krarti and Arselene Ayari, *CFD Analysis of Ventilation System Performance for Enclosed Parking Garages*, ASHRAE Transactions, Vol. 109, Part 2, pages 21-29, Atlanta 2003

**Cost Impact:** Installation cost difference is negligible as occupancy sensors are replaced by carbon monoxide detectors, however, the operating costs will be minimized as the fans will only operate when CO limits are exceeded.

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

ICCFILENAME: MONAHAN-M-1-404.1

# M28-09/10

## 404.1

**Proponent:** Larry Lincoln, Salt Lake City Corporation, representing the Utah Chapter of ICC

**Revise as follows:**

**404.1 Enclosed parking garages.** Mechanical ventilation systems for enclosed parking garages shall be permitted to operate intermittently in accordance with Item 1, Item 2 or both. ~~where~~

1. The system ~~is~~ shall be arranged to operate automatically upon detection of vehicle operation or the presence of occupants by approved automatic detection devices.
2. The system shall be arranged to operate automatically by means of carbon monoxide detectors applied in conjunction with nitrogen dioxide detectors. Such detectors shall be installed in accordance with their manufacturers' recommendations.

**Reason:** Our experience on the last several projects is that the operation of motion sensors in parking garages is very costly and energy inefficient. Initially the code just required carbon monoxide detectors and there was a concern about diesel emissions which would not be detected by the carbon monoxide detectors. Since that time, nitrogen dioxide detectors have been developed which will detect diesel emissions solving the concern about the increase of diesel powered vehicles in parking garages. Using both detectors has been the preferred option as an alternate method of addressing the problem.

**Cost Impact:** Less overall expenses in power bills.

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

ICCFILENAME: LINCOLN-M-1-404.1

# M29-09/10

## 501.2 (New), 506.4

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**1. Add new text as follows:**

**501.2 Independent System Required.** Single or combined mechanical exhaust systems for environmental air shall be independent of all other exhaust systems. Dryer exhaust shall be independent of all other systems. Type I exhaust systems shall be independent of all other exhaust systems except as provided in Section 506.3.5. Single or combined Type II exhaust systems for food-processing operations shall be independent of all other exhaust systems. Kitchen exhaust systems shall be constructed in accordance with Section 505 for domestic equipment and Sections 506 through 509 for commercial equipment.

**2. Revise as follows:**

**506.4 Ducts serving Type II hoods.** ~~Single or combined Type II exhaust systems for food processing operations shall be independent of all other exhaust systems.~~ Commercial kitchen exhaust systems serving Type II hoods shall comply with Sections 506.4.1 and 506.4.2.

**Reason:** This is an important clarification that needs to be reinstated in the code, that all exhaust systems are independent of all other exhaust systems unless the code specifically states otherwise. This was removed during the 2001 cycle but in doing so, the baby was thrown out with the bath water. There are other types of exhaust other than kitchens that this applies to. Hazardous, environmental, dryer and so forth. This will clarify, for instance, that an environmental air duct could not discharge into a kitchen exhaust duct or combine dryer exhaust with environmental exhaust and so on. Independent systems will also minimize the potential for spreading contaminants, hazard exhaust, fire and smoke to other parts of the building.

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

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

ICCFILENAME: MCMANN-M-1-501.2

# M30–09/10

## 501.2.2, Chapter 15

**Proponent:** Vickie Lovell, InterCode, Inc., representing Air Movement and Control Association

### 1. Revise as follows:

**501.2.2 Exhaust opening protection.** Exhaust openings that terminate outdoors shall be protected with corrosion-resistant screens, louvers or grilles. Openings in screens, louvers and grilles shall be sized not less than ¼ inch (6 mm) and not larger than 1/2 inch (13 mm). Openings shall be protected against local weather conditions. Louvers that protect exhaust openings in structures located in hurricane-prone regions, as defined in the International Building Code, shall comply with AMCA Standard 550. Outdoor openings located in exterior walls shall meet the provisions for exterior wall opening protectives in accordance with the *International Building Code*.

### 2. Add new standard as follows:

#### AMCA 550-08 Test Method for High Velocity Wind Driven Rain Resistant Louvers

**Reason:** AMCA Standard 550-08 *Test Method for High Velocity Wind Driven Rain Resistant Louvers* standardizes uniform laboratory test methods and minimum performance ratings for water rejection capabilities of louvers intended to be used in high velocity wind conditions.

The tests conducted in accordance with the requirements of this standard are intended to demonstrate the acceptability of the louver for installation in facilities (essential and nonessential) that will remain in operation during a high velocity wind condition and where water infiltration must be kept to manageable amounts

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

**Analysis:** Review of proposed new standard, AMCA 550-08, 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: LOVELL-M-6-501.2.2-CH 15

# M31–09/10

## 501.5 (New); IRC M1506.1 (New)

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

### PART I – IMC

#### Add new text as follows:

**501.5 Domestic exhaust fan manifolding prohibited.** Domestic-type environmental air exhaust fans shall not be interconnected to a common discharge duct. Such fans shall be independently exhausted to the outdoors.

### PART II – IRC MECHANICAL

#### Add new text as follows:

**M1506.1 Exhaust fan manifolding prohibited.** Exhaust fans shall not be interconnected utilizing a common discharge duct. Exhaust fans shall be independently exhausted to the outdoors.

**Reason:** The code does not address the manifolding of residential type exhaust fans. This practice produces poor results for venting. Air, like water, will seek the path of least resistance and the back-draft dampers are not intended to be air tight. Once the duct is pressurized, air still makes it way back into the building. The practice of combining fans and enlarging ducts produces velocity issues as the manufacturers will agree with, resulting in poor performance which is just one of the reasons this type of arrangement is not printed in any of the instructions. Conversations with engineers at Braun/Nu Tone agree, the best performance is achieved when these fans are exhausted independently. Rarely when combined is it done correctly, which would require extra back-draft dampers at wye locations and the calculations required to properly size ducts and determine maximum lengths. The practice of throwing two, three or more fans together defeats the purpose from an effective ventilation standpoint. The excuse that multiple penetrations in the building are undesirable cannot be the reason for this practice. If a single penetration is desired for multiple bathrooms, then a central exhaust system properly designed for the load is the way to achieve it.



As we can see in this poor example, the code does not address this situation. There needs to be clear guidance in order to prevent this type of installation.

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

#### PART I – IMC

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

#### PART II – IRC MECHANICAL

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

ICCFILENAME: MCMANN-M-31-501.5-RM-2-M1506.1

## M32–09/10

### 502.8.1

**Proponent:** Rick Thornberry, PE, The Code Consortium, Inc., representing: American Pyrotechnics Association (APA)

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

**Revise as follows:**

**[F] 502.8.1 Storage in excess of the maximum allowable quantities.** Indoor storage areas and storage buildings for hazardous materials in amounts exceeding the maximum allowable quantity per control area shall be provided with mechanical exhaust ventilation or natural ventilation where natural ventilation can be shown to be acceptable for the materials as stored.

#### Exceptions:

1. Storage areas for flammable solids complying with Section 3604 of the *International Fire Code*.
2. Storage areas and storage buildings for fireworks and explosives complying with Chapter 33 of the *International Fire Code*.

**Reason:** The purpose of this code change is to better correlate Section 502.8.1 requirements with the requirements in Section 2704.3 Ventilation of the 2009 International Fire Code from which this section is extracted text. Unfortunately, when this text was extracted to be incorporated into the International Mechanical Code, it was taken slightly out of context. That is because the scoping provisions of Chapter 27 of the International Fire Code in Section 2701.1 Scope has specific exceptions that indicate that certain hazardous materials are not required to be in compliance with Chapter 27. This is the case for fireworks and explosives as indicated in Exception 7 to Section 2701.1 which states: "The display, storage, sale or use of fireworks and explosives in accordance with Chapter 33." Therefore, we have added a new Exception 2 to Section 502.8.1 to correlate with Exception 7 to Section 2701.1 for the storage of fireworks and explosives.

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

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

ICCFILENAME: THORNBERRY-M-1-502.8.1

## M33–09/10

[F] 502.9.1, [F] 502.9.1.1 (New), [F] 502.9.1.2 (New), [F] 502.9.1.3 (New)

**Proponent:** Gary Kreutziger, City of San Antonio, TX, representing the Planning and Development Services Department

**THIS PROPOSAL IS ON THE AGENDA OF THE IFC CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.**

**Revise as follows:**

**[F] 502.9.1 Compressed gases-medical gas systems.** Rooms for the storage of compressed medical gases in amounts exceeding the maximum allowable exempt quantity per control area, and which do not have an exterior wall, shall be exhausted through a duct to the exterior of the building. Both separate airstreams shall be enclosed in a 1-hour rated shaft enclosure from the room to the exterior. Approved mechanical ventilation shall be provided at a minimum rate of 1 cfm/ft<sup>2</sup> [0.00508 m<sup>3</sup>/(s·m<sup>2</sup>)] of the area of the room. Where containers of medical gases in quantities greater than the *permit amount* in accordance with the *International Fire Code* are located inside buildings, the rooms for the storage of such compressed medical gases shall be ventilated in accordance with Sections 502.9.1.1 through 502.9.1.1.3.

**[F] 502.9.1.1 Exterior room.** Rooms shall have at least one exterior wall that is provided with at least two vents. Each vent shall be not less than 36 square inches (0.023 m<sup>2</sup>) in area. One vent shall be within 6 inches (152 mm) of the floor and one shall be within 6 inches (152 mm) of the ceiling.

**[F] 502.9.1.2 Interior room.** Where an exterior wall cannot be provided, the room shall be exhausted through a duct to the exterior. Supply and exhaust ducts shall be enclosed in a 1-hour-rated shaft enclosure from the room to the exterior. Approved mechanical ventilation shall be provided at a minimum rate of 1 cfm/ft<sup>2</sup> [0.00508 m<sup>3</sup>/(s·m<sup>2</sup>)] of the area of the room.

**[F] 502.9.1.3 Gas cabinets.** Gas cabinets for the storage of compressed medical gases in amounts exceeding the maximum allowable quantity per control area shall be connected to an exhaust system. The average velocity of ventilation at the face of access ports or windows shall not be less than 200 feet per minute (1.02 m/s) with a minimum velocity of 150 feet per minute (0.76 m/s) at any point of the access port or window.

**Reason:** The purpose of the proposed code change is to eliminate confusion and create consistency between the International Fire Code section 3006.2 and the International Mechanical Code section 502.9.1, which both address medical gas storage room exhaust ventilation. The current text in section 502.9.1 of the IMC uses language no longer found elsewhere in the ICC family of codes. The terminology "*maximum allowable exempt quantity*" is used in the IMC while the IFC uses the common terminology "*permit amount*". The IFC includes tables that provide "*permit amounts*" and the IBC and the IFC both include tables that provide "*maximum allowable quantity*", but, there is not a table in any I-code document to provide a

"*maximum allowable exempt quantity*". The creation of sub-sections 502.9.1.1, 502.9.1.2 and 502.9.1.3 in the IMC are to provide the same format, level of detail and language found in the IFC for the three prescriptive methods for medical gas storage room ventilation as that found in the IFC.

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

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

ICCFILENAME: KREUTZIGER-M-2-502.9.1

## M34–09/10

### 504.4

**Proponent:** Eli P. Howard, III, Sheet Metal and Air Conditioning Contractors National Association, Inc.

**Revise as follows:**

**504.4 Exhaust installation.** Dryer exhaust ducts for clothes dryers shall terminate on the outside of the building and shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination. Ducts shall not be connected or installed with sheet metal screws or other fasteners that will obstruct the exhaust flow. Clothes dryer exhaust ducts shall not be connected to a vent connector, vent or *chimney*. Clothes dryer exhaust ducts shall not extend into or through ducts or plenums. The use of rivets shall not be prohibited.

**Reason:** All mechanical fasteners protrude inside duct, however rivets provide the least amount of protrusion.

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

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

ICCFILENAME: HOWARD-M-6-504.4

## M35–09/10

### 504.4, 504.6.2; IRC M1502.4.1, M1502.4.2, M1502.4.4.1

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

#### PART I – IMC

**Revise as follows:**

**504.4 Exhaust installation.** Dryer exhaust ducts for clothes dryers shall terminate on the outside of the building and shall be equipped with a back-draft damper. Screens shall not be installed at the duct termination. Ducts shall ~~not be connected or installed with sheet metal screws or other fasteners that will obstruct the exhaust flow.~~ be mechanically fastened in accordance with SMACNA Duct Construction Standard- Metal and Flexible. Fasteners shall not protrude into the duct more than 1/8 inch. Ducts shall be sealed in accordance with Section 603.9. Clothes dryer exhaust ducts shall not be connected to a vent connector, vent or chimney. Clothes dryer exhaust ducts shall not extend into or through ducts or plenums.

**504.6.2 Duct installation.** Exhaust ducts shall be supported at ~~4-12~~ foot intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. ~~Ducts shall not be joined with screws or similar fasteners that protrude into the inside of the duct.~~

#### PART II – IRC MECHANICAL

**Revise as follows:**

**M1502.4.1 Material and size** Exhaust ducts shall have a smooth interior finish and be constructed of metal having a minimum thickness of ~~0.016 inch (0.4 mm)~~ 0.0157 inches (.3950 mm) (No. 28 gage). ~~thick.~~ The duct shall be 4 inches nominal in diameter.

**M1502.4.2 Duct installation.** Exhaust ducts shall be supported at ~~4-12~~ foot intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Exhaust duct joints shall be sealed in accordance with Section M1601.4.1 and shall be mechanically fastened. Ducts shall not be joined with screws or similar fasteners that protrude more than 1/8 inch (3.2 mm) into the inside of the duct.

**M1502.4.4.1 Specified length.** The maximum length of the exhaust duct shall be ~~25 feet (7620 mm)~~ 35 feet (1068 mm) from the connection to the transition duct from the dryer to the outlet terminal. Where fittings are used, the maximum length of the exhaust duct shall be reduced in accordance with Table M1502.4.4.1.

**Reason: (PART I)** 504.4 and 504.6.2 conflict with the SMACNA Standard and contain conflicting or, at least, redundant text. Tape alone is no means of correctly fastening any duct. Code Officials may certainly permit this practice if they chose to do so but the code should not direct a practice that conflicts with the Standard it condones. There is nothing wrong with small fasteners as long as they don't extend too far into the duct. A maximum penetration of 1/8 inch will assure minimum lint buildup as much more than that collects on the duct walls. Duct cleaning firms are having difficulties because the ducts are coming apart, requiring them to open up finished walls to repair them, thereby creating added expenses and unhappy customers. Duct separations in any location, especially in concealed locations, could result in a fire hazard and moisture and lint accumulation. Mechanically fastened ducts can tolerate a longer interval (12 feet) between supports and the current 4 feet interval is overkill.

**Reason: (PART II)** The language in M1502.4.1 is consistent with language in last cycles M-16 Part II which was approved. M1502.4.2 violates the SMACNA Standard for hanger spacing and the last sentence also violates M1502.5 in that tape alone is not a means of connection for dryer vents. Duct cleaning firms are having fits because the ducts are coming apart requiring them to open up finished walls to repair them thereby creating added expense and unhappy customers. The 35-foot dimension is consistent with what is already in the IMC and IFGC.

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

## PART I – IMC

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

## PART II – IRC MECHANICAL

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

ICCFILENAME: MCMANN-M-27-504.4-504.6.2-RM-6-M1502.4.1

# M36–09/10

## 504.6.1; IRC M1502.4.1

**Proponent:** John England, MCO, England Enterprises, Inc.

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

## PART I – IMC

**Revise as follows:**

**504.6.1 Material and size.** Exhaust ducts shall have a smooth interior finish and shall be constructed of metal a minimum 0.016 inch (0.4 mm) thick. The exhaust duct size shall be 4 inches (102 mm) nominal in diameter.

**Exception:** Ducts for domestic dryers shall be permitted to be constructed of Schedule 40 PVC pipe and fittings provided that the installation complies with all of the following:

1. The duct is installed under a concrete slab poured on grade.
2. The underfloor trench in which the duct is installed is completely backfilled with sand or gravel.
3. The PVC duct shall extend not more than 1 inch (25 mm) above the indoor concrete floor surface.
4. The PVC duct shall extend not more than 1 inch (25 mm) above grade outside of the building.
5. The PVC ducts shall be solvent cemented.
6. Long sweep PVC fittings shall be used.
7. The PVC piping shall be reamed.

## PART II – IRC MECHANICAL

**Revise as follows:**

**M1502.4.1 Material and size.** Exhaust ducts shall have a smooth interior finish and shall be constructed of metal a minimum 0.016-inch (0.4 mm) thick. The exhaust duct size shall be 4 inches (102 mm) nominal in diameter.

**Exception:** Ducts for domestic dryers shall be permitted to be constructed of Schedule 40 PVC pipe and fittings provided that the installation complies with all of the following:

1. The duct is installed under a concrete slab poured on grade.
2. The underfloor trench in which the duct is installed is completely backfilled with sand or gravel.
3. The PVC duct shall extend not more than 1 inch (25 mm) above the indoor concrete floor surface.
4. The PVC duct shall extend not more than 1 inch (25 mm) above grade outside of the building.
5. The PVC ducts shall be solvent cemented.
6. Long sweep PVC fittings shall be used.
7. The PVC piping shall be reamed.

**Reason:** These sections are taken from the down-draft ranges, Section 505.1 and Section M1503.2 of the IRC. Many times dryers can be vented in the slab to the exterior with shorter distances than are up and through the attic. I know of many building officials that have allowed this as an alternative method.

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



## PART I – IMC

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

## PART II – IRC MECHANICAL

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

ICCFILENAME: ENGLAND-M-1-504.6.1-RM-3-M1502.4.1

# M37–09/10

## 504.6.2

**Proponent:** Eli P. Howard, III, Sheet Metal and Air Conditioning Contractors National Association, Inc.

### Revise as follows:

**504.6.2 Duct installation.** Exhaust ducts shall be supported at 4-foot (1219 mm) intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude into the inside of the duct. The use of rivets shall not be prohibited.

**Reason:** All mechanical fasteners to some degree protrude into the inside of duct when used, however the rivet has the least protrusion effect inside the duct.

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

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

ICCFILENAME: HOWARD-M-1-504.6.2

# M38–09/10

## 504.6.4; IRC M1502.4.4, M1502.4.4.2

**Proponent:** John England, MCO, England Enterprises, Inc.

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

## PART I – IMC

### Revise as follows:

**504.6.4 Duct length.** The maximum allowable exhaust duct length shall be determined by ~~one of the methods~~ specified in Section 504.6.4.1 or for other than dwelling units, Section 504.6.4.2.

## PART II – IRC MECHANICAL

### 1. Revise as follows:

**M1502.4.4 Duct length.** The maximum allowable exhaust duct length shall be determined by ~~one of the methods~~ specified in Section M1502.4.4.1 or M1502.4.4.2.

### 2. Delete without substitution:

**M1502.4.4.2 Manufacturer's instructions.** ~~The size and maximum length of the exhaust duct shall be determined by the dryer manufacturer's installation instructions. The code official shall be provided with a copy of the installation instructions for the make and model of the dryer at the concealment inspection. In the absence of fitting equivalent length calculations from the clothes dryer manufacturer, Table M1502.4.4.1 shall be used.~~

**Reason: (PART I)** In R-2 apartments and single family housing the possibility of changing the dryer out every 5-7 years can create a fire hazard if an equivalent unit is not installed.

**(PART II)** In R-2 Dwelling units and R-3 occupancies there is a potential fire hazard if a dryer is replaced with a older unit. Since there is no annual fire inspections done in these occupancies and occupants move on average of 5 – 7 years the potential is great for a different unit to be improperly installed.

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

## PART I – IMC

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

## PART II – IRC MECHANICAL

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

ICCFILENAME: ENGLAND-M-3-504.6.4-RM-M1502.4.4

# M39–09/10

## 504.6.4, 504.6.4.3 (New); IRC M1502.4.4, M1502.4.4.3 (New)

**Proponent:** Julius Ballanco, PE, JB Engineering and Code Consulting, P.C., representing the Home Ventilating Institute

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

## PART I – IMC

### 1. Revise as follows:

**504.6.4 Duct length.** The maximum allowable exhaust duct length shall be determined by one of the methods specified in Sections 504.6.4.1 ~~or~~ through 504.6.4.2 504.6.4.3.

### 2. Add new text as follows:

**504.6.4.3 Dryer exhaust duct power ventilator.** The maximum length of the exhaust duct shall be determined by the manufacturer's installation instructions for the dryer exhaust duct power ventilator. Dryer exhaust duct power ventilators shall be listed and labeled for use in dryer exhaust duct systems and shall be installed in accordance with the manufacturer's installation instructions.

## PART II – IRC MECHANICAL

### 1. Revise as follows:

**M1502.4.4 Duct length.** The maximum allowable exhaust duct length shall be determined by one of the methods specified in Sections M1502.4.4.1 ~~or~~ through M1502.4.4.2 M1502.4.4.3.

### 2. Add new text as follows:

**M1502.4.4.3 Dryer exhaust duct power ventilator.** The maximum length of the exhaust duct shall be determined by the manufacturer's installation instructions for the dryer exhaust duct power ventilator. Dryer exhaust duct power ventilators shall be listed and labeled for use in dryer exhaust duct systems and shall be installed in accordance with the manufacturer's installation instructions.

**Reason:** During the rewrite of this section, dryer exhaust duct power ventilators were originally a part of the requirements. The section was deleted when the Supplemental requirements were not completed prior to the final code change hearing. This proposed text is similar to the original language proposed during the last cycle.

Dryer exhaust duct power ventilators are now regulated by Supplemental requirements to UL 705. These supplemental requirements specify testing for ventilators used in this application. The requirements include many safety provisions for the ventilators. The ventilator manufacturer specifies the maximum length of the dryer exhaust duct. This length is used for testing and listing the ventilator, thus verifying the instructions.

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

**PART I – IMC**

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

**PART I – IRC MECHANICAL**

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

ICCFILENAME: BALLANCO-M-1-504.6.4-RM-1-M1502.4.4

**M40–09/10**

**504.6.4, 504.6.4.3 (New); IRC M1502.4.4, M1502.4.4.3 (New)**

**Proponent:** John England, MCO, England Enterprises, Inc.

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

**PART I – IMC**

**1. Revise as follows:**

**504.6.4 Duct length.** The maximum allowable exhaust duct length shall be determined by one of the methods specified in Section 504.6.4.1, or 504.6.4.2 or 504.6.4.3.

**2. Add new text as follows:**

**504.6.4.3 Dryer exhaust duct power ventilator.** Where a dryer exhaust duct power ventilator is installed, the maximum length of the exhaust duct shall be determined in accordance with the manufacturer’s installation instructions for the dryer exhaust duct power ventilator. A placard with the following statement shall be placed at the location of the dryer. “IF THE DRYER’S ELECTRICAL SYSTEM IS NOT CONNECTED TO THE DRYER EXHAUST DUCT POWER VENTILATOR BEFORE THE DRYER IS USED, A FIRE IN THE DRYER EXHAUST DUCT COULD OCCUR.”

**PART II – IRC MECHANICAL**

**1. Revise as follows:**

**M1502.4.4 Duct length.** The maximum allowable exhaust duct length shall be determined by one of the methods specified in Section M1502.4.4.1, or M1502.4.4.2 or M1502.4.4.3.

**2. Add new text as follows:**

**M1502.4.4.3 Dryer exhaust duct power ventilator.** Where a dryer exhaust duct power ventilator is installed, the maximum length of the exhaust duct shall be determined in accordance with the manufacturer’s installation instructions for the dryer exhaust duct power ventilator. A placard with the following statement shall be placed at the location of the dryer. “IF THE DRYER’S ELECTRICAL SYSTEM IS NOT CONNECTED TO THE DRYER EXHAUST DUCT POWER VENTILATOR BEFORE THE DRYER IS USED, A FIRE IN THE DRYER EXHAUST DUCT COULD OCCUR.”

**Reason:** Dryer boosters are common and occupants should be notified when changing dryers to hook up the dryer booster to the electrical system.

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

**PART I – IMC**

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

**PART II – IRC MECHANICAL**

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

ICCFILENAME: ENGLAND-M-6-504.6.4.3-RM-1-M1502.4.4.3

# M41–09/10

## 504.6.4.1

**Proponent:** John England, MCO, England Enterprises, Inc.

**Revise as follows:**

**504.6.4.1 Specified length.** The maximum length of the exhaust duct shall be ~~35 feet (10 668 mm)~~ 25 feet (7620 mm) from the connection to the transition duct from the dryer to the outlet terminal. Where fittings are used, the maximum length of the exhaust duct shall be reduced in accordance with Table 504.6.4.1

**Reason:** The IRC and the IMC should be consistent with each 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: ENGLAND-M-2-504.6.4.1

# M42–09/10

## 202, 504.7

**Proponent:** Bob Eugene, representing Underwriters Laboratories, Inc.

**1. Revise definition as follows:**

**CLOTHES DRYER.** An appliance used to dry wet laundry by means of heat. ~~Dryer classifications are as follows:~~

~~**Type 1.** Factory built package, multiple production. Primarily used in family living environment. Usually the smallest unit physically and in function output.~~

~~**Type 2.** Factory built package, multiple production. Used in business with direct intercourse of the function with the public. Not designed for use in individual family living environment.~~

**2. Revise as follows:**

**504.7 Commercial clothes dryers.** The installation of dryer exhaust ducts serving ~~Type 2 commercial~~ clothes dryers shall comply with the appliance manufacturer's installation instructions. Exhaust fan motors installed in exhaust systems shall be located outside of the airstream. In multiple installations, the fan shall operate continuously or be interlocked to operate when any individual unit is operating. Ducts shall have a minimum *clearance* of 6 inches (152 mm) to combustible materials. Clothes dryer transition ducts used to connect the *appliance* to the exhaust duct system shall be limited to single lengths not to exceed 8 feet (2438 mm) in length and shall be *listed* and *labeled* for the application. Transition ducts shall not be concealed within construction.

**Reason:** The dryer classifications noted in the definition only apply to gas-fired clothes dryers. Gas-fired clothes dryers are not covered by the International Mechanical 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-M-1-202-504.7

# M43-09/10

## 504.8

**Proponent:** John R. Addario, PE, New York State Department of State, Division of Code Enforcement and Administration

**Revise as follows:**

**504.8 Common exhaust systems for clothes dryers located in multistory structures.** Where a common multistory duct system is designed and installed to convey exhaust from multiple clothes dryers, the construction of the system shall be in accordance with all of the following:

1. The shaft in which the duct is installed shall be constructed and fire-resistance rated as required by the *International Building Code*.
2. Dampers shall be prohibited in the exhaust duct. Penetrations of the shaft and ductwork shall be protected in accordance with Section 607.5.5, Exception 2.
3. Rigid metal ductwork shall be installed within the shaft to convey the exhaust. The ductwork shall be constructed of sheet steel having a minimum thickness of 0.0187 inch (0.4712 mm) (No. 26 gage) and in accordance with *SMACNA Duct Construction Standards*.
4. The ductwork within the shaft shall be designed and installed without offsets.
5. The exhaust fan motor design shall be in accordance with Section 503.2.
6. The exhaust fan motor shall be located outside of the airstream.
7. The exhaust fan shall run continuously, and shall be connected to a standby power source.

**Exception:** Where the exhaust fan is interlocked with the dryer so as to operate when any individual dryer is operating, the exhaust fan need not run continuously or be connected to a standby power source.

8. Exhaust fan operation shall be monitored in an *approved* location and shall initiate an audible or visual signal when the fan is not in operation.
9. Makeup air shall be provided for the exhaust system.
10. A cleanout opening shall be located at the base of the shaft to provide access to the duct to allow for cleaning and inspection. The finished opening shall be not less than 12 inches by 12 inches (305 mm by 305 mm).
11. Screens shall not be installed at the termination.

**Reason:** Currently Section 504.8 Item 7 requires an exhaust fan to run continuously and be connected to standby power. In most cases, in a standby power situation the dryers themselves will be inoperable. The requirement for the exhaust fan to run continuously is to ensure that the system is drawing exhaust air from each clothes dryer unit that is in operation at any given time. Having the exhaust system interconnected with each individual unit ensures that the exhaust fan will run as needed and therefore meets the intent of the code. This proposal provides an option from the requirement of a standby power source while still meeting the original intent of the code. This proposal will also save considerable energy by allowing the exhaust fan to be shut down while not in 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: ADDARIO-M-1-504.8

# M44-09/10

## 504.8

**Proponent:** Guy Tomberlin, Fairfax County, VA, representing the Virginia Plumbing and Mechanical Inspectors/Virginia Building and Code Officials

**Revise as follows:**

**504.8 Common exhaust systems for clothes dryers located in multistory structures.** Where a common multistory duct system is designed and installed to convey exhaust from multiple clothes dryers, the construction of the system shall be in accordance with all of the following:

1. The shaft in which the duct is installed shall be constructed and fire-resistance rated as required by the *International Building Code*.

2. Dampers shall be prohibited in the exhaust duct. Penetrations of the shaft and ductwork shall be protected in accordance with Section 607.5.5, Exception 2.
3. Rigid metal ductwork shall be installed within the shaft to convey the exhaust. The ductwork shall be constructed of sheet steel having a minimum thickness of 0.0187 inch (0.4712 mm) (No. 26 gage) and in accordance with SMACNA *Duct Construction Standards*.
4. The ductwork within the shaft shall be designed and installed without offsets.
5. The exhaust fan motor design shall be in accordance with Section 503.2.
6. The exhaust fan motor shall be located outside of the airstream.
7. The exhaust fan shall run continuously, and shall be connected to a standby power source.
8. Exhaust fan operation shall be monitored in an *approved* location and shall initiate an audible or visual signal when the fan is not in operation.
9. Makeup air shall be provided for the exhaust system.
10. A cleanout opening shall be located at the base of the shaft to provide access to the duct to allow for cleaning and inspection. The finished opening shall be not less than 12 inches by 12 inches (305 mm by 305 mm).
11. Screens shall not be installed at the termination.
12. The common multistory duct system shall serve only clothes dryers and shall be independent of other exhaust systems.

**Reason:** Current text fails to prohibit the interconnection of other exhaust systems. This is providing the guidance that maintains the original intent for these systems to remain independent.

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

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

ICCFILENAME: TOMBERLIN-M-15-504.8

## M45-09/10

### 505.1; IRC M1503.1

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

#### PART I – IMC

#### Revise as follows:

**505.1 Domestic systems.** Where domestic range hoods and domestic appliances equipped with downdraft exhaust are located within dwelling units, such hoods and appliances shall discharge to the outdoors through sheet metal ducts constructed of galvanized steel, stainless steel, aluminum or copper. Such ducts shall have smooth inner walls, and shall be air tight, and shall be equipped with a back-draft damper, and shall be independent of all other exhaust systems.

#### Exceptions:

1. Where installed in accordance with the manufacturer's installation instructions and where mechanical or *natural ventilation* is otherwise provided in accordance with Chapter 4, *listed* and *labeled* ductless range hoods shall not be required to discharge to the outdoors.
2. Ducts for domestic kitchen cooking appliances equipped with downdraft exhaust systems shall be permitted to be constructed of Schedule 40 PVC pipe and fittings provided that the installation complies with all of the following:
  - 2.1. The duct shall be installed under a concrete slab poured on grade.
  - 2.2. The underfloor trench in which the duct is installed shall be completely backfilled with sand or gravel.
  - 2.3. The PVC duct shall extend not more than 1 inch (25 mm) above the indoor concrete floor surface.
  - 2.4. The PVC duct shall extend not more than 1 inch (25 mm) above grade outside of the building.
  - 2.5. The PVC ducts shall be solvent cemented.

**PART II – IRC MECHANICAL**

**Revise as follows:**

**M1503.1 General.** Range hoods shall discharge to the outdoors through a single-wall duct. The duct serving the hood shall have a smooth interior surface, shall be air tight, ~~and shall be equipped with a back-draft damper, and shall be independent of all other exhaust systems.~~ Ducts serving range hoods shall not terminate in an attic or crawl space or areas inside the building.

**Exception:** Where installed in accordance with the manufacturer's installation instructions, and where mechanical or natural ventilation is otherwise provided, listed and labeled ductless range hoods shall not be required to discharge to the outdoors

**Reason:** Range hood exhaust needs to be independent from all other exhaust systems. This is a very specific application involving much larger fans than one would find elsewhere in a typical residence. Bathroom fans should not be discharged into a range hood exhaust duct as the volume of air and the velocity at which it operates will over-power any back-draft damper on such a small fan. These fans should not be manifolded in the first place as the manufacturers will attest to.

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

**PART I – IMC**

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

**PART II – IRC MECHANICAL**

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

ICCFILENAME: MCMANN-M-22-505.1-RM-4-M1503.1

**M46–09/10  
505.1; IRC M1503.2**

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

**PART I – IMC**

**Revise as follows:**

**505.1 Domestic systems.** Where domestic range hoods and domestic appliances equipped with downdraft exhaust are located within dwelling units, such hoods and appliances shall discharge to the outdoors through sheet metal ducts constructed of galvanized steel, stainless steel, aluminum or copper. Such ducts shall have smooth inner walls and shall be air tight and equipped with a back-draft damper.

**Exceptions:**

1. Where installed in accordance with the manufacturer's installation instructions and where mechanical or natural ventilation is otherwise provided in accordance with Chapter 4, listed and labeled ductless range hoods shall not be required to discharge to the outdoors.
2. Ducts for domestic kitchen cooking appliances equipped with downdraft exhaust systems shall be permitted to be constructed of Schedule 40 PVC pipe provided that the installation complies with all of the following:
  - 2.1. The duct shall be installed under a concrete slab poured on grade.
  - 2.2. The under-floor trench in which the duct is installed shall be completely backfilled with sand, or gravel or clean earth.

- 2.3. The PVC duct shall extend not greater than 1 inch (25 mm) above the indoor concrete floor surface.
- 2.4. ~~The PVC duct shall extend not more than 1 inch (25 mm) above grade outside of the building.~~  
The duct shall terminate at a tee fitting that is open on the bottom and positioned over a gravel bed that is not less than 1 foot deep and 1 cubic foot in volume. The duct shall slope toward the gravel bed at not less than 1/8 inch per foot. The riser from the top of the tee fitting shall extend above grade not less than 6 inches. Both ends of the Tee fitting shall be protected in accordance with Section 501.2.2.
- 2.5. The PVC ducts joints shall be solvent cemented.

**Reason:** As currently written, Exception # 2 requires the PVC duct to be trapped. Where is the water from condensation going to go? Where is the trapped grease going to go? This proposal will eliminate the problem. A simple gravel bed will provide a reasonable place for fluids to drain. This text provides minimal guidance as to the size and depth of the gravel bed. It makes sense to terminate into a Tee fitting as it does double duty, providing a means of draining and a means of discharge for the exhaust. The requirement to extend 6 inches above grade as opposed to 1 inch ensures that debris, grass or dirt won't obstruct the opening. The opening will need to be protected with screens. The acronym PVC was deleted because it is stated in the body of the section and does not need to be constantly repeated. Since the duct is constructed of PVC, there is no reason to prohibit clean fill as a backfill material, thus cutting some cost.

**Cost Impact:** None, permitting earth as a backfill offsets the cost of sand or gravel backfill.

## PART II – IRC MECHANICAL

### Revise as follows:

**M1503.2 Duct material** .Single-wall ducts serving range hoods shall be constructed of galvanized steel, stainless steel or copper.

**Exception:** Ducts for domestic kitchen cooking appliances equipped with down-draft exhaust systems shall be permitted to be constructed of schedule 40 PVC pipe provided that the installation complies with all of the following:

1. The duct is installed under a concrete slab poured on grade; ~~and~~.
2. The under-floor trench in which the duct is installed is completely backfilled with sand, ~~or gravel; and or~~  
clean earth.
3. The PVC duct extends not more than 1 inch (25 mm) above the indoor concrete floor surface; ~~and~~.
4. ~~The PVC duct extends not more than 1 inch (25 mm) above grade outside of the building; and~~  
The duct shall terminate at a tee fitting that is open on the bottom and positioned over a gravel bed that is not less than 1 foot deep and 1 cubic foot in volume. The duct shall slope toward the gravel bed at not less than 1/8 inch per foot. The riser from the top of the tee fitting shall extend above grade not less than 6 inches. Both ends of the Tee fitting shall be protected in accordance with Section R303.5
5. The ~~PVC~~ ducts joints are solvent cemented.

**Reason:** As currently written, Exception # 4 unintentionally requires the PVC duct to be trapped. Where is the water from condensation going to go? Where is the trapped grease going to go? This proposal will eliminate the problem. A simple gravel bed will provide a reasonable place for fluids to drain. This text provides minimal guidance as to the size and depth of the gravel bed. It makes sense to terminate into a Tee fitting as it does double duty, providing a means of draining and a means of discharge for the exhaust. The requirement to extend 6 inches above grade as opposed to 1 inch insures that debris, grass or dirt won't obstruct the opening. The opening will need to be protected with screens. The acronym PVC was deleted because it is stated in the body of the section and does not need to be constantly repeated. Since the duct is constructed of PVC, there is no reason to prohibit clean fill as a backfill material, thus cutting some cost.

**Cost Impact:** NONE, permitting earth as a backfill offsets the cost of sand or gravel backfill.

## PART I – IMC

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

## PART II – IRC MECHANICAL

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

ICCFILENAME: MCMANN-M-23-505.1-RM-1-M1503.2



# M47-09/10

## 506.3.2.3

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Revise as follows:**

**506.3.2.3 Duct-to-exhaust fan connections.** Duct- to-exhaust fan connections shall be flanged and gasketed at the base of the fan for vertical discharge fans; shall be flanged, gasketed and bolted to the inlet of the fan for side-inlet utility fans; and shall be flanged, gasketed and bolted to the inlet and outlet of the fan for in-line fans. Gasket and sealing materials shall be rated for continuous duty at a temperature of not less than 1500 degrees F.(815-degree C.)

**Reason:** This section is silent when it comes to providing guidance as to what the gasket material and sealants used to keep them in place should be rated for as it relates to temperature. This text comes from the National Standard and makes this section consistent with Section 506.3.2.2 # 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 :MCMANN-M-3-506.3.2.3

# M48-09/10

## 506.3.6

**Proponent:** Tony Crimi, A.C. Consulting Solutions, Inc., representing the International Firestop Council

**Revise as follows:**

**506.3.6 Grease duct clearances.** Where enclosures are not required, grease duct systems and exhaust *equipment* serving a Type I hood shall have a *clearance* to combustibile construction of not less than 18 inches (457 mm), and shall have a *clearance* to noncombustibile construction and gypsum wallboard attached to noncombustibile structures of not less than 3 inches (76 mm).

**Exceptions:**

1. ~~Factory-built~~ Commercial kitchen grease ducts *listed* and *labeled* in accordance with UL 1978.
2. *Listed* and *labeled* exhaust *equipment* installed in accordance with Section 304.1.
3. Where commercial kitchen grease ducts are continuously covered on all sides with a *listed* and *labeled* field-applied grease duct enclosure material, system, product or method of construction specifically evaluated for such purpose in accordance with ASTM E 2336, the required *clearance* shall be in accordance with the listing of such material, system, product or method.

**Reason:** The revision to exception 1 is to identify that both Factory-Built and Field-Fabricated commercial grease ducts can be fabricated, listed, and labeled in accordance with UL 1978. UL 1978 can be applied to all grease duct assemblies that are intended to be installed at reduced clearances where 18 inch (457 mm) clearance

**Justification:** This proposal clarifies the application of the existing provision in 506.3.6 of the Code for commercial grease ducts. The Scope of UL 1978 states the following:

- 1.1 These requirements cover factory-built grease ducts, and grease duct assemblies that are intended to be installed at reduced clearances where 18 inch (457 mm) clearance is specified in the Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, NFPA 96, and the International Mechanical Code.

Commercial grease ducts which are tested, listed and labeled in accordance with the requirements of UL 1978 should all be equally acceptable for clearance reductions in the IMC, given that they would be required to meet the same performance levels.

**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-M-1-506.3.6

## M49–09/10

### 506.3.7, 506.3.7.1 (New)

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

#### 1. Revise as follows:

**506.3.7 Prevention of grease accumulation in grease ducts.** Duct systems serving a Type I hood shall be constructed and installed so that grease cannot collect in any portion thereof, and the system shall slope not less than one-fourth unit vertical in 12 units horizontal (2-percent slope) toward the hood or toward an ~~approved~~ grease reservoir constructed and installed in accordance with Section 506.3.7.1. Where horizontal ducts exceed 75 feet (22 860 mm) in length, the slope shall not be less than one unit vertical in 12 units horizontal (8.3-percent slope).

#### 2. Add new text as follows:

**506.3.7.1 Grease duct reservoirs.** Grease duct reservoirs shall:

1. Be constructed as required for grease ducts.
2. Be located on the bottom of the horizontal duct or duct riser.
3. Extend for the full width of the duct.
4. Have a depth equal to one-half of the smallest duct dimension.
5. Have a bottom that pitches to a point of drainage.
6. Be provided with a cleanout constructed in accordance with Section 506.3.8 and installed directly above the reservoir, on a vertical side or on top of the duct.
7. Be installed in accordance with the manufacturer's installation instructions where factory-built.

**Reason:** There has been much confusion over exactly what an "approved grease reservoir" really is. This is an attempt to clarify how shop-built reservoirs should be constructed and installed, such that it will capture grease in an effective way that won't promote pooling except in the trap itself. A cleanout at this point is imperative in order to determine not only when it is full, but physically to perform the function of cleaning. The term "approved" has been removed because this text eliminates all ambiguity about what a grease reservoir really is and how it should be installed. This provides clear and concise guidance for the user and removes some guess work.

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

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

ICCFILENAME: MCMANN-M-21-506.3.7

## M50–09/10

### 506.3.7, 506.3.7.1 (New)

**Proponent:** Guy Tomberlin, Fairfax County, VA, representing the Virginia Plumbing and Mechanical Inspectors/Virginia Building and Code Officials

#### 1. Revise as follows:

**506.3.7 Prevention of grease accumulation in grease ducts.** Duct systems serving a Type I hood shall be constructed and installed so that grease cannot collect in any portion thereof, and the system shall slope not less than one-fourth unit vertical in 12 units horizontal (2-percent slope) toward the hood or toward an ~~approved~~ a grease reservoir designed and installed in accordance with Section 506.3.7.1. Where horizontal ducts exceed 75 feet (22 860 mm) in length, the slope shall not be less than one unit vertical in 12 units horizontal (8.3-percent slope)

#### 2. Add new text as follows:

**506.3.7.1 Grease reservoirs** Grease reservoirs shall:

1. Be constructed as required for the grease duct it serves.
2. Be located on the bottom of the horizontal duct or the bottommost section of the duct riser.
3. Have a length and width of not less than 12 inches. Where the grease duct is less than 12 inches in a dimension, the reservoir shall be not less than 2 inches smaller than the duct in that dimension.

4. Have a minimum depth of not less than 1 inch.
5. Have a bottom that is sloped to a point for drainage.
6. Be provided with a cleanout opening constructed in accordance with Section 506.3.8 and installed to provide direct access to the reservoir. The cleanout opening shall be located on a side or on top of the duct so as to permit cleaning of the reservoir.
7. Be installed in accordance with the manufacturer's installation instructions where manufactured devices are utilized.

**Reason:** Current text allows an approved reservoir. Where the code uses the term approved it leaves the subject matter up to the interpretation of the code official and unfortunately non-uniform application can be the end result. This proposal puts any potential non-uniformity to rest. It provides clear concise guidance to the user and leaves no room for misunderstanding.

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

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

ICCFILENAME: TOMBERLIN-M-2-506.3.7

## M51-09/10

### 506.3.8

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Delete and substitute as follows:**

~~**506.3.8 Grease duct cleanouts and other openings.** Grease duct systems shall not have openings therein other than those required for proper operation and maintenance of the system. Any portion of such system having sections not provided with access from the duct entry or discharge shall be provided with cleanout openings. Cleanout openings shall be equipped with tight-fitting doors constructed of steel having a thickness not less than that required for the duct. Doors shall be equipped with a substantial method of latching, sufficient to hold the door tightly closed. Door assemblies, including any frames and gasketing, shall be approved for the purpose, and shall not have fasteners that penetrate the duct. Listed and labeled access door assemblies shall be installed in accordance with the terms of the listing.~~

**506.3.8 Grease duct cleanouts and openings.** Grease duct cleanouts and openings shall comply with all of the following:

1. Grease ducts shall not have openings except where required for the operation and maintenance of the system.
2. Sections of grease ducts that are inaccessible from the hood or discharge openings shall be provided with cleanout openings.
3. Cleanouts and openings shall be equipped with tight fitting doors constructed of steel having a thickness not less than that required for the duct.
4. Cleanout doors shall be installed liquid tight.
5. Door assemblies including any frames and gaskets shall be approved for the application and shall not have fasteners that penetrate the duct.
6. Gasket and sealing materials shall be rated for not less than 1500 degrees F. (815.6 C).
7. Listed door assemblies shall be installed in accordance with the manufacturer's installation instructions.

**Reason:** The only new requirement is item # 6 which was taken from the national standard. The balance was reorganized in an easy to read format with some unnecessary language removed. This format seems to invite one to read the bullets as opposed to reading long paragraphs, making the text easier to comprehend.

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

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

ICCFILENAME: MCMANN-M-14-506.3.8

## M52-09/10

### 506.3.8 (New)

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Add new text as follows:**

**506.3.8 Underground Grease Duct Installation.** Underground grease duct installations shall comply with all of the following:

1. Underground grease ducts shall be constructed of 304-L or 316 stainless steel having a minimum thickness of 0.0565 inch (1.435 mm) (No.16 gage).
2. The ducts shall be installed over a bed of gravel not less than 4 inches thick.
3. The ducts shall slope in accordance with Section 506.3.7 and toward a grease reservoir. The grease reservoir shall be located at the point where the duct exits the ground and shall be provided with a cleanout.
4. The grease reservoir shall be constructed in accordance with Section 506.3.7.1.
5. Cleanouts shall extend to within 6 inches of the floor level or where outdoors, shall extend to grade.
6. Cleanouts shall be installed on the top of the duct.
7. Cleanout locations shall be identified in an approved manner.

**Reason:** Currently there is no guidance in the code for underground grease duct installation. This is becoming a popular installation involving table top cooking where the cooking operations are being conducted in the middle of the dining area. This type of cooking produces smoke, grease laden vapors and intentional flare-ups that are handled within the tables themselves. Underground grease duct connects to the bottom of the table and proceeds to a fan at some other location. This proposal requires that all underground grease ducts be constructed of 304-L or 316 stainless steel which is recommended by SMACNA for its ability to resist corrosion. Installing the duct on gravel will aid in elevating the duct above possible moisture in the earth and provide a means for establishing pitch. Cleanouts must be installed on top of the duct for obvious reasons and needs to extend to a reasonable distance to the floor for accessibility. All requirements for protection to combustible construction apply. Cleanout locations need to be identified in a manner that is effective and practical as it pertains to the specific installation. Galvanized or black iron duct will not hold up to the normal burial process of underground duct because the cleaning process and the cleanouts themselves would prevent concrete encasement. It is unlikely that cleanouts will be installed outdoors at grade level but the text recognizes the possibility.

**Cost Impact:** The code change proposal may increase cost of construction.

**Analysis:** Item #4 is dependent upon the approval of M50-09/10 which creates the new Section 506.3.7.1.

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

ICCFILENAME: MCMANN-M-30-506.3.8

## M53-09/10

### 506.3.8 (New)

**Proponent:** Guy Tomberlin, Fairfax County, VA, representing the Virginia Plumbing and Mechanical Inspectors/Virginia Building and Code Officials

**Add new text as follows:**

**506.3.8 Underground grease duct installation.** Underground grease duct installations shall comply with all of the following:

1. Underground grease ducts shall be constructed of steel having a minimum thickness of 0.0575 inch (1.463 mm) (No. 16 gage) and shall be coated to provide protection from corrosion or shall be constructed of stainless steel having a minimum thickness of 0.0450 inch (1.1400 mm) (No.18 gage).
2. The underground duct system shall be tested and approved in accordance with Section 506.3.2.5 prior to coating or placement in the ground.
3. The underground duct system shall be completely encased in concrete with a minimum thickness of 4 inches.
4. Ducts shall slope toward grease reservoirs.
5. A grease reservoir with a cleanout to allow cleaning of the reservoir shall be provided at the base of each vertical duct riser.
6. Cleanouts shall be provided with access to permit cleaning and inspection of the duct in accordance with Section 506.3.
7. Cleanouts in horizontal ducts shall be installed on the topside of the duct.
8. Cleanout locations shall be legibly identified at the point of access from the interior space.

**Reason:** Underground duct systems are becoming increasingly popular. For example, It has become a desirable application to provide cooking operations at the actual table itself in many areas of the country. Installing hoods and the associated equipment is excessively costly and often times impractical for the table type cooking establishment. Often times many tables are included, 30-50 or even more. This proposal includes the same level of safety but is an alternative that allows the modern day restaurant design to afford the established level of safety while accommodating the obstacles related to commercial down-draft appliances.

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

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

ICCFILENAME: TOMBERLIN-M-6-506.3.8

## M54-09/10

### 506.3.9

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Delete and substitute as follows:**

~~**506.3.9 Grease duct horizontal cleanouts.** Cleanouts located on horizontal sections of ducts shall be spaced not more than 20 feet (6096 mm) apart. The cleanouts shall be located on the side of the duct with the opening not less than 1.5 inches (38 mm) above the bottom of the duct, and not less than 1 inch (25 mm) below the top of the duct. The opening minimum dimensions shall be 12 inches (305 mm) on each side. Where the dimensions of the side of the duct prohibit the cleanout installation prescribed herein, the openings shall be on the top of the duct or the bottom of the duct. Where located on the top of the duct, the opening edges shall be a minimum of 1 inch (25 mm) from the edges of the duct. Where located in the bottom of the duct, cleanout openings shall be designed to provide internal damming around the opening, shall be provided with gasketing to preclude grease leakage, shall provide for drainage of grease down the duct around the dam, and shall be approved for the application. Where the dimensions of the sides, top or bottom of the duct preclude the installation of the prescribed minimum size cleanout opening, the cleanout shall be located on the duct face that affords the largest opening dimension and shall be installed with the opening edges at the prescribed distances from the duct edges as previously set forth in this section.~~

Cleanouts serving horizontal sections of grease duct shall:

1. Be spaced not more than 20 feet apart.
2. Be located not more than 10 feet from changes in direction.
3. Be located on the bottom only where no other locations are available and shall be provided with internal damming of the opening such that grease will flow past the opening without pooling. Bottom cleanouts and openings shall be approved for the application and installed liquid tight.
4. Not be closer than 1 inch from the edges of the duct.
5. Have opening dimensions of not less than 12 inches by 12 inches. Where such dimensions preclude installation, the opening shall be not less than 12 inches on one side and shall be large enough to provide access for cleaning and maintenance.
6. Shall be located at grease reservoirs.

**Reason:** This is a novel of a section, packed with information and in need of updating. Item # 2 is somewhat new though already implied. There is nothing prohibiting only one cleanout installed in the middle of a 24 foot section of duct as the code is silent on minimum numbers. This text would require that two cleanouts be provided. In item # 5, although the National Standard calls for 1 1/2 inches, it is an arbitrary number. This 1 inch dimension will have no effect structurally on the door installation nor will it have an effect on the duct itself and as a result, will provide a little more flexibility. Item # 6 already provides for a minimum 12 X 12 door but some flexibility is required for smaller duct sizes, but in no case should one side be less than 12 inches. Item # 7 is new. This establishes that a cleanout needs to be installed at grease reservoir locations in order to properly inspect and maintain the reservoir.

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

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

ICCFILENAME: MCMANN-M-17-506.3.9

## M55-09/10

### 506.3.10

**Proponent:** Tony Crimi, A.C. Consulting Solutions, Inc., representing the International Firestop Council

**Revise as follows:**

**506.3.10 Grease duct enclosures.** A grease duct serving a Type I hood that penetrates a ceiling, wall, ~~or floor or any concealed spaces~~ shall be enclosed from the point of penetration to the outlet terminal. A duct shall penetrate exterior walls only at locations where unprotected openings are permitted by the *International Building Code*. The duct enclosure shall serve a single grease duct and shall not contain other ducts, piping or wiring systems. Duct enclosures shall be either field-applied or factory-built. Duct enclosures shall have a fire-resistance rating not less than that of the ~~floor assembly penetrated and not less than 1 hour, but need not exceed 2 hours.~~ Duct enclosures shall be as prescribed by Section 506.3.10.1, 506.3.10.2 or 506.3.10.3.

**Reason:** To clarify the intent of the application of 506.3.10 in the IMC. In addition to the existing language, previous editions of National Codes and Installation Standards were more explicit in confirming that grease duct enclosures are also required where a grease duct passes through any concealed spaces. Further, the reference to the required fire resistance rating being related only to the "floor" assembly being penetrated was inadvertently added to the language in the 2009 IMC, and needs to also be corrected.

**Justification:** While the existing language in the IMC that describes "...Type I hood that penetrates a ceiling, wall or floor..." captures many concealed spaces (as well as other locations), it does not capture all of them. Section 717 of the IBC dealing with concealed spaces also capture areas such as concealed wall spaces of stud walls and partitions, including furred spaces, and parallel rows of studs or staggered studs, or sleeper spaces. Another area of concern relates to large open structures, where the duct does not penetrate any ceilings, walls, or floors for great distances, and may go either directly through a wall or ceiling to the outlet terminal, or to another compartment, having travelled through some concealed spaces.

In addition, the new reference to "Duct enclosures shall have a fire-resistance rating not less than that of the floor assembly penetrated, but need not exceed 2 hours" was added in the 2009 edition. The intent was to identify a trigger for the required rating. However, this language inadvertently omits the many cases where the grease ducts penetrate a fire resistance rated wall or other assembly. The Code needs to be corrected to be consistent with the original intent of this proposal, and previous editions of the IMC.

Grease ducts are clearly a building feature in which the potential hazards exist based on the function they are designed to perform. In contrast to conventional shaft requirements, the fire hazard from an operating grease duct occurs not only when the duct penetrates walls, floors, and ceilings, but also in the space between the Type 1 hood and the point of penetration. Any concealed spaces through which the grease duct travels, even within the compartment of origin, need to be protected.

**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-M-3-506.3.10

## M56-09/10

### 506.3.10

**Proponent:** Vickie Lovell, InterCode, Inc., representing the 3M Company

**Revise as follows:**

**506.3.10 Grease duct enclosures.** A grease duct serving a Type I hood ~~that penetrates a ceiling, wall, or floor~~ shall be enclosed ~~from~~ in a continuous enclosure extending from the lowest point of the floor ceiling or floor above the hood, to the point of penetration to the outlet terminal. A duct shall penetrate exterior walls only at locations where unprotected openings are permitted by the *International Building Code*. The duct enclosure shall serve a single grease duct and shall not contain other ducts, piping or wiring systems. Duct enclosures shall be either field-applied or factory-built. Duct enclosures shall have a fire-resistance rating not less than that of the floor assembly penetrated, but need not exceed 2 hours. Duct enclosures shall be as prescribed by Section 506.3.10.1, 506.3.10.2 or 506.3.10.3.

**Reason:** This change will clarify the intent of the application of 506.3.10 in the IMC. In addition to the existing language, previous editions of National Codes and Installation Standards were more explicit in confirming that grease duct enclosures are also required where a grease duct passes through any concealed space.

The 2009 Edition of NFPA 96 The standard "Ventilation Control and Fire Protection of Cooking Operations" defines a continuous enclosure in section 3.3.22 as "a recognized architectural or mechanical component of a building having a fire resistance rating as required for the structure and whose purpose is to enclose the vapor removal duct for its full length to its termination point outside the structure without any portion of the structure having a fire-resistance rating less than the required value."

Section 7.7.1.1 of NFPA 96 goes beyond that by stating that in "all buildings where vertical fire barriers (walls) are penetrated, the (grease) ducts shall be enclosed in a continuous enclosure extending from the first penetrated fire barrier and any other subsequent fire barriers or concealed spaces, to or through the exterior, to maintain the fire resistance rating of the highest fire barrier penetrated."

7.7.1.2 of NFPA 96 also states that in “all buildings more than one story in height, and in one story buildings where the roof ceiling assembly is required to have a fire resistance rating, the (grease) ducts shall be enclosed in a continuous enclosure extending from the lowest fire rated ceiling or floor above the hood through any concealed spaces, to or through the roof, to maintain the integrity of the fire separations required by the applicable building code provisions.”

Grease ducts are unlike any other exhaust duct, in that they convey highly flammable material and are clearly a building feature in which the potential hazard exists based on their intended function – in other words, the duct itself is the hazard, and should be protected from its origination to where it exits the building.

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

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

ICCFILENAME: LOVELL-M-2-506.3.10

## M57–09/10

### 506.3.10.2

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Revise as follows:**

**506.3.10.2 Field applied enclosure.** Commercial kitchen grease ducts constructed in accordance with Section 506.3.1 shall be enclosed by field-applied grease duct enclosure that is a listed and labeled material, system, product, or method of construction specifically evaluated for such purpose in accordance with ASTM E2336. The surface of the duct shall be continuously covered on all sides from the point at which the duct originates to the outlet terminal. Duct penetrations shall be protected with a through-penetration fire-stop system classified in accordance with ASTM E814 or UL 1497 and having a “F” and “T” rating equal to the fire-resistance rating of the assembly being penetrated. Such systems shall be installed in accordance with the listing and the manufacturer's installation instructions. Partial application of a field-applied grease duct enclosure system shall not be installed for the sole purpose of reducing clearance to combustibles at isolated sections of grease duct except where specifically listed and labeled for such partial application. Exposed duct-wrap systems shall be protected where subject to physical damage.

**Reason:** The true intent of duct wrap systems is that they be applied to an *entire* system, not just a portion of one. This comes into play when Section 506.3.10.4 is employed. This section usually works up to the point where the roof must be penetrated. Most of these structures are wood construction or there is combustible material on decking and so forth, that the duct must get by. A practice has been to only wrap the duct from a point 18 inches from the bottom of the roof deck up through the curb. If this material was intended to be used this way, it would be found in Table 308.6. This material must meet all 5 tests of ASTM E 2336 which includes the internal fire test and the external full engulfment test. The material would never pass the test under partial application and has never been tested in this fashion, that is, to reduce clearances in small sections of duct. The manufacturers will be the first to explain that their product is not approved for this application. The code does not specifically address this poor practice. The intent of the exception is for the duct to be able to exit the structure on its own ability and to not come within 18 inches of combustible construction.

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

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

ICCFILENAME: MCMANN-M-28-506.3.10.2

## M58–09/10

### 506.3.10.4

**Proponent:** Tony Crimi, A.C. Consulting Solutions, Inc., representing the International Firestop Council

**Revise as follows:**

**506.3.10.4 Duct enclosure not required.** A duct enclosure shall not be required for a grease duct that penetrates only a non fire-resistance-rated roof/ceiling assembly. Grease duct systems and exhaust equipment serving Type I hoods shall comply with the requirements of section 506.3.6.

**Reason:** The proposed change clarifies that while a duct enclosure is not required for a grease duct that penetrates only a non fire-resistance-rated roof/ceiling assembly, the clearances of grease duct systems and exhaust *equipment* serving a Type I hoods still need to comply with the requirements of section 506.3.6 to both combustible and non-combustible construction.

**Justification:** This proposal clarifies the need to apply the existing provision in 506.3.6 of the Code for a grease duct that penetrates a non-fire-resistance-rated roof/ceiling assembly. The IMC differentiates between requirements for grease duct systems and exhaust equipment serving a Type I hoods to maintain clearances to combustible and non-combustible construction, and the requirements to provide a duct enclosure. Section 506.3.10 waives the requirement to provide a duct enclosure in this specific instance. However, it is important that users understand that the allowance to waive the enclosure does not also waive the need to maintain clearances between these grease ducts and combustible and non-combustible construction as specified in 506.3.6.

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

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

ICCFILENAME: CRIMI-M-2-506.3.10.4

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## M59–09/10

### 506.3.12.3

**Proponent:** John R. Addario, PE, New York State Department of State, Division of Code Enforcement and Administration

**Revise as follows:**

**506.3.12.3 Termination location.** Exhaust outlets shall be located not less than 10 feet (3048 mm) horizontally from parts of the same or contiguous buildings, adjacent buildings, adjacent property lines and shall be located not less than 10 feet (3048 mm) above the adjoining grade level. Exhaust outlets shall be located not less than 10 feet (3048 mm) horizontally from or not less than 3 feet (914 mm) above air intake openings into any building.

**Exception:** Exhaust outlets shall terminate not less than 5 feet (1524 mm) horizontally from parts of the same or contiguous building, an adjacent building, adjacent property line and air intake openings into a building where air from the exhaust outlet discharges away from such locations.

**Reason:** The code is very specific in that the 10 feet distance from exhaust outlets must be measured horizontally. This proposed change clarifies the intent of the code by including the horizontal requirement to the exception.

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

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

ICCFILENAME:A DDARIO-M-2-506.3.12.3

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## M60–09/10

### 506.3.12.3

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Revise as follows:**

**506.3.12.3 Termination location.** Exhaust outlets shall be located not less than 10 feet (3048 mm) horizontally from parts of the same or contiguous buildings, adjacent buildings and adjacent property lines and shall be located not less than 10 feet (3048 mm) above the adjoining grade level. Exhaust outlets shall be located not less than 10 feet (3048 mm) horizontally from or not less than 3 feet (914 mm) above air intake openings into any building.

**Exception:** Exhaust outlets shall terminate not less than 5 feet (1524 mm) horizontally from parts of the same or contiguous building, an adjacent building, adjacent property line and air intake openings into a building where ~~air from the exhaust outlet discharges away~~ is not directed at any angle toward such points from such locations.

**Reason:** There is some confusion as to what exactly is meant by the term “away from the building” and what it actually permits. It would seem that the side of an up blast fan whether it is a utility set or centrifugal fan would be compliant with the 5-foot exception when the closest edge of the discharge is measured horizontally and no angle short of parallel would be compliant. This is a much needed 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: MCMANN-M-20-506.3.12.3



## M61–09/10

### 507.1

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

**Revise as follows:**

**507.1 General.** Commercial kitchen exhaust hoods shall comply with the requirements of this section. Hoods shall be Type I or Type II and shall be designed to capture and confine cooking vapors and residues. Commercial kitchen exhaust hood systems shall operate during the cooking operation.

**Exceptions:**

1. Factory-built commercial exhaust hoods that are listed and labeled ~~which are tested~~ in accordance with UL 710, ~~listed, labeled~~ and installed in accordance with Section 304.1 shall not be required to comply with Sections 507.4, 507.5, 507.7, 507.11, 507.12, 507.13, 507.14, and 507.15.
2. Factory-built commercial cooking recirculating systems that are listed and labeled ~~which are tested~~ in accordance with UL 710B, ~~listed, labeled~~ and installed in accordance with Section 304.1 shall not be required to comply with Sections 507.4, 507.5, 507.7, 507.11, 507.12, 507.13, 507.14, and 507.15. Spaces in which such systems are located shall be considered to be kitchens and shall be ventilated in accordance with Table 403.3. For the purpose of determining the floor area required to be ventilated, each individual appliance shall be considered as occupying not less than 100 square feet (9.3 m<sup>2</sup>).
3. Net exhaust volumes for hoods shall be permitted to be reduced during part-load cooking conditions, where engineered or listed multispeed or variable-speed controls automatically operate the exhaust system to maintain capture and removal of cooking effluents as required by this section. Reduced volumes shall not be below that required to maintain capture and removal of effluents from the idle cooking appliances that are operating in a standby mode.

**Reason:** UL 710 addresses materials and thickness (IMC 507.5). UL 710B addresses grease filters (IMC 507.11).

**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-M-30-507.1

## M62–09/10

### 507.1

**Proponent:** Jayendra S. Parikh, Compliance Solutions International Inc., representing North American Association of Food Equipment Manufacturers Technical Liaison Committee

**Revise as follows:**

**507.1 General.** Commercial kitchen exhaust hoods shall comply with the requirements of this section. Hoods shall be Type I or II and shall be designed to capture and confine cooking vapors and residues. Commercial kitchen exhaust hood systems shall operate during the cooking operation.

**Exceptions:**

1. Factory-built commercial exhaust hoods which are tested in accordance with UL 710, *listed, labeled* and installed in accordance with Section 304.1 shall not be required to comply with Sections 507.4, 507.7, 507.11, 507.12, 507.13, 507.14 and 507.15.
2. Factory-built commercial cooking recirculating systems which are tested in accordance with UL 710B, *listed, labeled* and installed in accordance with Section 304.1 shall not be required to comply with Sections 507.4, 507.5, 507.7, 507.12, 507.13, 507.14 and 507.15. Spaces in which such systems are located shall be considered to be kitchens and shall be ventilated in accordance with Table 403.3. ~~For the purpose of determining the floor area required to be ventilated, each individual appliance shall be considered as occupying not less than 100 square feet (9.3 m<sup>2</sup>).~~

3. Net exhaust volumes for hoods shall be permitted to be reduced during part-load cooking conditions, where engineered or *listed* multispeed or variable-speed controls automatically operate the exhaust system to maintain capture and removal of cooking effluents as required by this section. Reduced volumes shall not be below that required to maintain capture and removal of effluents from the idle cooking appliances that are operating in a standby mode.

**Reason:** The sentence that is deleted:

- (1) contains requirement that seems arbitrary,
- (2) consists of inappropriate requirement for listed commercial cooking recirculating systems which occupy very small floor area,
- (3) requires substantially higher ventilation rates for such appliances/systems based on the minimum 100 square feet floor area required for each such appliance vs their actual area on the floor, increasing energy and other costs of HVAC or other system used for ventilating such appliances, including the system's operation and maintenance costs. As an example, 8000 cfm of outdoor ventilation air was required for one restaurant where 57 induction cookers (each with about 2 sq. ft. floor area) were used using 100 square feet of floor area for each such appliance, while the whole restaurant actually required 4500 cfm, per IMC Section 403.3,
- (4) may erroneously require much higher ventilation if someone interprets the ventilation for such appliances to be in addition to the required ventilation for that area (which, in the above example, would be 8000 + 4500 = 12,500 cfm), and (5) does not represent the intent of the author who had proposed this requirement, as I understand it, with respect to such appliances/systems.

**Cost Impact:** The code change proposal will not increase the cost of construction. On the contrary, this proposal will decrease the cost of construction, operation, and maintenance.

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

ICCFILENAME: PARIKH-M-1-507.1

## M63–09/10

### 507.2

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Revise as follows:**

**507.2 Where required.** A Type I or Type II hood shall be installed at or above all *commercial cooking appliances* in accordance with Sections 507.2.1 and 507.2.2. Where any cooking *appliance* under a single hood requires a Type I hood, a Type I hood shall be installed. Where a Type II hood is required, a Type I or Type II hood shall be installed.

**Exception:** Where cooking appliances are equipped with integral down-draft exhaust systems and such appliances and exhaust systems are listed and labeled for the application, a hood shall not be required at or above them.

**Reason:** This is an effort to recognize hoodless griddle type cooking appliances which are becoming more popular. Sometimes they are referred to as Hibachi Tables where generally smaller amounts of food are prepared in front of the customers directly at their table. These cooking tables have built-in downdraft exhaust systems running between 800 and 1000 cfm designed with two fans, one to push and one to draw air across the table. The cooking vapors are captured and delivered to a grease duct attached at the bottom of the table. All current IMC grease duct requirements apply at this point.

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

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

ICCFILENAME: MCMANN-M-25-507.2

## M64–09/10

### 507.2.1, 507.2.2

**Proponent:** Douglas J. Horton, D.J. HORTON and Associates, Inc., representing Commercial Kitchen Ventilation Technical Interest Group

**Revise as follows:**

**507.2.1 Type I hoods.** Type I hoods shall be installed where cooking *appliances* produce grease or smoke. Type I hoods shall be installed over *medium-duty*, *heavy-duty* and *extra-heavy-duty cooking appliances*. Type I hoods shall be installed over *light-duty cooking appliances* that produce grease or smoke.

**Exception:** A Type I hood shall not be required for an electric cooking appliance where an approved testing agency provides documentation that the appliance effluent contains 5 mg/m<sup>3</sup> or less of grease when tested at an exhaust flow rate of 500 cfm (0.236 m<sup>3</sup>/s) in accordance with Section 17 of UL 710B.

**507.2.2 Type II hoods.** Type II hoods shall be installed above dishwashers and ~~light-duty appliances~~ appliances that produce heat or moisture and do not produce grease or smoke, except where the heat and moisture loads from such appliances are incorporated into the HVAC system design or into the design of a separate removal system. Type II hoods shall be installed above all ~~light-duty appliances~~ appliances that produce products of *combustion* and do not produce grease or smoke. Spaces containing cooking appliances that do not require Type II hoods shall be ventilated in accordance with Section 403.3. For the purpose of determining the floor area required to be ventilated, each individual *appliance* that is not required to be installed under a Type II hood shall be considered as occupying not less than 100 square feet (9.3 m<sup>2</sup>).

**Reason:** A growing issue is the proliferation of small appliances and related cooking in which little or no grease is produced, such as in convenience stores and other venues. Thus, a minimum threshold should be provided in the IMC to eliminate the expense of first cost, and energy costs of fan energy and tempering makeup air, where grease emissions are minimal or nonexistent. Such a minimum threshold already exists in codes and standards, and this proposal is provided to harmonize the IMC with NFPA Standard 96 and UL Standard 710B. NFPA 96 contains the threshold requirement and UL 710B, Section 17, contains the applicable test procedure. NFPA 96, in sections 4.1.1.2 and 4.1.1.3, exempts from exhaust systems cooking equipment that has grease discharge that does not exceed 5 mg/m<sup>3</sup> when tested at an exhaust airflow rate of 500 cfm (0.236 m<sup>3</sup>/s). Note that NFPA 96 is written entirely from a fire safety point of view, so only a Type I (in IMC terms) hood requirements are included in the standard.

State jurisdictions are beginning to pick up this exception in their adoptions of the IMC. For example, both Michigan and California mechanical codes either cite the grease test requirements explicitly or cite NFPA 96 for exhaust system requirements.

Editorial Note: The 2008 NFPA 96 cites UL 197 in sections 4.1.1.2 and 4.1.1.3, though the grease emissions test has been moved to Section 17 of UL 710B. Therefore, the proposed IMC exception should cite the actual grease emissions threshold requirement rather than citing NFPA 96, which contains the outdated reference.

In relation to Section 507.2.2, if a Type I hood is not required because of low grease emissions, per the first part of this proposal, the provisions of section 507.2.2 still apply, and a Type II hood may be required. This is problematic with the existing wording because Type II hoods are currently required only for dishwashers and light-duty appliances. Yet it is well known that appliances with duty ratings higher than light-duty produce heat and moisture while not producing grease or combustion products, such as electric ranges, electric pasta cookers, electric pizza ovens, and electric tilting skillets, for example. Accordingly, Type II hoods should be required for appliances based on their actual emissions of heat and moisture, regardless of duty. Of course, per current Section 507.2.2, additional HVAC capacity is still available as an alternative to use of a Type II hood.

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

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

ICCFILENAME: HORTON-M-1-507.2

## M65-09/10

### 507.2.1, 507.2.2

**Proponent:** Guy Tomberlin, Fairfax County, VA, representing the Virginia Plumbing and Mechanical Inspectors/Virginia Building and Code Officials

**Revise as follows:**

**507.2.1 Type I hoods.** Type I hoods shall be installed where cooking *appliances* produce grease or smoke as a result of the cooking process. Type I hoods shall be installed over *medium-duty, heavy-duty and extra-heavy-duty cooking appliances*. Type I hoods shall be installed over *light-duty cooking appliances* that produce grease or smoke.

**507.2.2 Type II hoods.** Type II hoods shall be installed above dishwashers and *light-duty appliances* that produce heat or moisture and do not produce grease or smoke as a result of the cooking process, except where the heat and moisture loads from such appliances are incorporated into the HVAC system design or into the design of a separate removal system. Type II hoods shall be installed above all *light-duty appliances* that produce products of *combustion* and do not produce grease or smoke as a result of the cooking process. Spaces containing cooking appliances that do not require Type II hoods shall be ventilated in accordance with Section 403.3. For the purpose of determining the floor area required to be ventilated, each individual *appliance* that is not required to be installed under a Type II hood shall be considered as occupying not less than 100 square feet (9.3 m<sup>2</sup>).

**Reason:** Words added for clarification. The requirement for hood installation should not be based on the possibility of food being burned and producing smoke. If that were the case, smoke being produced while burning toast would require a hood above a toaster.

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

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

ICCFILENAME: TOMBERLIN-M-9-507.2.1-507.2.2

## M66–09/10

### 507.2.1.1

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Revise as follows:**

**507.2.1.1 Operation.** Type I hood systems shall be designed and installed to automatically activate the exhaust fan whenever cooking operations occur. The activation of the exhaust fan shall occur through an interlock with the cooking appliances, by means of heat sensors or by means of other approved methods. A method of interlock between an exhaust hood system and appliances equipped with standing pilot burners shall not cause the pilot burners to be extinguished.

**Reason:** This is important information from the IFGC that needs to be part of this section as it directly affects how hoods are to operate. Having it here will keep the user from having to travel to another document to find it and will eliminate a possible oversight that could prove to be costly to correct at the end of an installation.

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

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

ICCFILENAME: MCMANN-M-39-507.2.1.1

## M67–09/10

### 507.2.1.2 (New)

**Proponent:** Mark Riley, City of Troy, MI, representing City of Troy and Mechanical Inspectors Association of Michigan

**Add new text as follows:**

**507.2.1.2** Type I hoods shall bear a label indicating the minimum exhaust flow rate in CFM per linear foot of hood that provides for capture and containment of the exhaust effluent for the cooking appliances served by the hood, based on the cooking appliance duty classifications defined in this code.

**Reason:** There has been an enforcement nightmare with some hood companies not providing information on how many CFM is required per linear foot of hood for what type of cooking appliances. The hood manufacturer provides information based on temperature of cooking. This does not help the inspector determining compliance when the code references light, medium, heavy duty, and extra heavy duty cooking appliances. Why even have these terms for types of cooking, when the hood manufacturer's state CFM based on cooking temperature? Either rework the types of cooking to temperature or have the manufacturer state how many CFM is required per linear foot. Also note that the labeling of hoods for performance is already required for compensating hoods in Section 508.2.

**Cost Impact:** There may be an increase cost of construction.

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

ICCFILENAME: RILEY-M-1-507.2.1.2

## M68–09/10

### 507.2.2

**Proponent:** Russell Payzant, Engineer, American Dish Service

**Revise as follows:**

**507.2.2 Type II hoods.** Type II hoods shall be installed above dishwashers and *light-duty appliances* that produce heat or moisture and do not produce grease or smoke, except where the heat and moisture loads from such appliances are incorporated into the HVAC system design or into the design of a separate removal system. Type II hoods shall be installed above all *light-duty appliances* that produce products of *combustion* and do not produce grease or smoke. Spaces containing cooking appliances that do not require Type II hoods shall be ventilated in accordance with Section 403.3. For the purpose of determining the floor area required to be ventilated, each individual *appliance* that is not required to be installed under a Type II hood shall be considered as occupying not less than 100 square feet (9.3 m<sup>2</sup>).

**Exception:** A Type II hood is not required for chemically sanitizing commercial dishwashing machines that use hot water at a temperature of 120°F (48.8°C) or less. The additional heat and moisture loads generated by such appliances shall be accounted for in the design of the HVAC systems.

**Reason:** We request the vapor hood language be removed and relevant industry language be added to exception #2 of 507.2.2., until there is a standard for testing such vapor hoods. Section 507 of the IMC code requiring hooding or venting for all commercial dishwashing machines, which language began in 1994, does not consider the impact of a whole generation in dish machine design. The 1954 design of chemically sanitizing "Low-temp" dish machines uses building hot water supplies at 120F degrees for rinse water, then reuses that water for the wash, then is drained away at 110 to 100F degrees. Typical batches are from 1 to 3 gallons of water. The heat and moisture loads generated by such appliances are no more than that of a hand-washing sink, steam tables, or rice cookers—which are exempted in 507.2.2.

Providing hoods and venting for such machines have a costly impact for the owners and operators of commercial kitchens—often exceeding the cost of the entire ware washing system. These "low-temp" designs have successfully been employed to avoid additional venting needs for many years.

The hood language of IMC 2006 and adoption of the code by local jurisdictions has created costly hurdles for the industry with no measurable benefit. We have attempted to contact any state or national body who tests for heat and moisture loading of the dishroom. The problem is there are no written standards to which the code can be tested or certified, to show our machine is not loading the room beyond that of steam tables, rice cookers, or hand-washing sinks. The vapor hood language is ambiguous and there is no dishroom standard to certify to.

**Cost Impact:** The code change proposal will not increase the cost of construction. (The proposal will avoid impending high costs to existing and new owners and operators of commercial kitchens.)

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

ICCFILENAME: PAYZANT-M-1-507.2.2

## M69–09/10

### 507.2.2

**Proponent:** John Wooden, VP ChefMaster Division of Mr. Bar-B-Q-Inc.

**Revise as follows:**

**507.2.2 Type II hoods.** Type II hoods shall be installed above dishwashers and *light-duty appliances* that produce heat or moisture and do not produce grease or smoke, except where the heat and moisture loads from such appliances are incorporated into the HVAC system design or into the design of a separate removal system. ~~Type II hoods shall be installed above all light-duty appliances that produce products of combustion and do not produce grease or smoke.~~ Spaces containing cooking appliances that do not require Type II hoods shall be ventilated in accordance with Section 403.3. For the purpose of determining the floor area required to be ventilated, each individual *appliance* that is not required to be installed under a Type II hood shall be considered as occupying not less than 100 square feet (9.3 m<sup>2</sup>).

**Reason:** Products of combustion for portable butane burning appliances allowed for use in commercial restaurants under NFPA 58 Section 6.19.9.4 and tested and listed by UL 2191 and ANSI 21.72b with CSA 3-90 already have strict tolerances for CO/CO2 emissions to allow for tableside cooking without the use of hoods. There is a limitation of Btu/hr currently at 15,000 Btu/hr. ANSI Z83.11 is currently combining the UL and CSA standards to incorporate the tableside cooking appliances with limitations of CO/CO2 as part of a uniform standard.

**Cost Impact:** The code change makes it possible for appliances that use combustion as a heat source to continue in dessert carts and omelet stations which are currently the most economical and most often used method of tableside cooking. The cost impact not to make the changes to the proposal would be prohibitive.

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

ICCFILENAME: WOODEN-M-1-507.2.2

## M70–09/10

### 507.2.2

**Proponent:** Jayendra S. Parikh, Compliance Solutions International Inc., representing North American Association of Food Equipment Manufacturers Technical Liaison Committee

**Revise as follows:**

**507.2.2 Type II hoods.** Type II hoods shall be installed above dishwashers and *light-duty appliances* that produce heat or moisture and do not produce grease or smoke, except where the heat and moisture loads from such appliances are incorporated into the HVAC system design or into the design of a separate removal system. Type II

hoods shall be installed above all *light-duty appliances* that produce products of *combustion* and do not produce grease or smoke. ~~Spaces containing cooking appliances that do not require Type II hoods shall be ventilated in accordance with Section 403.3. For the purpose of determining the floor area required to be ventilated, each individual appliance that is not required to be installed under a Type II hood shall be considered as occupying not less than 100 square feet (9.3 m<sup>2</sup>).~~

**Reason:** The first sentence that is deleted is redundant, since the requirements in Section 403.3 will obviously be used for ventilation design of the spaces containing cooking appliances that do not require Type II hoods. The second sentence that is deleted:

- (1) contains requirement that seems arbitrary,
- (2) consists of inappropriate requirement for small electrically heated appliances such as toasters, counter-top steamers and steam-tables, egg cookers, rice cookers, hot dog cookers, and induction cookers, which occupy about a maximum of 3 to 4 square feet of floor area and are not required to be installed under a Type II hood,
- (3) requires substantially higher ventilation rates for such small appliances based on the minimum 100 square feet floor area required for each such appliance vs their actual area on the floor which is maximum of 3 to 4 square feet, increasing energy and other costs of HVAC or other system used for ventilating such appliances, including the system's operation and maintenance costs. As an example, 8000 cfm of outdoor ventilation air was required for one restaurant where 57 small induction cookers (each with about 2 sq. ft. floor area) were used using 100 square feet of floor area for each such appliance, while the whole restaurant actually required 4500 cfm, per IMC Section 403.3,
- (4) may erroneously require much higher ventilation if someone interprets the ventilation for such appliances to be in addition to the required ventilation for that area (which, in the above example, would be 8000 + 4500 = 12,500 cfm), and
- (5) does not represent the intent of the author who had proposed this requirement, as I understand it, with respect to such small electrically heated appliances.

**Cost Impact:** The code change proposal will not increase the cost of construction. On the contrary, this proposal will decrease the cost of construction, operation, and maintenance.

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

ICCFILENAME: PARIKH-M-2-507.2.2

## M71-09/10

### 507.2.2

**Proponent:** Sam Dardano, City of Boulder, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

#### Revise as follows:

**507.2.2 Type II hoods** Type II hoods shall be installed above dishwashers and light duty appliances that produce heat or moisture, except where the heat or moisture loads from such appliances are incorporated into the HVAC system design or into the design of a separate removal system. Type II hoods shall be installed above all light duty appliances that produce products of combustion and do not produce grease or smoke. Spaces containing cooking appliances that do not require type II hoods shall be ~~ventilated~~ provided with exhaust at a rate of 0.70 cfm per square foot. in accordance with Section 403.3. For the purpose of determining the floor area required to be ~~ventilated~~ exhausted, each individual appliance that is not required to be installed under a type II hood shall be considered as occupying not less than 100 square feet. Such additional square footage shall be provided with exhaust at a rate of 0.70 cfm per square foot.

**Reason:** This is an informative section but the word "ventilated" could be construed as referring to outside air ventilation in which Table 403.3 has no value for outside air in kitchens, only an exhaust rate. It's easier to simply state the exhaust rate instead of referring to the Table, saving the user a little 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: DARDANO (MCMANN) -M-10-507.2.2

## M72-09/10

### 507.3

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Revise as follows:**

**507.3 Fuel-burning appliances.** ~~Where vented fuel-burning appliances are located in the same room or space as the hood, provisions shall be made to prevent the hood system from interfering with normal operation of the appliance vents. Non-direct-vent appliances shall not be located in a room or space containing a Type I or Type II hood nor in a room or space that opens only into a room or space containing such hoods.~~

**Exception:** Non-direct-vent appliances shall be permitted in a room or space containing a Type I or Type II hood provided that the room or space is continuously maintained under positive pressure.

**Reason:** 507.3 only states that "provisions" need to be made when dealing with these types of appliances but provides no guidance as what is really required. This only creates confusion in the enforcement community as to what needs to occur. Non direct vent appliances and those with draft hoods are subject to many factors that could result in improper venting. Losses in building pressure will cause improper venting. It only takes 5 Pascal's to overcome a gravity vent. These appliances are also in competition for air with other appliances and are no match for powered exhaust equipment such as hoods. The kitchen environment lends itself to negative pressure either by design or by accident. A perfectly balanced system never lasts very long as every minute detail affects them. Even kitchens with slight positive pressure can be subject to negative building pressures simply by opening doors. If kitchen pressures are even negative in the slightest or cannot be verified, then the appliance should be isolated. This text will provide the user with guidance that is more concise.

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

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

ICCFILENAME: MCMANN-M-15-507.3

## M73-09/10

### 507.10

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Revise as follows:**

**507.10 Hoods penetrating a ceiling.** Type I hoods or portions thereof penetrating a ceiling, wall or furred space shall comply with ~~all the requirements of Section 506.3.10.~~ Field-applied grease duct enclosure systems, as addressed in Section 506.3.10.2, shall not be utilized to satisfy the requirements of this section.

**Reason:** Hoods penetrating ceilings that are also required to have the associated ductwork protected, are required to be enclosed in a 1 or 2 hour enclosure. Field applied duct-wrap systems are listed for ducts only, not hoods. Hoods have never been tested or listed to have duct-wrap materials placed over the hood as a replacement for a 1 or 2 hour enclosure. There is no standard for installation of duct-wrap systems on hoods. Nor is there a method of fastening or method of providing access to services located on top of the hood such as lights, J-boxes etc. To permit this practice only creates a false sense of security and code compliance. The manufacturers are aware that some jurisdictions allow this application but they don't condone the practice or seek to market their product in this fashion. The best practice is to not have the hood penetrate the ceiling in the first place. As currently written, 507.10 says that **all** the requirements of 506.3.10 should be met. This is misleading because two of the exceptions cannot be applied although they are part of the section. This is a much needed clarification that will provide concise guidance as to what exactly needs to occur when hoods are required to be protected when ceilings are penetrated.

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

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

ICCFILENAME: MCMANN-M-5-507.10

## M74-09/10

### 507.11, Chapter 15

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

#### 1. Revise as follows:

**507.11 Grease filters.** Type I hoods shall be equipped with ~~listed~~ grease filters listed and labeled in accordance with UL 1046 and designed for the specific purpose. Grease-collecting equipment shall be provided with access for cleaning. The lowest edge of a grease filter located above the cooking surface shall be not less than the height specified in Table 507.11.

#### 2. Add new standard to Chapter 15 as follows:

**UL**  
1046-00 Grease Filters for Exhaust Ducts

**Reason:** UL 1046 includes a comprehensive set of construction and performance requirements that are used to evaluate and list grease filters. Over 20 companies currently have grease filters listed. Only listed products that are labeled have been subjected to periodic, unannounced inspections during production.

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

**Analysis:** Review of proposed new standard, UL 1046-00, 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-M-14-507.11-CH 15

## M75-09/10

### 510.6, 510.6.1, 510.6.2, 510.6.3

**Proponent:** Vickie Lovell, InterCode, Inc., representing the 3M Company

#### Revise as follows:

**510.6 Penetrations.** Penetrations of structural elements or a fire resistance rated assembly by a hazardous exhaust system shall conform to Sections 510.6.1 through 510.6.4.

#### Exceptions:

1. Duct penetrations within H-5 occupancies as allowed by the *International Building Code*.
2. Where the interior of the duct is equipped with an approved automatic fire suppression system as required by Section 510.7.

**510.6.1 Fire dampers and smoke dampers.** Fire dampers and smoke dampers are prohibited in hazardous exhaust ducts.

**510.6.2 Floors and Floor/Ceiling Assemblies.** Hazardous exhaust ~~systems ducts~~ that penetrate a floor or floor/ceiling assembly shall be enclosed from the point at which the duct enclosure penetrates a ceiling or floor to the outlet terminal in a fire-resistance rated ~~shaft constructed in accordance with the *International Building Code*.~~ construction specifically evaluated for such purpose as follows:

1. A shaft constructed in accordance with International Building Code constructed with the same fire resistance rating as 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 enclosure shall be tested and listed in accordance with ASTM E 2336, and installed in accordance with the manufacturer's instructions.



**510.6.3 Wall assemblies.** Hazardous exhaust ducts systems that penetrate fire-resistance-rated wall assemblies shall be enclosed in fire-resistance-rated construction from the point of penetration to the outlet terminal ~~except where the interior of the duct is equipped with an approved automatic fire suppression system. in a construction specifically evaluated for such purpose.~~ Ducts shall be enclosed in accordance with the *International Building Code* requirements for shaft construction and such enclosure shall have a minimum fire-resistance-rating of not less than the highest fire-resistance-rated wall assembly penetrated.

1. A shaft constructed in accordance with International Building Code constructed with the same fire resistance rating as 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 enclosure shall be tested and listed in accordance with ASTM E 2336, and installed in accordance with the manufacturer's instructions .

**Reason:** Hazardous exhaust ducts convey materials that are classified as creating physical or health hazards. They include, but are not limited to:

1. dust or particles sufficiently light enough to float in the air in concentrations so as to be injurious to health or safety
2. heat, odors, fumes, spray, gas, or smoke in concentrations so as to be injurious to health or safety
3. grease from commercial kitchens
4. toxic, corrosive, flammable, or explosive materials.

The IBC does not make any distinction in the requirement for protection of ducts as being limited to only ducts penetrating structural elements. In all cases, any type of duct that penetrate fire rated assemblies are required to be protected with dampers or as penetrations. Historically a shaft is used to enclose such ducts where dampers are not permitted. Where appropriate, this method would still be allowed. However, job site conditions sometimes create the need for alternate methods permitted by the code. The scope of ASTM E 2336 (already required as a method of protection for grease ducts in the IMC) is being expanded to include all types of hazardous exhaust ducts.

**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-M-5-510.6

## M76–09/10

### 510.6.2, 510.6.3

**Proponent:** Tony Crimi, A.C. Consulting Solutions, Inc., representing the International Firestop Council

**Revise as follows:**

**510.6.2 Floors.** Hazardous exhaust systems that penetrate a floor/ceiling assembly shall be enclosed in a fire-resistance-rated shaft constructed in accordance with the *International Building Code* requirements for shaft construction, or an approved alternative duct enclosure that is a listed and labeled material, system, product or method of construction specifically evaluated for such purpose.

**510.6.3 Wall assemblies.** Hazardous exhaust duct systems that penetrate fire-resistance-rated wall assemblies shall be enclosed in fire-resistance-rated construction from the point of penetration to the outlet terminal, except where the interior of the duct is equipped with an approved automatic fire suppression system. Ducts shall be enclosed in accordance with the *International Building Code* requirements for shaft construction or an approved alternative duct enclosure that is a listed and labeled material, system, product or method of construction specifically evaluated for such purpose. ~~and~~ Such enclosures shall have a minimum fire-resistance-rating of not less than the highest fire-resistance-rated wall assembly penetrated.

**Reason:** To introduce alternative methods for protection of ducts used to convey hazardous exhaust as required in 510.6 of the IMC. The protection of these ducts can be accomplished using *approved* alternative duct enclosures that are *listed* and *labelled* systems or product specifically evaluated for such purpose. There are alternative methods available for providing protection for hazardous exhaust duct enclosures beyond the existing shaft provisions.

**Substantiation:** There are parallels between the level of performance required for hazardous exhaust ducts as compared to grease ducts and other fire-resistance rated duct enclosures. As an example, the ASTM E2336 standard evaluates enclosure materials and the duct enclosure systems using the following test methods: non-combustibility, full scale fire resistance, durability, internal fire, and fire-engulfment with a through-penetration fire stop.

As an example, enclosure systems which meet the ASTM E2336 criteria demonstrate the ability to resist the passage of flames and hot gases during a standardized fire resistance test and a standardized internal fire test, as well as an ability to resist transmission of heat through the duct and the enclosure material(s). The ability of a fire stop to meet the requirements of Test Method E 814 when used with the duct enclosure system is also evaluated. The test method prescribes an ASTM E119 fire exposure for both a fire engulfment and a fire resistance wall test. The fire resistance test illustrates the ability of the enclosure material to resist the effects of fire when applied in a vertical application (i.e. as a wall assembly tested in accordance with ASTM E119).

In addition, an internal fire test uses two standardized fire exposures occurring inside the protected duct itself. Both tests illustrate the enclosure material's ability to resist thermal transmission of heat to the unexposed side in a horizontal application. The first standardized fire exposure is intended to simulate long term exposure of the enclosure material to a standardized service condition. The test simulates an internal fire within the duct by maintaining a minimum 500°F (260°C) average interior temperature for at least 4 h. The second standardized fire exposure is intended to simulate a sudden rise in the exposure conditions within the duct. Within 15 min after the end of the 4-h period, increase the average interior temperature in the duct is increased to 2000°F (1093°C). This exposure is then maintained for 30 minutes, which simulates a large fire event within the duct. The current provisions of 5.10.8.2 do not explicitly take this into account. A durability test is included for the materials, which is intended to simulate the effects of long-term exposure of typical in-service conditions on the thermal transmission qualities of the enclosure materials when subjected to a modified version of Test Method C 518.

A fire-engulfment test uses a standardized fire exposure, the time temperature curve of Test Methods E 119, to simulate a fire occurring on the outside of the grease duct, and demonstrates the ability of the duct enclosure system to remain intact without a through opening. The fire-engulfment test also tests the fastening methods used to secure the enclosure material to the grease duct and the supporting system. The fire-engulfment test also provides a means to test a through-penetration fire stop to determine its compatibility with the duct enclosure system. The fire-engulfment and vertical fire resistance tests are followed by the application of a standardized hose stream test.

**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-M-4-510.6

## M77-09/10

### 510.7

**Proponent:** Patrick A. McLaughlin, McLaughlin & Associates, representing the Semiconductor Industry Association

**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.

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

ICCFILENAME: MCLAUGHLIN-M-1-510.7

## M78-09/10

### 510.8.1

**Proponent:** Eli P. Howard, III, Sheet Metal and Air Conditioning Contractors National Association, Inc.

**Revise as follows:**

**510.8.1 Duct joints.** Ducts shall be made tight with lap joints having a minimum lap of 1 inch (25 mm). Joints used in ANSI/SMACNA Round Industrial Duct Construction Standards and ANSI/SMACNA Rectangular Industrial Duct Construction Standards are also acceptable.

**Reason:** The types of joints used in either of these manuals have been used in industrial exhaust and conveyance systems for years and provide acceptable alternatives to lap joints.

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

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

ICCFILENAME: HOWARD-M-7-510.8.1

## M79–09/10

### 512.2

**Proponent:** Eli P. Howard, III, Sheet Metal and Air Conditioning Contractors National Association, Inc.

#### Revise as follows:

**512.2 Materials.** Subslab soil exhaust system duct material shall be air duct material *listed* and *labeled* to the requirements of UL 181 for Class 0 air ducts, or any of the following piping materials that comply with the *International Plumbing Code* as building sanitary drainage and vent pipe: cast iron; galvanized steel; brass or copper pipe; copper tube of a weight not less than that of copper drainage tube, Type DWV; and plastic piping. PVC coated steel with a minimum thickness of 4 ml on the surface in contact with the fill material, aluminized steel and FRP are acceptable duct materials.

**Reason:** These materials have been used for subslab applications for years and methods on construction and installation are covered via the SMACNA HVAC Duct Construction Standards, SMACNA Thermoplastic Duct (PVC) Construction Manual and Thermoset FRP Duct Construction Manual.

**Cost Impact:** The code change proposal will not increase the cost of construction. These materials are typically available at comparable or lower prices to those already listed.

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

ICCFILENAME: HOWARD-M-9-512.2

## M80–09/10

### 513.10.2

**Proponent:** Eli P. Howard, III, Sheet Metal and Air Conditioning Contractors National Association, Inc.

#### Revise as follows:

**[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 513.10.1. Ducts shall be constructed and supported in accordance with Chapter 6. Ducts shall be leak tested to the construction pressure class to 1.5 times the maximum design pressure in accordance with SMACNA HVAC Air Duct Leakage Test Standard 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, that are constructed of *approved* fire-resistance-rated materials.

**Reason:** Testing ductwork beyond its design maximum pressure may cause permanent deformation. Leak testing ductwork beyond the maximum design static pressure does not provide accurate leakage rates under operating conditions. Additionally the new language is totally consistent with the ANSI/HVAC Duct Construction Standards required under the IMC.

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

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

ICCFILENAME: HOWARD-M-3-513.10.2

# M81-09/10

514.1, 927

Proponent: Bob Eugene, Underwriters Laboratories, Inc.

## 1. Delete without substitution:

### ~~SECTION 927 HEAT RECOVERY VENTILATORS~~

~~927.1 Ducted heat recovery ventilators.~~ Ducted heat recovery ventilators shall be *listed and labeled* in accordance with UL 1812.

~~927.2 Nonducted heat recovery ventilators.~~ Nonducted heat recovery ventilators shall be *listed and labeled* in accordance with UL 1815.

## 2. Revise as follows:

**514.1 General.** Energy recovery ventilation systems shall be installed in accordance with this section. Where required for purposes of energy conservation, energy recovery ventilation systems shall also comply with the *International Energy Conservation Code*. Ducted heat recovery ventilators shall be listed and labeled in accordance with UL 1812. Nonducted heat recovery ventilators shall be listed and labeled in accordance with UL 1815.

**Reason:** This proposal consolidates requirements for energy recovery ventilation systems into one location. UL 1812 and UL 1815 are currently referenced in Section 927.

**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-M-7-514.1

# M82-09/10

514.4 (New)

Proponent: Guy Tomberlin, Fairfax County, VA, representing the Virginia Plumbing and Mechanical Inspectors/Virginia Building and Code Officials

## Add new text as follows:

**514.4 Recirculated air.** Air conveyed within energy recovery systems shall not be considered as recirculated air where the energy recovery ventilation system is constructed to limit cross-leakage between air streams to less than 10% of the total airflow design capacity.

**Reason:** Currently the IMC provides guidance on the use of energy saving equipment such as heat/ entropy wheels. Unfortunately some interpret the sections that prohibit recirculation of air as prohibiting energy recovery equipment that merely attempts to harvest the heated or cooled elements from the exhausted airstream. Industry standards allow for up to 10% duct leakage in these type systems, so the 10% in the proposed wording supports the current technology utilized.

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

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

ICCFILENAME: TOMBERLIN-M-12-514.4

# M83–09/10

## 515 (New), 515.1 (New)

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Add new text as follows:**

### SECTION 515 COMMON MULTISTORY EXHAUST SYSTEMS

**515.1 Common bathroom and toilet room exhaust in multistory buildings.** Where a common shaft is designed and installed to convey bathroom or toilet room exhaust, or both, in multiple story buildings, the construction of such system shall be in accordance with all of the following:

1. The building shall be equipped with an automatic sprinkler system in accordance with Section 903.3.1.1 of the *International Building Code*.
2. Shaft construction shall conform to Section 708 of the *International Building Code*.
3. Volume dampers, fire dampers and smoke dampers shall be prohibited in the exhaust duct. Penetrations of the shaft be protected in accordance with Section 607.5.5, Exception 2.
4. The shaft shall be served by an exhaust fan located at the top of the shaft and such fan shall be specifically designed for the intended application.
5. The exhaust fan shall run continuously and maintain negative pressure in the shaft at all times.
6. The exhaust fan operation shall be monitored in an approved location and shall initiate an audible or visual signal when the fan is not in operation.
7. Makeup air shall be provided for the spaces served in accordance with Section 501.3.
8. A cleanout opening of an approved size shall be located at the base of the shaft to provide access for inspection.
9. Screens installed at termination points shall comply with Section 501.2.2.

**Reason:** This proposal provides guidance as to the correct way to construct a sub-duct system utilizing a shaft constructed in accordance with the building code as long as that building is sprinkled. This method has been around for years and is an economical way to provide a method of exhausting bathroom exhaust in multi-story buildings without having to install fire and smoke dampers in the shaft. Dryer and kitchen exhaust would be prohibited in this scenario. This method when installed correctly can be located in any occupancy. Normally this would be practical in buildings of 4 stories or more and most commonly be employed in hotels.

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

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

ICCFILENAME: MCMANN-M-26-515

# M84–09/10

## 601.4

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Revise as follows:**

**601.4 Contamination prevention.** Exhaust ducts under positive pressure, chimneys and vents shall not extend into or pass through ducts or plenums.

#### **Exceptions:**

1. Exhaust systems located in ceiling return air plenums over spaces that are permitted to have 10 percent recirculation in accordance with Section 403.2.1, Item 4. The exhaust duct joints, seams and connections shall comply with Section 603.9.
2. This section shall not apply to chimneys and vents that pass through plenums where such venting systems comply with one of the following requirements:

- 2.1. The venting system shall be listed for positive pressure applications and shall be sealed in accordance with the vent manufacturer's installation instructions.
- 2.2. The venting system shall be installed such that fittings and joints between sections are not installed in the above ceiling space.
- 2.3. The venting system shall be installed in a conduit or enclosure with sealed joints separating the interior of the conduit or enclosure from the ceiling space.

**Reason:** The new exception provides the same options for vents passing through return air plenums that are found in Section 503.3.6 of the IFGC. There is no technical reason to not to allow these options for other fuel-fired appliances.

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

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

ICCFILENAME: MCMANN-M-18-601.4

## M85–09/10

### 202, 602.1, 603.18 (New)

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

#### 1. Delete and substitute as follows:

~~**602.1 General.** Supply, return, exhaust, relief and ventilation air plenums shall be limited to uninhabited crawl spaces, areas above a ceiling or below the floor, attic spaces and mechanical equipment rooms. Plenums shall be limited to one fire area. Fuel-fired appliances shall not be installed within a plenum.~~

**602.1 General.** The following shall be considered to be an air plenum:

1. Interstitial spaces above ceilings and below floors.
2. Stud wall cavities and spaces between solid floor joists utilized in accordance with Section 602.3
3. Boxes or chambers constructed to support air handlers and furnaces and to collect return air for such furnaces and air-handlers.
4. Mechanical room enclosures used to convey return air to air-handlers therein.

Plenums shall be limited to one fire area. Fuel-fired appliances shall not be installed in plenums.

#### 2. Add new definition and text as follows:

**DUCT PLENUM** A box or chamber constructed of duct materials and used to collect air from or supply air to other ducts. Such plenums typically connect to the inlets and outlets of furnaces and air handlers.

**603.18 Duct plenums.** Duct plenums shall be constructed as required for ducts in accordance with Section 603.

**Reason:** This is only an attempt for the body of the code to recognize the use of various plenums found in most HVAC systems. Currently the code only speaks of plenums that take the form of structural components. The word “plenum” has been used in the trade for many years and can be most commonly found in residential applications but applies to many commercial systems as well. Sometimes large plenums are built as “fan houses” employing vane axial equipment. Plenums can be very big or small and never be part of the structure. Furnaces sometimes sit on top of plenum boxes. Many attic installations employ a plenum for flex duct distribution and so on. Using an attic or crawl space as a plenum makes little sense. Some of the problems associated with these types of designs are leakage, plenum heat loss, mold and moisture control, acceptable outlet performance, cleanliness and odor control. Verifying these issues would be very difficult for any inspector and the smallest oversight could wreak havoc for a jurisdiction. This text will solve the duct plenum recognition issue.

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

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

ICCFILENAME: MCMANN-M-34-202-602.1-603.18

## M86–09/10

### 602.2.1

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

**Revise as follows:**

**602.2.1 Materials within plenums.** Except as required by Sections 602.2.1.1 through 602.2.1.6, materials within plenums and the exposed surfaces of the plenums containing the materials, shall be noncombustible or shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723.

**Exceptions:**

1. Rigid and flexible ducts and connectors shall conform to Section 603.
2. Duct coverings, linings, tape and connectors shall conform to Sections 603 and 604.
3. This section shall not apply to materials exposed within plenums in one- and two-family dwellings.
4. This section shall not apply to smoke detectors.
5. Combustible materials fully enclosed within continuous noncombustible raceways or enclosures, *approved* gypsum board assemblies or within materials *listed* and *labeled* for such application.

**Reason:** The current wording of Section 602.2 allows the air handling plenum to be constructed of materials matching the type of construction. This allows exposed plenum surfaces to be constructed of combustible materials (wood).

To control the spread of flame and smoke within an air handling plenum we mandate that the materials meet the requirements of Section 602.2.1. The conflict is that the testing of the materials to attest to meeting the requirements of the referenced standards is done in test apparatus with non-combustible surfaces. The testing is not done in a mock up of the various configurations of exposed combustible surfaces that may be found in the field.

This negates the effectiveness of the listing for the material.

The proposal will correct that by specifying that when materials are placed within the plenum that must comply with the flame spread and smoke developed index, then the exposed surface of the plenum must comply as well to ensure the testing of the materials is relevant to the installation that occurs.

**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-M-1-602.2.1

## M87–09/10

### 602.2.1

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

**Revise as follows:**

**602.2.1 Materials within plenums.** Except as required by Sections 602.2.1.1 through 602.2.1.6, materials within plenums shall be noncombustible or shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723.

**Exceptions:**

1. Rigid and flexible ducts and connectors shall conform to Section 603.
2. Duct coverings, linings, tape and connectors shall conform to Sections 603 and 604.
3. This section shall not apply to materials exposed within plenums in one- and two-family dwellings.
4. This section shall not apply to smoke detectors.
5. Combustible materials fully enclosed within one of the following:
  - 5.1. continuous noncombustible raceways or enclosures
  - 5.2. approved gypsum board assemblies
  - 5.3. ~~or within materials listed and labeled for such application~~ as part of a tested assembly or system.

**Reason:** The issue of what materials are considered acceptable for exposure in a plenum is a life safety issue. The proposed change format of Exception 5 is to clarify that any one of these three options are only permitted when the combustible material is fully enclosed. The third option in Exception 5 is not clear as to what is meant by "for such application". This "protecting" material needs to provide sufficient protection of the combustible material during the event of a fire. Thus, to determine if the "protecting" material will remain in place during the event of a fire and not expose the combustible material to the fire, then the "protecting material" and the combustible material needs to be tested as an assembly or 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: EUGENE-M-15-602.2.1

## M88–09/10

### 602.2.1

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

#### Revise as follows:

**602.2.1 Materials within plenums.** Except as required by Sections 602.2.1.1 through 602.2.1.6, materials within plenums, and the exposed surfaces of the materials of construction of the plenums containing the materials, shall be noncombustible or shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723.

#### Exceptions:

1. Rigid and flexible ducts and connectors shall conform to Section 603.
2. Duct coverings, linings, tape and connectors shall conform to Sections 603 and 604.
3. This section shall not apply to materials exposed within plenums in one- and two-family dwellings.
4. This section shall not apply to smoke detectors.
5. Combustible materials fully enclosed within continuous noncombustible raceways or enclosures, *approved* gypsum board assemblies or within materials *listed* and *labeled* for such application.

**Reason:** This code proposal is just clarification. Materials of construction of the plenum need to comply with the requirements to be noncombustible or to have a flame spread index of no more than 25 and a smoke developed index of no more than 50 when tested to ASTM E 84. Plenums cannot be constructed of combustible materials unless they comply with those 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-M-4-602.2.1

## M89–09/10

### 602.2.1, 602.2.1.6

**Proponent:** Bob Eugene, representing Underwriter Laboratories, Inc.

#### 1. Revise as follows:

**602.2.1 Materials within plenums.** Except as required by Sections 602.2.1.1 through 602.2.1.6~~5~~, materials within plenums shall be noncombustible or shall be listed and labeled as having ~~have~~ a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723.

#### Exceptions:

1. Rigid and flexible ducts and connectors shall conform to Section 603.
2. Duct coverings, linings, tape and connectors shall conform to Sections 603 and 604.
3. This section shall not apply to materials exposed within plenums in one- and two-family dwellings.
4. This section shall not apply to smoke detectors.
5. Combustible materials fully enclosed within continuous noncombustible raceways or enclosures, approved gypsum board assemblies or within materials listed and labeled for such application.
6. Materials in Group H, Division 5 fabrication areas and the areas above and below the fabrication area that share a common air recirculation path with the fabrication area.



## 2. Delete without substitution:

~~602.2.1.6 Semiconductor fabrication areas. Group H, Division 5 fabrication areas and the areas above and below the fabrication area that share a common air recirculation path with the fabrication area shall not be subject to the provisions of Section 602.2.1.~~

**Reason:** Section 602.2.1.6 is an exception to Section 602.2.1. The issue of what materials are considered acceptable for exposure in a plenum is a life safety issue. Other combustible products in the plenum, such as wiring, fire sprinkler piping, pneumatic tubing, and electrical equipment, are required to be listed and labeled. Only listing and labeling of a product can verify that the product installed at a jobsite is composed of the same material originally tested.

**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-M-3-602.2.1

## M90-09/10

### 602.2.1, 602.2.1.7 (New)

**Proponent:** Michael Cudahy, Plastic Pipe and Fittings Association (PPFA)

#### 1. Revise as follows:

**602.2.1 Materials within plenums.** Except as required by Sections 602.2.1.1 through 602.2.1.67, materials within plenums shall be noncombustible or shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723.

#### Exceptions:

1. Rigid and flexible ducts and connectors shall conform to Section 603.
2. Duct coverings, linings, tape and connectors shall conform to Sections 603 and 604.
3. This section shall not apply to materials exposed within plenums in one- and two-family dwellings.
4. This section shall not apply to smoke detectors.
5. Combustible materials fully enclosed within continuous noncombustible raceways or enclosures, *approved* gypsum board assemblies or within materials *listed* and *labeled* for such application.

#### 2. Add new text as follows:

**602.2.1.7 Plastic plumbing pipe.** Plastic drain, waste and vent piping exposed within a plenum shall comply with one or more of the following requirements:

1. The piping shall have a peak optical density not greater than 0.50, an average optical density not greater than 0.15, and a flame spread of not greater than 5 feet (1524 mm) when tested in accordance with UL 1887.
2. The piping shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723.

**Reason:** As many have noted, the current version of ASTM E-84, while having been used to evaluate plastic pipe fire related properties for use in plenums, is not an ideal test method for this use. Amongst the reasons for this are the contents of the current version of the E-84 standard which is vague as to mounting methods and other test conditions for evaluating such pipe. For that reason, UL 1887, an existing test method based on technology which has been evaluated with considerable scrutiny and was developed to test and rate combustible fire sprinkler piping systems for use in plenum spaces is recommended in this case by PPFA.

With regard to enhancing the ASTM E-84 language, the ASTM E-5 committee is currently voting on changes to the current standard which will clarify mounting methods for plastic pipe materials in the tunnel making its results more comparable between materials and from material to material within a generic group. PPFA is also supporting development of new text for the E-84 standard referring and recommending that flamespread properties of plastic pipe for plenum applications be tested according to UL – 1887. UL has been consulted on the proposed change and does not oppose it. UL 1887 is already referenced in the IMC and is not a new standard.

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

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

ICCFILENAME: CUDAHY-M-2-602.2.1

# M91-09/10

## 602.2.1.1, Chapter 15

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

### 1. Delete and substitute as follows:

**602.2.1.1 Wiring.** ~~Combustible electrical or electronic wiring methods and materials, optical fiber cable, and optical fiber raceway exposed within a plenum shall have a peak optical density not greater than 0.50, an average optical density not greater than 0.15, and a flame spread not greater than 5 feet (1524 mm) when tested in accordance with NFPA 262. Only type OFNP (plenum rated nonconductive optical fiber cable) shall be installed in plenum-rated optical fiber raceways. Wiring, cable, and raceways addressed in this section shall be listed and labeled as plenum rated and shall be installed in accordance with NFPA 70. Combustible electrical wires and cables and optical fiber cables exposed within a plenum shall be listed as having a maximum peak optical density of 0.50 or less, an average optical density of 0.15 or less, and a maximum flame spread distance of 5 feet (1524 mm) or less when tested in accordance with NFPA 262 or shall be installed in metal raceways or metal sheathed cable. Combustible optical fiber and communication raceways exposed within a plenum shall be listed as having a maximum peak optical density of 0.5 or less, an average optical density of 0.15 or less, and a maximum flame spread distance of 5 feet (1524 mm) or less when tested in accordance with ANSI/UL 2024. Only plenum-rated wires and cables shall be installed in plenum-rated raceways. Electrical wires and cables, optical fiber cables and raceways addressed in this section shall be listed and labeled and shall be installed in accordance with NFPA 70.~~

### 2. Add new standards as follows:

ANSI/UL 2024 Standard for Safety Optical-Fiber and Communications Cable Raceway  
UL 2424 Outline of Investigation for Cable Marked Limited Combustible

**Reason:** This section needs some clarifications. The clarifications are based on the latest (2009) edition of NFPA 90A, Standard for the Installation of Air-Conditioning and Ventilating Systems, (which governs requirements for wiring in plenums in the NEC) and the requirements of NFPA 70 (NEC).

Combustible wires and cables in plenums (both electrical, optical fiber and mixed ones) must meet NFPA 262, with the pass/fail criteria of 0.50 maximum optical density, 0.50 average optical density and 5 ft maximum flame spread distance. Combustible raceways must meet UL 2024, with the same pass/fail criteria. Any plenum-rated wires and cables are permitted to be installed in plenum-rated raceways.

There is a general recognition that wires and cables marked limited combustible in accordance with UL Subject 2424, Outline of Investigation for Cable Marked Limited Combustible, will meet the requirements of wires and cables tested to NFPA 262 with the pass/fail criteria above. Therefore NFPA 90A has a provision in the annex that cables that meet UL 2424 can be used when cables that meet NFPA 262 with the pass/fail criteria above are called for. I interpret the ICC criteria on referenced standards as making UL Subject 2424, Outline of Investigation for Cable Marked Limited Combustible, a document not in compliance with the policy. For that reason, UL 2424 is not being added. If the committee believes that this can be added, for consistency with NFPA 90A, the proposal can be accepted as amended by adding the exception shown below.

Exception: Electrical wires and cables and optical fiber cables listed to UL Subject 2424, Outline of Investigation for Cable Marked Limited Combustible, are considered to be suitable for use wherever cables tested in accordance with NFPA 262 are required.

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

**Analysis:** Review of proposed new standards, UL 2024 and UL 2424, 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: HIRSCHLER-M-1-602.2.1.1

# M92-09/10

## 602.2.1.1

**Proponent:** J. Philip Simmons, representing National Armored Cable Manufacturers Association

### Revise as follows:

**602.2.1.1 Wiring.** Combustible electrical or electronic wiring methods and materials, optical fiber cable, and optical fiber raceway exposed within a plenum shall have a peak optical density not greater than 0.50, an average optical density not greater than 0.15, and a flame spread not greater than 5 feet (1524 mm) when tested in accordance with NFPA 262. Only type OFNP (plenum rated nonconductive optical fiber cable) shall be installed in plenum-rated optical fiber raceways. Wiring, cable, and raceways addressed in this section shall be listed and labeled as plenum rated and shall be installed in accordance with NFPA 70. This section shall not apply to Type MC and Type AC cables without nonmetallic jackets.

**Reason:** The present text excludes a common wiring method recognized by the NEC and by the NFPA 90A Standard for Installation of Air-Conditioning and Ventilation Systems. The NEC has permitted the use of metal sheathed cables for power uses in ceiling cavity and raised floor plenums for over 30 years. NFPA 90A Section 4.3.11.2.6.1 also recognizes the use of metal sheath cable in ceiling cavity and raised floor plenums. Type MC and AC cables are installed and used in accordance with the National Electrical Code in defined quantities and for specific electrical power and lighting applications. They are not subject to technology upgrades, they are not typically abandoned, and there is no proliferation or accumulation of Type MC and AC cables in these spaces. The technical paper being provided to the committee in support of the proposal presents statistical data from NFPA indicating that Type MC and AC cable in concealed spaces are not responsible for any significant amount of fire losses. This conclusion is based on the statistics for a 24 year period showing that less than 1% of roof and floor concealed space fires involved the ignition of fixed wiring and a total of 7 fatalities and 31 injuries attributed to concealed space cable fires during the 24 year period. The NEC has permitted the use of metal sheathed cables for power uses in ceiling cavity and raised floor plenums for over 25 years. The statistics presented show that not only is there no significant amount of fire losses but that during the period of the study a three fold increase in installed metal sheathed cable was not accompanied by an increase in fire fatalities.

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

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

ICCFILENAME: SIMMONS-M-1-602.2.1.1

## M93-09/10

### 602.2.1.2

**Proponent:** Michael Cudahy, Plastic Pipe and Fittings Association (PPFA)

**Revise as follows:**

**602.2.1.2 Fire sprinkler and water distribution piping.** Plastic fire sprinkler piping and water distribution piping exposed within a *plenum* shall comply with one or more of the following requirements: ~~be used only in wet pipe systems and shall have a peak optical density not greater than 0.50, an average optical density not greater than 0.15, and a flame spread of not greater than 5 feet (1524 mm) when tested in accordance with UL 1887. Piping shall be listed and labeled.~~

1. The piping shall have a peak optical density not greater than 0.50, an average optical density not greater than 0.15, and a flame spread of not greater than 5 feet (1524 mm) when tested in accordance with UL 1887.
2. The piping shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84 or UL 723.

Plastic fire sprinkler piping shall be listed and labeled. Plastic fire sprinkler piping exposed within a plenum shall be used only in wet pipe systems.

**Reason:** As many have noted, the current version of ASTM E-84, while having been used to evaluate plastic pipe fire related properties for use in plenums, is not an ideal test method for this use. This change addresses that situation and also extends the use of the test methods to other plastic piping materials that are currently being used in plenum spaces.

Amongst the reasons that ASTM E-84 has been criticized as a means to assess the fire performance of plastic pipe for plenum applications are the contents of the current version of the E-84 standard which are vague as to pipe mounting methods and amount of pipe exposed as well as other test conditions for evaluating plastic pipe. For that reason, UL 1887, an existing test method based on technology which has been evaluated with considerable scrutiny and was developed to test and rate combustible fire sprinkler piping systems for use in plenum spaces is recommended in this case by PPFA.

With regard to enhancing the ASTM E-84 language, the ASTM E-5 committee is currently voting on changes to the current standard which will clarify mounting methods for plastic pipe materials in the tunnel making its results more comparable between materials and from material to material within a generic group. PPFA is also supporting development of new text for the E-84 standard referring and recommending that flamespread properties of plastic pipe for plenum applications be tested according to UL – 1887. UL has been consulted on the proposed change and does not oppose it. UL 1887 is already referenced in the IMC and is not a new standard.

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

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

ICCFILENAME: CUDAHY-M-3-602.2.1

## M94–09/10

### 602.2.1.5, 602.2.1.5.1, 602.2.1.5.2, 602.2.1.5.3

**Proponent:** Jesse Beitel, Hughes Associates, Inc.

**Revise as follows:**

**602.2.1.5 Foam plastic insulation.** Foam plastic insulation used as wall or ceiling finish in plenums shall ~~exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 and shall also comply with one or more of Sections 602.2.1.5.1, 602.2.1.5.2 or and 602.2.1.5.3.~~

**602.2.1.5.1 Separation required.** The foam plastic insulation shall be separated from the plenum by a thermal barrier complying with Section 2603.4 of the *International Building Code*; and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.

**602.2.1.5.2 Approval.** The foam plastic insulation shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use and shall be tested in accordance with and meet the criteria of Section 803.1.2 of the *International Building Code*. ~~shall be approved based on tests conducted in accordance with Section 2603.9 of the *International Building Code*.~~

**602.2.1.5.3 Covering.** The foam plastic insulation shall be covered by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm) and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.

**Reason:** This code proposal revises the requirements for use of foam plastics in plenums. The intent of the IMC has been to require that all materials used in plenums shall be noncombustible or exhibit a flame spread index of 25 or less and a smoke-developed index of 50. The same criteria should also be applied to foam plastics used as wall or ceiling finish in plenums. This proposal requires that if the foam plastic is left unprotected then it shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 and meet the requirements of a full-scale fire test (NFPA 286). Additionally, several alternatives are provided to protect foam plastics and thus allow them to have a greater flame spread index and smoke-developed index.

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

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

ICCFILENAME: BEITEL-M-1-602.2.1.5

## M95–09/10

### 602.2.1.5, 602.2.1.5.1, 602.2.1.5.2, 602.2.1.5.3

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

**Revise as follows:**

**602.2.1.5 Foam plastic insulation.** Foam plastic insulation used as interior wall or ceiling finish, or as interior trim, in plenums shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 and shall also comply with one or more of the following Sections: 602.2.1.5.1, 602.2.1.5.2 or 602.2.1.5.3.

**602.2.1.5.1 Separation required.** The foam plastic insulation shall be separated from the plenum by a thermal barrier complying with Section 2603.4 of the *International Building Code*. and shall exhibit a flame spread index of 75 or less and a smoke developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.

**602.2.1.5.2 Approval.** The foam plastic insulation shall exhibit a flame spread index of 25 or less and a smoke developed index of 50 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use and shall meet the acceptance criteria of Section 803.1.2 of the *International Building Code* when tested in accordance with NFPA 286.

The foam plastic insulation shall be approved based on tests conducted in accordance with Section 2603.9 of the *International Building Code*.

**602.2.1.5.3 Covering.** The foam plastic insulation shall be covered by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm) and shall exhibit a flame spread index of 75 or less and a smoke developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use.

**Reason:** This code proposal revises the requirements for use of foam plastic insulation as interior wall and ceiling finish or as interior trim in plenums. The IBC and IMC requirements for materials in plenums has always been that they be noncombustible or exhibit a flame spread index of 25 or less and a smoke developed index of 50 when tested to ASTM E 84. As presently written there is some confusion because the foam plastic insulation could be approved based on tests using any of the standards from 2603.9 (and only NFPA 286 has pass/fail criteria for smoke). This proposal requires that exposed foam plastic insulation (i.e. foam plastic left unprotected), whether used as interior finish or as interior trim, shall exhibit a flame spread index of 25 or less and a smoke developed index of 50 and meet the requirements of the full scale room-corner fire test (NFPA 286) with requirements for flame spread, heat release, no flashover and smoke release. Additionally, two alternatives continue to be provided to protect foam plastics and thus allow them even when they have a higher flame spread index and smoke developed index, namely a thermal barrier and a corrosion-resistant steel barrier. This is also consistent with the requirements of NFPA 90A, which has the same requirements for foam plastic insulation used as interior finish in plenums.

**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-M-3-602.2.1.5

## M96–09/10

### 602.2.1.7 (New)

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

**Add new text as follows:**

**602.2.1.7 Plumbing and mechanical equipment in plenums.** Where discrete plumbing and mechanical equipment, appurtenances and appliances are located in a plenum and have exposed combustible material, they shall be listed and labeled for such use in accordance with UL 2043.

**Reason:** There are combustible plumbing and mechanical equipment, such as plumbing appurtenances, pipe and duct supports, grilles and registers that are used in plenums, that cannot be effectively tested in accordance with standards ASTM E84 or UL 723. The UL 2043 standard was developed to test products and materials not able to be tested in accordance with ASTM E84 or UL 723, and is currently adopted by reference in Section 602.2.1.4.2. These products are individual distinct pieces and non-continuous (i.e. "discrete"). This proposal was presented last cycle and the Committee had questions about the term "discrete". Per the dictionary, 'discrete' refers to products that are non-continuous, individual distinct pieces, as compared to non-discrete products such as cable or plastic pipe. If adopted this proposal will provide consistency in how the ICC codes treat discrete components in plenums.

**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-M-11-602.2.1.7

## M97–09/10

### 602.3; IRC M1601.1.1

**Proponent:** Mark Riley, City of Troy, MI, representing City of Troy and Mechanical Inspectors Association of Michigan

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

#### PART I – IMC

**Revise as follows:**

**602.3 Stud cavity and joist space plenums.** Stud wall cavities and the spaces between solid floor joists to be utilized as air plenums shall comply with the following conditions:

1. Such cavities or spaces shall not be utilized as a plenum for supply air.
2. Such cavities or spaces shall not be part of a required fire-resistance-rated assembly.

3. Stud wall cavities shall not convey air from more than one floor level.
4. Stud wall cavities and joist space plenums shall comply with the floor penetration protection requirements of the *International Building Code*.
5. Studwall cavities and joist space plenums shall be isolated from adjacent concealed spaces by approved fireblocking as required in the *International Building Code*.
6. Studwall cavities in outside walls of the building envelope shall not be utilized as air plenums.

## PART II – IRC MECHANICAL

### Revise as follows:

#### M1601.1.1 Above-ground duct systems. Above-ground *duct systems* shall conform to the following:

1. *Equipment* connected to *duct systems* shall be designed to limit discharge air temperature to a maximum of 250°F (121°C).
2. Factory-made air ducts shall be constructed of Class 0 or Class 1 materials as designated in Table M1601.1.1(1).
3. Fibrous duct construction shall conform to the SMACNA *Fibrous Glass Duct Construction Standards* or NAIMA *Fibrous Glass Duct Construction Standards*.
4. Minimum thickness of metal duct material shall be as listed in Table M1601.1.1(2). Galvanized steel shall conform to ASTM A 653.
5. Use of gypsum products to construct return air ducts or plenums is permitted, provided that the air temperature does not exceed 125°F (52°C) and exposed surfaces are not subject to condensation.
6. *Duct systems* shall be constructed of materials having a flame spread index not greater than 200.
7. Stud wall cavities and the spaces between solid floor joists to be used as air plenums shall comply with the following conditions:
  - 7.1. These cavities or spaces shall not be used as a plenum for supply air.
  - 7.2. These cavities or spaces shall not be part of a required fire-resistance-rated assembly.
  - 7.3. Stud wall cavities shall not convey air from more than one floor level.
  - 7.4. Stud wall cavities and joist-space plenums shall be isolated from adjacent concealed spaces by tight-fitting fire blocking in accordance with Section R602.8.
  - 7.5. Stud wall cavities in the outside walls of building envelope assemblies shall not be utilized as air plenums.

**Reason:** Using exterior walls for stud cavity for return air will cause several major problems in a duct system. The major concern is that it is very difficult if not impossible to seal the stud wall cavities to prevent outside air from infiltrating, which will put additional heating or cooling loads on the HVAC system.

It can also cause comfort and air quality problems, by bringing in contaminants, hot or cold air from outside into the wall stud space, and into the house.

If the installer has to run return air on an outside wall it can easily be done in sheet metal duct.

**Cost Impact:** The code change proposal may cause an increase in the cost of construction.

## PART I – IMC

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

## PART II – IRC MECHANICAL

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

ICCFILENAME: RILEY-M-2-602.3-RM-1-M1601.1.1

# M98-09/10

## Table 603.4; IRC Table M1601.1.1(2)

**Proponent:** Wesley R. Davis, Air Conditioning Contractors of America

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

### PART I – IMC

Revise table as follows:

**TABLE 603.4  
DUCT CONSTRUCTION MINIMUM SHEET METAL THICKNESSES FOR SINGLE DWELLING UNITS**

DUCT SIZE	GALVANIZED		ALUMINUM MINIMUM THICKNESS (in.)
	Minimum thickness (in.)	Equivalent galvanized gage no.	
Round ducts and enclosed rectangular ducts 14 inches or less 16 and 18 inches 20 inches and over	<del>0.013</del> 0.0157 0.0187 0.0236	<del>30</del> 28 26 24	<del>0.0175</del> 0.018 0.023
Exposed rectangular ducts 14 inches or less Over 14 inches <sup>a</sup>	0.0157 0.0187	28 26	0.0175 0.018

For SI: 1 inch = 25.4 mm, 1 inch water gage = 249 Pa.

- a. For duct gages and reinforcement requirements at static pressures of 1/2-inch, 1-inch and 2-inch w.g., SMACNA *HVAC Duct Construction Standards*, Tables 2-1, 2-2 and 2-3, shall apply.

### PART II – IRC MECHANICAL

Revise table as follows:

**TABLE M1601.1.1(2)  
GAGES OF METAL DUCTS AND PLENUMS USED FOR HEATING OR COOLING**

DUCT SIZE	MINIMUM THICKNESS inches and (mm)	EQUIVALENT GALVANIZED SHEET NO.	MINIMUM THICKNESS (in.)
Round ducts and enclosed rectangular ducts 14 inches or less 16 and 18 inches 20 inches and over	<del>0.013</del> 0.0157 (0.3950 mm) 0.0187 (0.4712 mm) 0.0236 (0.6010 mm)	<del>30</del> 28 26 24	<del>0.0175</del> 0.018 0.023
Exposed rectangular ducts 14 inches or Over 14 <sup>a</sup> inches	0.0157 (0.3950 mm) 0.0187 (0.4712 mm)	28 26	0.0175 0.018

For SI: 1 inch = 25.4 mm.

- a. For duct gages and reinforcement requirements at static pressures of 1/2 inch, 1 inch and 2 inches w.g., SMACNA *Duct Construction Standard*, Tables 2-1; 2-2 and 2-3 shall apply.

**Reason:** This unnecessary cost increase offers no justified benefit. 30 gage pipe is as structurally sound as a flexible duct and more durable. The code was modified with no substantiation.

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

### PART I – IMC

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

### PART II – IRC MECHANICAL

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

ICCFILENAME: DAVIS-M-4-T. 603.4-RM-T. M1601.1.1(2)

## M99–09/10

### 603.5

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

**Revise as follows:**

**603.5 Nonmetallic ducts.** Nonmetallic ducts shall be constructed with Class 0 or Class 1 duct material and shall comply in accordance with UL 181. Fibrous duct construction shall conform to the SMACNA *Fibrous Glass Duct Construction Standards* or NAIMA *Fibrous Glass Duct Construction Standards*. The maximum air temperature within nonmetallic ducts shall not exceed 250°F (121°C).

**Reason:** UL 181 is a testing standard, not a construction standard.

**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-M-8-603.5

## M100–09/10

### 603.5.2 (New)

**Proponent:** James Karnes, representing Dura Tite Systems, LLC

**Add new text as follows:**

**603.5.2 Nonmetallic duct fittings.** Non metallic forced air duct fittings that are considered discrete shall pass testing in accordance with UL 2043.

**Reason:** Under the current code, duct fittings are not addressed. It is assumed in most jurisdictions that a fitting is part of the duct system, and therefore nonmetallic fittings should be addressed under section 603.5 Nonmetallic Ducts. Section 603.5 states requirements for nonmetallic ducts to be constructed with Class 0 or Class 1 material as tested under UL 723 using ASTM E-84 method. This section generally pertains to duct board products, and are considered continuous building products. Fittings are not addressed, and cannot be tested using UL 723 (ASTM E-84) due to the size limitations of the test chamber. Discrete products can be alternately tested using UL2043.

Discrete is identified as a non-continuous building product, and the definition has been accepted by the IMC in the past for electrical products such as speaker boxes. The UL 2043 utilizes a test chamber that is 24 inches cubed. UL 2043 is the alternate test method to UL 723, for discrete products.

This new sub-section will address nonmetallic fittings and clarify the standards for compliance within the code.

Toxicity of smoke is not tested for under UL 2043, nor under any other test method used in the codes. Toxicity of smoke is not a required test for any building product.

This section does not address plumbing fittings, which are generally solvent welded together, creating a continuous building product.

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

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

ICCFILENAME: KARNES-M-1-603.5.2

## M101–09/10

### 603.7

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Revise as follows:**

**603.7 Rigid duct penetrations.** Duct system penetrations of walls, floors, ceilings and roofs and air transfer openings in such building components shall be protected as required by Section 607. ~~Ducts in a private garage and ducts~~ Ducts that penetrating the a walls or ceilings that separating separates a dwelling from a private garage shall be continuous, and shall be constructed of sheet steel having a minimum thickness of 26-gage 0.0187 inch (0.4712 mm)



(No.26 Gage) galvanized sheet metal and shall have no openings into the garage. Fire and smoke dampers are not required in such ducts passing through the wall or ceiling separating a dwelling from a private garage except where required by Chapter 7 of the *International Building Code*.

**Reason:** As currently written, this section literally says that there cannot be openings in any ducts that are located in a private garage, even those that do not penetrate walls or ceilings. Ducts that serve only the garage and do not pass through separation walls or ceilings need not be restricted to 26 gage and, of course, must have openings in order to serve their purpose. This is a simple fix that eliminates some unintended 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: MCMANN-M-32-603.7

## M102-09/10

### 603.7 (New); IRC M1601.1.2 (New)

**Proponent:** Guy Tomberlin, Fairfax County, VA, representing the Virginia Plumbing and Mechanical Inspectors/Virginia Building and Code Officials

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

#### PART I – IMC

**Add new text as follows:**

**603.7 Above ground plastic ducts.** Plastic ducts and fittings not listed in compliance with UL 181 shall be prohibited above grade.

#### PART II – IRC MECHANICAL

**Add new text as follows:**

**M1601.1.2 Prohibited ducts.** Plastic ducts and fittings not listed as in compliance with UL 181 shall be prohibited above grade.

**Reason: (PART I)** Current code fails to say anything about the use of plastic ducts and fittings above grade. Section 603.8 is titled “underground ducts” and that’s the only place that references an approved installation for plastic duct. Unfortunately, some believe that since they are not strictly prohibited they must be permitted, even absent code guidance for the installation. Until such time as industry comes out with an accepted standard and installation criteria similar to what is required for plumbing piping and fittings, the mechanical code needs to take a position on the use of the material.

**(PART II)** Current code fails to say anything about the use of plastic ducts and fittings above grade. The only reference is existing Section 1601.1.2 titled “underground ducts,” and that’s the only place that references an approved installation for plastic duct. Unfortunately, some believe that since they are not strictly prohibited they must be permitted, even absent code guidance for the installation. Until such time as industry comes out with an accepted standard and installation criteria similar to what is required for plumbing piping and fittings, the mechanical code needs to take a position on the use of the material.

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

#### PART I – IMC

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

#### PART II – IRC MECHANICAL

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

ICCFILENAME:T OMBERLIN-M-10-603.7-RM-3-M1601.1.2

# M103-09/10

## 603.8; IRC M1601.1.2

**Proponent:** Larry J. Larson, representing Wheeling Service and Supply, Inc.

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

### PART I – IMC

**Revise as follows:**

**603.8 Underground ducts.** Ducts shall be *approved* for underground installation. Metallic ducts not having an *approved* protective coating shall be completely encased in a minimum of 2 inches (51 mm) of concrete.

Factory-built PVC-coated metallic ducts constructed of hot dipped galvanized steel with a minimum coating weight of G-60 and with an exterior coating not less than 4 mils thick, shall not be required to be encased in concrete. The interior coating for PVC-coated ducts conveying corrosive fumes shall be not less than 4 mils thick. For PVC-coated ducts conveying non-corrosive fumes the interior coating shall be epoxy not less than 0.15 mils thick. PVC-coated ducts with diameters of 14 inches or larger shall be corrugated for additional strength. PVC-coated ducts shall be spirally wound with a continuous spiral lock seam joint. PVC-coated ducts shall be identified with the manufacturer's name, product name, and maximum rated positive and negative pressures. Fittings, sleeves, and connectors used with PVC-coated ducts shall be manufactured from the same material as the ducts.

### PART II – IRC MECHANICAL

**Revise as follows:**

**M1601.1.2 Underground duct systems.** Underground *duct systems* shall be constructed of *approved* concrete, clay, metal or plastic. The maximum duct temperature for plastic ducts shall not be greater than 150°F (66°C). Metal ducts shall be protected from corrosion in an *approved* manner or shall be completely encased in concrete not less than 2 inches (51 mm) thick. Nonmetallic ducts shall be installed in accordance with the manufacturer's installation instructions. Plastic pipe and fitting materials shall conform to cell classification 12454-B of ASTM D 1248 or ASTM D 1784 and external loading properties of ASTM D 2412. All ducts shall slope to an accessible point for drainage. Where encased in concrete, ducts shall be sealed and secured prior to any concrete being poured. Metallic ducts having an *approved* protective coating and nonmetallic ducts shall be installed in accordance with the manufacturer's installation instructions.

Factory-built PVC-coated metallic ducts constructed of hot dipped galvanized steel with a minimum coating weight of G-60 and with an exterior coating not less than 4 mils thick, shall not be required to be encased in concrete. The interior coating for PVC-coated ducts conveying corrosive fumes shall be not less than 4 mils thick. For PVC-coated ducts conveying non-corrosive fumes the interior coating shall be epoxy not less than 0.15 mils thick. PVC-coated ducts with diameters of 14 inches or larger shall be corrugated for additional strength. PVC-coated ducts shall be spirally wound with a continuous spiral lock seam joint. PVC-coated ducts shall be identified with the manufacturer's name, product name, and maximum rated positive and negative pressures. Fittings, sleeves, and connectors used with PVC-coated ducts shall be manufactured from the same material as the ducts.

**Reason:** The purpose of this change is to clarify the code. Polyvinyl coated ducts have been used for underground installations for more than 40 years without concrete encasement. Solid PVC ducts and fittings are approved under 603.8.3. Metallic ducts with PVC fused to galvanized steel should also be accepted but without the need of concrete encasement. This change in the code would specify a metallic duct with an approved protective coating.

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

### PART I – IMC

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

### PART II – IRC MECHANICAL

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

ICCFILENAME: LARSON-M-1-603.8-M1601.1.2

## M104–09/10

### 603.8.4 (New)

**Proponent:** Eli P. Howard, III, Sheet Metal and Air Conditioning Contractors National Association, Inc.

**Add new text as follows:**

**603.8.4 Metal Ducts and fittings.** Metal ducts and fittings made from the following materials are allowed for underground applications: Vinyl chloride coated steel (PVC, PVS) with a minimum thickness of 4 mils on the surface in contact with the soil or fill material, aluminized steel, stainless steel and FRP.

**Reason:** These types of materials have been used for years for underground ductwork and other underground applications such as culvert piping. SMACNA produces standards in HVAC, PVC and FRP for the construction and installation of these 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: HOWARD-M-5-603.8.4

## M105 –09/10

### 603.9; IRC M1601.4.1

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

#### PART I – IMC

**Revise as follows:**

**603.9 Joints, seams and connections.** All longitudinal and transverse joints, seams and connections in metallic and nonmetallic ducts shall be constructed as specified in SMACNA HVAC *Duct Construction Standards — Metal and Flexible* and NAIMA *Fibrous Glass Duct Construction Standards*. All joints, longitudinal and transverse seams, and connections in ductwork shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems, liquid sealants or tapes. Closure systems used to seal ductwork listed and labeled in accordance with UL 181A shall be marked “181A-P” for pressure-sensitive tape, “181 A-M” for mastic or “181 A-H” for heat-sensitive tape. Closure systems used to seal flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked “181B-FX” for pressure-sensitive tape or “181B-M” for mastic. Duct connections to flanges of air distribution system equipment shall be sealed and mechanically fastened. Mechanical fasteners for use with flexible nonmetallic air ducts shall comply with UL 181B and shall be marked “181B-C”. Closure systems used to seal metal ductwork shall be installed in accordance with the manufacturer’s installation instructions. Unlisted duct tape is not permitted as a sealant on any ~~metal~~ ducts.

**Exception:** Continuously welded and locking-type longitudinal joints and seams in ducts operating at static pressures less than 2 inches of water column (500 Pa) pressure classification shall not require additional closure systems.

#### PART II – IRC MECHANICAL

**Revise as follows:**

**M1601.4.1 Joints and seams.** Joints of *duct systems* shall be made substantially airtight by means of tapes, mastics, liquid sealants, gasketing or other *approved* closure systems. Closure systems used with rigid fibrous glass ducts shall comply with UL181A and shall be marked 181A-P for pressure-sensitive tape, 181A-M for mastic or 181 A-H for heat-sensitive tape. Closure systems used with flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked 181B-FX for pressure-sensitive tape or 181B-M for mastic. Duct connections to flanges of air distribution system *equipment* or sheet metal fittings shall be mechanically fastened. Mechanical fasteners for use with flexible nonmetallic air ducts shall comply with UL 181B and shall be marked 181B-C. Crimp joints for round metal ducts shall have a contact lap of at least 1 1/2 inches (38 mm) and shall be mechanically fastened by means of at least three sheet-metal screws or rivets equally spaced around the joint. Closure systems used to seal metal ductwork shall be installed in accordance with the manufacturer’s installation instructions. Unlisted duct tape is not permitted as a sealant on any duct.

**Exceptions:**

1. Spray polyurethane foam shall be permitted to be applied without additional joint seals.
2. Where a duct connection is made that is partially inaccessible, three screws or rivets shall be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.
3. Continuously welded and locking type longitudinal joints and seams in ducts operating at static pressures less than 2 inches of water column (500 Pa) pressure classification shall not require additional closure systems.

**Reason:** Unlisted duct tape should not be permitted as a sealant on any metallic or nonmetallic duct.

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

**PART I – IMC**

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

**PART II – IRC MECHANICAL**

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

ICCFILENAME: EUGENE-M-12-603.9-RM-M1601.4.1

**M106–09/10  
603.10**

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Delete and substitute as follows:**

~~**603.10 Supports.** Ducts shall be supported with approved hangers at intervals not exceeding 10 feet (3048 mm) or by other approved duct support systems designed in accordance with the International Building Code. Flexible and other factory-made ducts shall be supported in accordance with the manufacturer’s installation instructions.~~

**603.10 Supports.** Ducts shall be supported in accordance with Chapter 5 of the SMACNA HVAC Duct Construction Standards- Metal and Flexible or by other approved supporting systems. Flexible and other factory-made ducts shall be supported in accordance with the manufacturer’s installation instructions.

**Reason:** The SMACNA Standard permits some sizes to be supported at intervals greater than 10 feet such as 4 inch. The IBC does not govern how ducts are to be supported, that’s between the IMC and SMACNA. The code official can approve any engineered system with proper back-up.

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

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

ICCFILENAME: MCMANN-M-37-603.10

**M107–09/10  
603.14**

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

**Revise as follows:**

**603.14 Location.** Ducts shall not be installed in or within 4 inches (102 mm) of the earth, except where such ducts comply with Section 603.8. Duct installations shall comply with the headroom requirements specified in the International Building Code.

**Reason:** The International Mechanical Code regulates ducts but is silent on the requirement to maintain minimum ceiling heights. This proposal adds a cross-reference to help ensure designs are compatible with the requirements of the International Building Code.

In our experience, this is mainly an issue in parking garages, where ducts may be installed across driving or walking aisles, without regard to the ceiling height requirements. As such, the proposal could be revised to more narrowly apply just to parking garages ("Duct installations in parking garages shall comply..."), but if that is done, it may imply that headroom requirements need not be met for occupied areas of a building.

Note that part of the problem may be the result of design sequencing—the building shell may be fully designed and actually under construction before the mechanical designer/contractor is brought on board. At that point, the ceiling heights have already been determined, and it may be difficult for the mechanical designer to work around them, if he/she is even aware of the requirements. While this proposal will not fix that issue, it will alert the mechanical designer that it is an issue that will need to be addressed.

**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-M-2-603.14

## M108–09/10

### 603.17.3 (New), Chapter 15

**Proponent:** Guy Tomberlin, Fairfax County, VA, representing the Virginia Plumbing and Mechanical Inspectors/Virginia Building and Code Officials

#### 1. Add new text as follows:

**603.17. Air dispersion systems.** Air dispersion systems shall:

1. Be installed entirely in exposed locations.
2. Be utilized in systems under positive pressure.
3. Not pass through or penetrate fire-resistant rated construction.
4. Be listed and labeled in compliance with UL 2518.

#### 2. Add new standard to Chapter 15 as follows:

**UL**  
**2518–02** Air Dispersion System Materials

**Reason:** This system was removed from the 09 IMC because of lack of a Standard reference. Instead of industry coming back with a Standard they let the section be removed from the code. I researched the original proposal from the 07 code development cycle and found the original proposal that included a reference to UL Standard 2518–02. It was removed because the Standard's text failed to meet ICC criteria Section 3.6. Even though, the 07 Supplement still permitted this technology to be installed and many of these systems are installed today and working effectively. My position is if it's out there with no related problems and no standard then why not incorporate the product into the code and utilize the industry standard that is currently in place to specifically address this application? The term is currently defined in Chapter 2 of the 2009 IMC

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

**Analysis:** Review of proposed new standard, UL 2518-02, 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: TOMBERLIN-M-16-603.17.3

## M109–09/10

### 603.18 (New)

**Proponent:** Eli P. Howard, III, Sheet Metal and Air Conditioning Contractors National Association, Inc.

#### Add new text as follows:

**603.18 Balancing.** Duct systems shall be balanced as specified in SMACNA HVAC Systems Testing, Adjusting & Balancing. Such balancing shall verify that the duct system and its branches is capable of supplying the airflow rates required by Section 603.2.

**Reason:** The current balancing requirements in the IMC does not provide for clearly defined methods or procedures for testing, adjusting, and balancing of HVAC systems. SMACNA's *HVAC Systems Testing, Adjusting & Balancing* manual provides specific methods and procedures—a complete process—that ensures all HVAC systems have been properly adjusted and balanced.

**Cost Impact:** Using established, time-tested procedures to correctly balance HVAC airflows the first time should have no cost impact.

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

ICCFILENAME: HOWARD-M-4-603.18

# M110-09/10

## [E] 604.2 (New); IRC M1601.4 (New)

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

### PART I – IMC

**Add new text as follows:**

[E] 604.2 Duct and plenum insulation, where required. Supply and return air ducts and plenums shall be insulated with a minimum of R-5 insulation where located in unconditioned spaces and with a minimum of R-8 insulation where located outside of the building. Where located within a building envelope assembly, the duct or plenum shall be separated from the building exterior and unconditioned or exempt spaces by a minimum of R-8 insulation.

**Exceptions:**

1. Where located within equipment.
2. Where the design temperature difference between the interior and exterior of the duct or plenum does not exceed 15°F (8°C).

### PART II – IRC MECHANICAL

**Add new text as follows:**

M1601.4 Duct and plenum insulation. Supply and return air ducts and plenums shall be insulated with a minimum of R-5 insulation where located in unconditioned spaces and with a minimum of R-8 insulation where located outside of the building. Where located within a building envelope assembly, the duct or plenum shall be separated from the building exterior, unconditioned spaces and exempt spaces by a minimum of R-8 insulation.

**Exceptions:**

1. Where located within equipment.
2. Where the design temperature difference between the interior and exterior of the duct or plenum does not exceed 15°F (8°C).

**Reason:** This is last cycles M-82, extracted from IECC Section 503.2.7 and needs to be included here in the IMC. Although this is located in the commercial chapter of the Energy Code, it will still apply to residential construction as well. The duct does not know if it's in a house or a mall. There will be no confusion as to what committee will have the maintenance responsibility as this is a simple extraction. Section 604 tells us everything except where insulation is required. It would be appropriate for inspectors and installers to have this information readily available in this document and not have to locate a second code to come up with the answer. There is no new language here and this added text would make 604 more convenient and complete.

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

### PART I – IMC

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

### PART II – IRC MECHANICAL

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

ICCFILENAME: MCMANN-M-6-604.2-RM-5-M1601.4

# M111–09/10

## 604.3; IRC M1601.3

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

### PART I – IMC

**Revise as follows:**

**604.3 Coverings and linings.** Coverings and linings, including adhesives when used, shall have a flame spread index not more than 25 and a smoke-developed index not more than 50, when tested in accordance with ASTM E 84 or UL 723, using the specimen preparation and mounting procedures of ASTM E 2231. Duct coverings and linings shall not flame, glow, smolder or smoke when tested in accordance with ASTM C 411 at the temperature to which they are exposed in service. The test temperature shall not fall below 250°F (121°C). Coverings and linings shall be listed and labeled.

### PART II – IRC MECHANICAL

**Revise as follows:**

**M1601.3 Duct insulation materials.** Duct insulation materials shall conform to the following requirements:

1. Duct coverings and linings, including adhesives where used, shall have a flame spread index not higher than 25, and a smoke-developed index not over 50 when tested in accordance with ASTM E 84 or UL 723, using the specimen preparation and mounting procedures of ASTM E 2231.

**Exception:** Spray application of polyurethane foam to the exterior of ducts in *attics* and crawl spaces shall be permitted subject to all of the following:

1. The flame spread index is not greater than 25 and the smoke-developed index is not greater than 450 at the specified installed thickness.
  2. The foam plastic is protected in accordance with the ignition barrier requirements of Sections R316.5.3 and R316.5.4.
  3. The foam plastic complies with the requirements of Section R316.
2. Duct coverings and linings shall not flame, glow, smolder or smoke when tested in accordance with ASTM C 411 at the temperature to which they are exposed in service. The test temperature shall not fall below 250°F (121°C). Coverings and linings shall be listed and labeled.
  3. External duct insulation and factory-insulated flexible ducts shall be legibly printed or identified at intervals not longer than 36 inches (914 mm) with the name of the manufacturer, the thermal resistance *R*-value at the specified installed thickness and the flame spread and smoke-developed indexes of the composite materials. Spray polyurethane foam manufacturers shall provide the same product information and properties, at the nominal installed thickness, to the customer in writing at the time of foam application. All duct insulation product *R*-values shall be based on insulation only, excluding air films, vapor retarders or other duct components, and shall be based on tested *C*-values at 75°F (24°C) mean temperature at the installed thickness, in accordance with recognized industry procedures. The installed thickness of duct insulation used to determine its *R*-value shall be determined as follows:
    - 3.1. For duct board, duct liner and factory-made rigid ducts not normally subjected to compression, the nominal insulation thickness shall be used.
    - 3.2. For ductwrap, the installed thickness shall be assumed to be 75 percent (25-percent compression) of nominal thickness.
    - 3.3. For factory-made flexible air ducts, The installed thickness shall be determined by dividing the difference between the actual outside diameter and nominal inside diameter by two.
    - 3.4. For spray polyurethane foam, the aged *R*-value per inch measured in accordance with recognized industry standards shall be provided to the customer in writing at the time of foam application. In addition, the total *R*-value for the nominal application thickness shall be provided.

**Reason:** Surface burning characteristics of coverings and linings is a life safety issue. Only listing and labeling of a product can verify that the product installed at a jobsite is composed of the same material originally tested.

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

## PART I – IMC

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

## PART II – IRC MECHANICAL

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

ICCFILENAME:E UGENE-M-16-604.3-RM-M1601.3

# M112–09/10

## 604.8.1 (New); IRC M1601.3

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

## PART I – IMC

**Add new text as follows:**

**604.8.1 Liner prohibition.** Duct lining insulation material shall be prohibited in ducts and plenums used exclusively for evaporative cooling systems.

## PART II – IRC MECHANICAL

**Revise as follows:**

**M1601.3 Duct insulation materials.** Duct insulation materials shall conform to the following requirements:

1. Duct coverings and linings, including adhesives where used, shall have a flame spread index not higher than 25, and a smoke-developed index not over 50 when tested in accordance with ASTM E 84 or UL 723, using the specimen preparation and mounting procedures of ASTM E 2231.

**Exception:** Spray application of polyurethane foam to the exterior of ducts in *attics* and crawl spaces shall be permitted subject to all of the following:

1. The flame spread index is not greater than 25 and the smoke-developed index is not greater than 450 at the specified installed thickness.
  2. The foam plastic is protected in accordance with the ignition barrier requirements of Sections R316.5.3 and R316.5.4.
  3. The foam plastic complies with the requirements of Section R316.
2. Duct coverings and linings shall not flame, glow, smolder or smoke when tested in accordance with ASTM C 411 at the temperature to which they are exposed in service. The test temperature shall not fall below 250°F (121°C). Duct lining insulation material shall be prohibited in ducts and plenums used exclusively for evaporative cooling systems.
  3. External duct insulation and factory-insulated flexible ducts shall be legibly printed or identified at intervals not longer than 36 inches (914 mm) with the name of the manufacturer, the thermal resistance *R*-value at the specified installed thickness and the flame spread and smoke-developed indexes of the composite materials. Spray polyurethane foam manufacturers shall provide the same product information and properties, at the nominal installed thickness, to the customer in writing at the time of foam application. All duct insulation product *R*-values shall be based on insulation only, excluding air films, vapor retarders or other duct



components, and shall be based on tested C-values at 75°F (24°C) mean temperature at the installed thickness, in accordance with recognized industry procedures. The installed thickness of duct insulation used to determine its R-value shall be determined as follows:

- 3.1. For duct board, duct liner and factory-made rigid ducts not normally subjected to compression, the nominal insulation thickness shall be used.
- 3.2. For ductwrap, the installed thickness shall be assumed to be 75 percent (25-percent compression) of nominal thickness.
- 3.3. For factory-made flexible air ducts, The installed thickness shall be determined by dividing the difference between the actual outside diameter and nominal inside diameter by two.
- 3.4. For spray polyurethane foam, the aged R-value per inch measured in accordance with recognized industry standards shall be provided to the customer in writing at the time of foam application. In addition, the total R-value for the nominal application thickness shall be provided.

**Reason:** Installing liner in evaporative systems would result in a serious mold condition. This simply states the obvious, that this would not be a best practice.

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

#### PART I – IMC

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

#### PART II – IRC MECHANICAL

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

ICCFILENAME: MCMANN-M-9-604.8.1-RM-M1601.3

## M113–09/10

### 606.2.1

**Proponent:** Robert Adkins, Prince William, VA, representing the VA Plumbing & Mechanical Inspectors Association/VA Building and Code Officials Association

#### Revise as follows:

**606.2.1 Return air systems.** Smoke detectors shall be installed in return air systems with a design capacity greater than 2,000 cfm (0.9 m<sup>3</sup>/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 Code*. The area smoke detection system shall comply with Section 606.4.

**Reason:** Most air moving appliances today has variable speed fan motors. If the smoke detectors are necessary @ 2000cfm and the appliance is capable of moving that amount of air, the detector should be installed. A simple wire change could create a non-compliant situation.

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

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

ICCFILENAME: A DKINS-M-1-606.2.1

# M114–09/10

## 801.16.1; IRC R1003.11.1

Proponent: Bob Eugene, Underwriters Laboratories, Inc.

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

### PART I – IMC

Revise as follows:

**801.16.1 Residential and low-heat appliances (general).** Flue lining systems for use with residential-type and low-heat appliances shall be limited to the following:

1. Clay flue lining complying with the requirements of ASTM C 315 or equivalent. Clay flue lining shall be installed in accordance with the *International Building Code*.
2. Listed and labeled chimney lining systems complying with UL 1777.
3. Other approved materials that will resist, without cracking, softening or corrosion, flue gases and condensate at temperatures up to 1,800°F (982°C).

### PART II – IRC MECHANICAL

Revise as follows:

**R1003.11.1 Residential-type appliances (general).** Flue lining systems shall comply with one of the following:

1. Clay flue lining complying with the requirements of ASTM C 315.
2. Listed and labeled chimney lining systems complying with UL 1777.
3. Factory-built chimneys or chimney units listed for installation within masonry chimneys.
4. Other *approved* materials that will resist corrosion, erosion, softening or cracking from flue gases and condensate at temperatures up to 1,800°F (982°C).

Reason: Only listed products that are labeled have been subjected to periodic, unannounced inspections during production.

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

### PART I – IMC

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

### PART II – IRC MECHANICAL

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

ICCFILENAME: EUGENE-M-13-801.16.1-RB-R1003.11.1

# M115–09/10

## 804.3, Chapter 15

Proponent: Bob Eugene, Underwriters Laboratories, Inc.

1. Revise as follows:

**804.3 Mechanical draft systems.** Mechanical draft systems of either forced or induced draft design shall be listed and labeled in accordance with UL 378 and shall comply with Sections 804.3.1 through 804.3.7

## 2. Add new standard to Chapter 15 as follows:

### UL 378-06 Draft Equipment

**Reason:** UL 378 includes a comprehensive set of construction and performance requirements that are used to evaluate and list draft equipment. Five companies currently have draft equipment listed. Only listed products that are labeled have been subjected to periodic, unannounced inspections during production.

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

**Analysis:** Review of proposed new standard UL 378-06, 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.

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

ICCFILENAME: EUGENE-M-5-804.3-CH 15

## M116–09/10 804.3.8, Chapter 15

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

### 1. Revise as follows:

**804.3.8 Mechanical draft systems for manually fired appliances and fireplaces.** A mechanical draft system shall be permitted to be used with manually fired appliances and fireplaces where such system complies with all of the following requirements:

1. The mechanical draft device shall be listed and labeled in accordance with UL 378, and shall be installed in accordance with the manufacturer's installation instructions.
2. A device shall be installed that produces visible and audible warning upon failure of the mechanical draft device or loss of electrical power, at any time that the mechanical draft device is turned on. This device shall be equipped with a battery backup if it receives power from the building wiring.
3. A smoke detector shall be installed in the room with the appliance or fireplace. This device shall be equipped with a battery backup if it receives power from the building wiring.

### 2. Add new standard to Chapter 15 as follows:

### UL 378-06 Draft Equipment

**Reason:** UL 378 includes a comprehensive set of construction and performance requirements that are used to evaluate and list draft equipment. Five companies currently have draft equipment listed. Only listed products that are labeled have been subjected to periodic, unannounced inspections during production. Only listed products that are labeled have been subjected to periodic, unannounced inspections during production.

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

**Analysis:** Review of proposed new standard UL 378-06, 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.

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

ICCFILENAME: EUGENE-M-17-804.3.8-CH 15

# M117-09/10

## 805.3 (New); IRC R1005.7 (New)

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

### PART I – IMC

**Add new text as follows:**

**805.3 Factory built chimney offsets.** Where a factory-built chimney assembly incorporates offsets, no part of the chimney shall be at an angle of more than 30 degrees from vertical at any point in the assembly and the chimney assembly shall not include more than 4 elbows.

### PART II – IRC MECHANICAL

**Add new text as follows:**

**R1005.7 Factory built chimney offsets.** Where a factory-built chimney assembly incorporates offsets, no part of the chimney shall be at an angle of more than 30 degrees from vertical at any point in the assembly and the chimney assembly shall not include more than 4 elbows.

**Reason:** This language comes directly from UL-103, Section 7.8. This is vital information the inspection community needs to properly inspect these installations. Some of the problems in quoting standards is the pertinent information in those standards are not printed in the code. Inspectors don't carry around UL-103 and as a result, would not have any clue that these requirements even exist, resulting in approving an installation incorrectly.

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

### PART I – IMC

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

### PART II – IRC MECHANICAL

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

ICCFILENAME: MCMANN-M-13-805.3-RB-3-1005.7

# M118-09/10

## 901.4, Chapter 15

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

### 1. Revise as follows:

**901.4 Fireplace accessories.** Listed and labeled fireplace accessories shall be installed in accordance with the conditions of the listing and the manufacturer's installation instructions. Fireplace accessories shall comply with UL 907.

### 2. Add new standard to Chapter 15 as follows:

**UL**  
907-94 Fireplace Accessories – with revisions through July 2006

**Reason:** UL 907 includes a comprehensive set of construction and performance requirements that are used to evaluate and list fireplace accessories. Eight companies currently have fireplace accessories listed. Only listed products that are labeled have been subjected to periodic, unannounced inspections during production.

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

**Analysis:** Review of proposed new standard UL 907-94, 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-M-18-901.4-CH 15

## M119-09/10 903.2, 905.3 (New), Chapter 15; IRC R1004.2, Chapter 44

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC BUILDING/ENERGY COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

### PART I – IMC

#### 1. Revise as follows:

**903.2 Hearth extensions.** ~~Hearth extensions of approved factory-built fireplaces and fireplace stoves shall be installed in accordance with the listing of the fireplace. The hearth extension shall be readily distinguishable from the surrounding floor area. Listed and labeled hearth extensions shall comply with UL 1618.~~

#### 2. Add new text as follows:

**905.3 Hearth extensions.** Hearth extensions for fireplace stoves shall be installed in accordance with the listing of the fireplace stove. The hearth extension shall be readily distinguishable from the surrounding floor area. Listed and labeled hearth extensions shall comply with UL 1618.

#### 2. Add new standard to Chapter 15 as follows:

**UL**  
1618-09 Wall Protectors, Floor Protectors, and Hearth Extensions

### PART II – IRC BUILDING/ENERGY

#### 1. Revise as follows:

**R1004.2 Hearth extensions.** Hearth extensions of *approved* factory-built fireplaces shall be installed in accordance with the *listing* of the fireplace. The hearth extension shall be readily distinguishable from the surrounding floor area. Listed and labeled hearth extensions shall comply with UL 1618.

#### 2. Add new standard to Chapter 44 as follows:

**UL**  
1618-09 Wall Protectors, Floor Protectors, and Hearth Extensions

**Reason:** The UL 1618 standard includes a comprehensive set of construction and performance requirements that are used to evaluate and list wall protectors, floor protectors, and hearth extensions that are intended for use with heat producing devices, such as fireplaces, fireplace stoves, fireplace inserts, and solid-fuel type room heaters. This proposal also provides an alternative for the use of listed hearth extensions instead of built on-site.

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

**Analysis:** Review of proposed new standard UL 1619-09, 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.

### PART I – IMC

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: EUGENE-M-20-903.2-CH 15-R1004.2-CH 44

# M120–09/10

908.1

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

## Revise as follows:

**908.1 General.** A cooling tower used in conjunction with an air-conditioning appliance shall be installed in accordance with the manufacturer's installation instructions. Cooling towers shall comply with UL 1995.

**Reason:** UL 1995 is already referenced in Chapter 15. UL 1995 includes a comprehensive set of construction and performance requirements that are used to evaluate and list cooling towers, and is already adopted by reference in other sections of the IMC.

**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-M-22-908.1

# M121–09/10

911.1, Chapter 15; IRC M1407.1, Chapter 44

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

## PART I – IMC

### 1. Revise as follows:

**911.1 General.** Duct furnaces shall be installed in accordance with the manufacturer's installation instructions. Electric duct furnaces shall be tested in accordance comply with UL 1995-1996.

### 2. Add new standard to Chapter 15 as follows:

**UL**  
1996- 04 Electric Duct Heaters – with revisions through December 2006

## PART II – IRC MECHANICAL

### 1. Revise as follows:

**M1407.1 General.** Electric duct heaters shall be installed in accordance with the manufacturer's installation instructions and Chapters 34 through 43 of this code. Electric ~~furnaces~~ duct heaters shall ~~be tested in accordance~~ comply with UL 4995. 1996.

### 2. Add new standard to Chapter 44 as follows:

**UL**  
1996- 04 Electric Duct Heaters – with revisions through December 2006

**Reason:** This proposal changes the referenced standard from the standard for heating and cooling equipment, UL 1995, to the more appropriate standard for electric duct heaters, UL 1996. UL 1996 includes a comprehensive set of construction and performance requirements that are specifically used to evaluate and list electric duct furnaces. 15 companies currently have duct furnaces listed.

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

**Analysis:** Review of proposed new standard UL 1996-04, 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.

## PART I – IMC

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

## PART II – IRC MECHANICAL

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

ICCFILENAME: EUGENE-M-24-911.1-CH 15-RM-9-M1407.1-CH 44

## M122–09/10 912.1, Chapter 15

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

### 1. Revise as follows:

**912.1 Support.** Infrared radiant heaters shall be fixed in a position independent of fuel and electric supply lines. Hangers and brackets shall be noncombustible material. Electric infrared radiant heaters shall comply with UL 499.

### 2. Add new standard to Chapter 15 as follows:

**UL**  
499-05      Electric Heating Appliances – with revisions through August 2008.

**Reason:** UL 499 includes a comprehensive set of construction and performance requirements that are specifically used to evaluate and list electric infrared radiant heaters.

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

**Analysis:** Review of proposed new standard UL 499-06, 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.

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

ICCFILENAME: EUGENE-M-26-912.1-CH 15

## M123–09/10 922.1

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

### Revise as follows:

**922.1 General.** Kerosene and oil-fired stoves shall be listed and labeled and shall be installed in accordance with the conditions of the listing and the manufacturer's installation instructions. Kerosene and oil-fired stoves shall comply with NFPA 31 and Oil-fired stoves shall be tested in accordance with UL 896.

**Reason:** UL 896 is the standard used for testing both oil-fired and kerosene-fired stoves.

**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-M-28-922.1

## M124–09/10

### 923.1, Chapter 15

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

#### 1. Revise as follows:

**923.1 General.** The provisions of this section shall apply to kilns that are used for ceramics, have a maximum interior volume of 20 cubic feet (0.566 m<sup>3</sup>) and are used for hobby and noncommercial purposes. Electric kilns shall comply with UL 499.

#### 2. Add new standard to Chapter 15 as follows:

**UL**  
499- 05     Electric Heating Appliances – with revisions through August 2008.

**Reason:** UL 499 includes a comprehensive set of construction and performance requirements that are specifically used to evaluate and list electric kilns. Seven companies currently have electric kilns listed.

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

**Analysis:** Review of proposed new standard UL 499-06, 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.

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

ICCFILENAME: EUGENE-M-19-923.1-CH 15

## M125–09/10

### 928 (New), Chapter 15

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

#### 1. Add new text as follows:

#### **SECTION 928** **RADIANT HEATING SYSTEMS**

**928.1 General.** Electric radiant heating systems shall be installed in accordance with the manufacturer's installation instructions and shall be listed for the application. Electric radiant heating panels and heating panel sets shall comply with UL 1693. Electric space heating cables shall comply with UL 1673.

**928.2 Clearances.** Clearances for radiant heating panels or elements to any wiring, outlet boxes and junction boxes used for installing electrical devices or mounting luminaires shall be in accordance with NFPA 70.

**928.3 Installation on wood or steel framing.** Radiant panels installed on wood or steel framing shall conform to the following requirements:

1. Heating panels shall be installed parallel to framing members and secured to the surface of framing members or shall be mounted between framing members.
2. Mechanical fasteners shall penetrate only the unheated portions provided for this purpose. Panels shall not be fastened at any point closer than ¼ inch (7 mm) to an element. Other methods of attachment of the panels shall be in accordance with the panel installation instructions.
3. Unless listed and labeled for field cutting, heating panels shall be installed as complete units.

**928.4 Installation in concrete or masonry.** Radiant heating systems installed in concrete or masonry shall conform to the following requirements:

1. Radiant heating systems shall be identified as being suitable for the installation, and shall be secured in place as specified in the manufacturer's installation instructions.



2. Radiant heating panels and radiant heating panel sets shall not be installed where they bridge expansion joints unless protected from expansion and contraction.

**928.5 Finish surfaces.** Finish materials installed over radiant heating panels and systems shall be installed in accordance with the manufacturer's installation instructions. Surfaces shall be secured so that fasteners do not pierce the radiant heating elements.

## 2. Add new standards to Chapter 15 as follows:

### UL

1673-96 Electric Space Heating Cables – with revisions through July 2003

1693-02 Electric Radiant Heating Panels and Heating Panel Sets

**Reason:** The requirements included in this new section cover the installation of radiant heating systems. They are based on requirements included in Section M1406 of the International Residential Code. UL 1673 and UL 1693 are the standards used to investigate and list electric space heating cables and electric radiant heating panels. Over 20 companies have listings for these products.

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

**Analysis:** Review of proposed new standards UL 1673-96 and UL 1693-02, 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-M-21-928-CH 15

## M126–09/10

### 928 (New), 928.1 (New); IRC M1413.1, M1413.2

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

#### PART I – IMC

**Add new text as follows:**

### SECTION 928 EVAPORATIVE COOLING EQUIPMENT

**928.1 General.** Evaporative cooling equipment shall:

1. Be installed in accordance with the manufacturer's installation instructions.
2. Be installed on level platforms in accordance with Section 304.10.
3. Have openings in exterior walls or roofs flashed in accordance with the *International Building Code*.
4. Be provided with potable water backflow protection in accordance with Section 608 of the *International Plumbing Code*.
5. Have air intake opening locations in accordance with Section 401.4.

**Reason:** Evaporative coolers are currently not addressed in the IMC and are notorious for being installed too close to contaminants such as water heater vents, plumbing vents, etc. When installed incorrectly, high costs are incurred to fix the problem. This added text will provide guidance currently not covered in this code.

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

## PART II – IRC MECHANICAL

### Delete and substitute as follows:

~~**M1413.1 General.** Cooling equipment that uses evaporation of water for cooling shall be installed in accordance with the manufacturer's installation instructions. Evaporative coolers shall be installed on a level platform or base not less than 3 inches (76 mm) above the adjoining ground and secured to prevent displacement. Openings in exterior walls shall be flashed in accordance with Section R703.8.~~

~~**M1413.2 Protection of potable water.** The potable water system shall be protected from backflow in accordance with the provisions in Section P2902.~~

### **M1413.1 General.** Evaporative cooling equipment shall be installed:

1. according to the manufacturer's installation instructions
2. on level platforms in accordance with Section M1305.1.4.1
3. so that openings in exterior walls are flashed in accordance with Section R703.8
4. so as to protect the potable water supply in accordance with Section P2902
5. so that air intake opening locations are in accordance with Section R303.4.1

**Reason:** Evaporative coolers are notorious for being installed too close to contaminants such as water heater vents, plumbing vents, etc. When installed incorrectly, high costs are incurred to fix the problem. These sections have been reorganized for ease of reading and # 5 has been added to point users to the correct intake section that will avoid these costly mistakes.

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

## PART I – IMC

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

## PART II – IRC MECHANICAL

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

ICCFILENAME: MCMANN-M-4-928-RM-7-1413.1

## M127–09/10

### 1002.1, Chapter 15; IRC M2005.1, Chapter 44

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

## PART I – IMC

### 1. Revise as follows:

**1002.1 General.** Potable water heaters and hot water storage tanks shall be listed and labeled and installed in accordance with the manufacturer's installation instructions, the *International Plumbing Code* and this code. All water heaters shall be capable of being removed without first removing a permanent portion of the building structure. The potable water connections and relief valves for all water heaters shall conform to the requirements of the *International Plumbing Code*. Domestic electric water heaters shall comply with UL 174 or UL 1453. Commercial electric water heaters shall comply with UL 1453. Oil-fired water heaters shall comply with UL 732. Solid-fuel-fired water heaters shall comply with UL 2523. Thermal solar water heaters shall comply with Chapter 14 and UL 174 or UL 1453.

**2. Add new standard to Chapter 15 as follows:**

**UL**  
2523-09 Outline of Investigation for Solid Fuel-Fired Water Heaters and Boilers

**PART II – IRC MECHANICAL**

**1. Revise as follows:**

**M2005.1 General.** Water heaters shall be installed in accordance with the manufacturer’s installation instructions and the requirements of this code. Water heaters installed in an attic shall conform to the requirements of Section M1305.1.3. Gas-fired water heaters shall conform to the requirements in Chapter 24. Domestic electric water heaters shall conform to UL 174 or UL 1453. Commercial electric water heaters shall conform to UL 1453. Oiled-fired water heaters shall conform to UL 732. Thermal solar water heaters shall comply with Chapter 23 and UL 174. Solid-fuel-fired water heaters shall comply with UL 2523.

**2. Add new standard to Chapter 44 as follows:**

**UL**  
2523-09 Outline of Investigation for Solid Fuel-Fired Water Heaters and Boilers

**Reason:** The UL Subject 2523 Outline of Investigation includes a comprehensive set of construction and performance requirements that are used to evaluate and list factory built manually and/or automatically fueled solid fuel-fired water heaters. UL 174 is the standard used to evaluate and list thermal solar water heaters.

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

**Analysis:** Review of proposed new standard UL 2523-09, 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.

**PART I – IMC**

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

**PART II – IRC MECHANICAL**

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

ICCFILENAME: EUGENE-M-23-1002.1-CH 15-RM-21-M2005.1-CH 44

**M128–09/10**

**1004.1, Chapter 15; IRC M2001.1.1, Chapter 44**

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

**PART I – IMC**

**1. Revise as follows:**

**1004.1 Standards.** Oil-fired boilers and their control systems shall be listed and labeled in accordance with UL 726. Electric boilers and their control systems shall be listed and labeled in accordance with UL 834. Solid-fuel-fired boilers shall be listed and labeled in accordance with UL 2523. Boilers shall be designed and constructed in accordance with the requirements of ASME CSD-1 and as applicable, the ASME *Boiler and Pressure Vessel Code*, Sections I or IV; NFPA 8501; NFPA 8502 or NFPA 8504.

**2. Add new standard to Chapter 15 as follows:**

**UL**  
2523-09 Outline of Investigation for Solid Fuel-Fired Water Heaters and Boilers

**PART II – IRC MECHANICAL**

**1. Revise as follows:**

**M2001.1.1 Standards.** Oil-fired boilers and their control systems shall be listed and *labeled* in accordance with UL 726. Electric boilers and their control systems shall be *listed* in accordance with UL 834. Solid-fuel-fired boilers shall be listed and labeled in accordance with UL 2523. Boilers shall be designed and constructed in accordance with the requirements of ASME CSD-1 and as applicable, the ASME *Boiler and Pressure Vessel Code*, Sections I and IV. Gas-fired boilers shall conform to the requirements listed in Chapter 24.

**2. Add new standard to Chapter 44 as follows:**

**UL**  
2523-09 Outline of Investigation for Solid Fuel-Fired Water Heaters and Boilers

**Reason:** UL’s Subject 2523 Outline of Investigation includes a comprehensive set of construction and performance requirements that are used to evaluate and list factory built manually and/or automatically fueled solid fuel-fired boilers.

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

**Analysis:** Review of proposed new standard UL 2523-09, 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.

**PART I – IMC**

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

**PART II – IRC MECHANICAL**

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

ICCFILENAME: EUGENE-M-25-1004.1-CH 15

**M129–09/10**

**1004.3.1, Table 1004.3.1 (New)**

**Proponent:** John England, MCO, England Enterprises, Inc.

**1. Delete and substitute follows:**

~~**1004.3.1 Top clearance.** High-pressure steam boilers having a steam-generating capacity in excess of 5,000 pounds per hour (2268 kg/h) or having a heating surface in excess of 1,000 square feet (93 m2) or input in excess of 5,000,000 Btu/h (1465 kW) shall have a minimum clearance of 7 feet (2134 mm) from the top of the boiler to the ceiling. Steam-heating boilers and hot-water-heating boilers that exceed one of the following limits: 5,000,000 Btu/h input (1465 kW); 5,000 pounds of steam per hour (2268 kg/h) capacity or a 1,000-square-foot (93 m2) heating surface; and high-pressure steam boilers that do not exceed one of the following limits: 5,000,000 Btu/h input (1465 kW); 5,000 pounds of steam per hour (2268 kg/h) capacity or a 1,000-square-foot (93 m2) heating surface; and all boilers with manholes on top of the boiler, shall have a minimum clearance of 3 feet (914 mm) from the top of the boiler to the ceiling. Package boilers, steam-heating boilers and hot-water-heating boilers without manholes on top of the shell and not exceeding one of the limits of this section shall have a minimum clearance of 2 feet (610 mm) from the ceiling. Clearances from the tops of boilers to the ceiling or other obstruction shall set out in table 1004.3.1~~

**1004.3.1 Top clearance.** Clearances from the tops of boilers to the ceiling or other overhead obstruction shall be in accordance with Table 1004.3.1.

**2. Add new table as follows:**

(Underlining omitted for clarity)

<b>TABLE 1004.3.1 BOILER TOP CLEARANCES</b>	
<b>BOILER TYPE</b>	<b>MINIMUM CLEARANCES FROM TOP OF BOILER TO CEILING OR OTHER OVERHEAD OBSTRUCTION (feet)</b>
All boilers with manholes on top of the boiler except where a greater clearance is required in this table	3
All boilers without manholes on top of the boiler except high-pressure steam boilers and where a greater clearance is required in this table	2
High-pressure steam boilers with steam generating capacity not exceeding 5,000 pounds per hour	3
High-pressure steam boilers with steam generating capacity exceeding 5,000 pounds per hour	7
High-pressure steam boilers having heating surface not exceeding 1,000 square feet (93 m <sup>2</sup> )	3
High-pressure steam boilers having heating surface in excess of 1,000 square feet (93 m <sup>2</sup> )	7
High-pressure steam boilers with input not exceeding 5,000,000 Btu/h (1465 kW)	3
High-pressure steam boilers with input in excess of 5,000,000 Btu/h (1465 kW)	7
Steam-heating boilers and hot-water-heating boilers with input exceeding 5,000,000 Btu/h (1465 kW);	3
Steam-heating boilers exceeding 5,000 pounds of steam per hour (2268 kg/h)	3
Steam-heating boilers and hot-water-heating boilers having heating surface exceeding 1,000-square-foot (93 m <sup>2</sup> )	3

**Reason:** Text is converted to a table for ease of reading.

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

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

ICCFILENAME: ENGLAND-M-4-1004.3.1

**M130-09/10**  
**1101.10; IRC M1411.6**

**Proponent:** Wesley R. Davis, Air Conditioning Contractors of America

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

**PART I – IMC**

**Delete without substitution:**

~~**1101.10 Locking access port caps.** Refrigerant circuit access ports located outdoors shall be fitted with locking type tamper resistant caps.~~

**PART II – IRC**

**Delete without substitution:**

~~**M1411.6 Locking access port caps.** Refrigerant circuit access ports located outdoors shall be fitted with locking type tamper resistant caps.~~

**Reason:** The requirement for locking caps creates an unnecessary cost. It fails to prevent the release of refrigerant, leads to uncontrolled catastrophic refrigerant release, and causes harm to the occupants by removing a heating or cooling source.

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

### **PART I – IMC**

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

### **PART II – IRC MECHANICAL**

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

ICCFILENAME: Davis-M-3-1101.10-RM-M1411.6

## **M131–09/10**

### **1101.10; IRC M1411.6**

**Proponent:** Patrick A. McLaughlin, McLaughlin & Associates, representing the Air-Conditioning, Heating and Refrigeration Institute

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

### **PART I – IMC**

**Revise as follows:**

**1101.10 Locking access port caps.** Refrigerant circuit access ports located outdoors shall be fitted with locking-type tamper-resistant caps or shall be otherwise protected from unauthorized access in an approved manner.

### **PART II – IRC MECHANICAL**

**Revise as follows:**

**M1411.6 Locking access port caps.** Refrigerant circuit access ports located outdoors shall be fitted with locking-type tamper-resistant caps or shall be otherwise protected from unauthorized access in an approved manner.

**Reason:** During the last code cycle, the provision requiring locking-type tamper-resistant caps to restrict access to refrigerants was approved at the Final Action Hearings. This proposal would expand the means of restricting access to other approved methods. An example would be the placement of the equipment in inaccessible locations. Also, we are aware of only one locking-type tamper-resistant cap.

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

### **PART I – IMC**

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

### **PART II – IRC MECHANICAL**

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

ICCFILENAME: MCLAUGHLIN-M-2-1101.10-M1411.6

## M132–09/10

### 1101.10

**Proponent:** Jeffrey M. Shapiro, PE, International Code Consultants, representing the International Institute of Ammonia Refrigeration

#### Revise as follows:

**1101.10 Locking access port caps.** Refrigerant circuit access ports located outdoors shall be fitted with locking-type tamper-resistant caps or shall be otherwise secured to prevent unauthorized access.

**Reason:** The intent of this change is not to diminish the barrier to “huffing” that was established by adding Section 1101.10 to the 2009 code. Instead, it is to recognize that there are other methods whereby access ports can be secured. For example, in a refrigerated warehouse, a valve inside of the building may block the flow of refrigerant to the access port located outside except when filling is taking place. With this arrangement, no refrigerant is released even when the cap is removed when the valve is closed. Likewise, ports may be located with rooftop equipment having no access except via a roof hatch from the inside. Locking, tamper-resistant caps tend to be a more suitable solution for residential-style equipment with small access ports, and the code needs to be more flexible to accommodate industrial equipment at commercial facilities.

**Cost Impact:** The code change proposal may increase or decrease the cost of construction depending on the selected method.

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

ICCFILENAME: SHAPIRO-M-2-1101.10

## M133–09/10

### 1101.11.1 (New); IRC M1411.6.1 (New)

**Proponent:** Mona Casey, United Parents to Restrict Open Access to Refrigerant

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

#### PART I – IMC

##### Add new text as follows:

**1101.11.1 Existing systems.** Existing refrigerant circuit access ports that are located outdoors shall be retrofitted with locking-type tamper-resistant caps whenever the refrigerant system is modified, serviced, or repaired.

#### PART II – IRC MECHANICAL

##### Add new text as follows:

**M1411.6.1 Existing HVAC systems.** Existing refrigerant circuit access ports that are located outdoors shall be retrofitted with locking-type tamper-resistant caps whenever the refrigerant system is modified, serviced, or repaired.

**Reason:** The purpose of this code modification is to add new requirements to the Code. The existing code does not address the issue of accessibility to refrigerant from pre-existing units by unauthorized individuals. Refrigerant is extremely dangerous and potentially lethal.

##### Facts:

- Refrigerant “can cause death without warning”.
- Refrigerant is considered a gateway drug because users often progress from refrigerant use to drug and alcohol abuse.
- Refrigerant is not a cumulative substance where chances of dying from it increase as the dosage and number of use increases. It can kill on the 1<sup>st</sup>, 10<sup>th</sup>, 100<sup>th</sup>, or any other time. 33 percent of deaths resulting from refrigerant huffing occurred on the 1<sup>st</sup> use.
- Refrigerant, like other poisons, must be kept out of reach of children.
- Refrigerant theft is increasing.
- According to Mike Opitz, Certification Manager, LEED for Existing Buildings, U.S. Green Building Council, chlorine in CFCs and HCFCs destroy the ozone and depletes the Earth’s natural shield for incoming ultraviolet radiation and absorb outgoing infrared radiation from the earth, functioning as potent greenhouse gases.

**National Statistics:**

- The National Institute on Drug Abuse reports that one in five American teens have used Inhalants to get high.
- According to Stephen J. Pasierb, President and CEO of The Partnership for Drug-Free America, 22% of 6th and 8th graders admitted abusing inhalants and only 3% of parents think their child has ever abused inhalants.
- An analysis of 144 Texas death certificates by the Texas Commission on Alcohol and Drug Abuse involving misuse of inhalants found that the most frequently mentioned inhalant (35%) was Freon (51 deaths). Of the Freon deaths, 42 percent were students or youth with a mean age of 16.4 years.
- Suffocation, inhaling fluid or vomit into the lungs, and accidents each cause about 15% of deaths linked to inhalant abuse.
- National Institute on Drug Abuse's 'Monitoring the Future' study reveals that inhalant abuse among 8th graders is up 7.7% since 2002.
- 55% of deaths linked to inhalant abuse are caused by "Sudden Sniffing Death Syndrome." SSDS can occur on the first use or any use. The Inhalant causes the heart to beat rapidly and erratically, resulting in cardiac arrest.
- 22% of inhalant abusers who died of SSDS had no history of previous inhalant abuse. In other words, they were first-time users.

**Collier County, FL Statistics:**

- The use of inhalants in middle schools has doubled in two years
- The average age a child starts using drugs or alcohol is just 12½
- Every third day a child is taken to the hospital because of a drug overdose
- 85 percent of all juvenile criminal cases are substance related
- Deaths due solely to drug toxicity increased 76% between 1998 and 2005

The modification of this code will have an immense positive impact on the safety and health of our citizens, especially our youth. It will reduce the number of deaths associated with Inhalant abuse and the number of injuries associated with Freon accidents and leaks.

**Cost Impact:** The code change proposal will increase the cost of construction by \$20-\$25.

**PART I – IMC**

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

**PART II – IRC MECHANICAL**

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

ICCFILENAME: CASEY-M-1-1101.11.1-RM-1-M1411.6.1

**M134–09/10  
 Table 1103.1**

**Proponent:** Steve Ferguson, American Society of Heating, Refrigerating, and Air-Conditioning Engineers

**Revise table as follows:**

**[F] TABLE 1103.1  
 REFRIGERANT CLASSIFICATION, Amount and OEL**

Chemical Refrigerant	Formula	Chemical Name of Blend	Refrigerant Classification	Degrees of Hazard <sup>a</sup>	[M] Amount Of Refrigerant Per Occupied Space			
					Pound per 1,000 cubic feet	ppm	g/m <sup>3</sup>	OEL <sup>e</sup>
R-E170	CH <sub>3</sub> OCH <sub>3</sub>	<u>methoxymethane (dimethyl ether)</u>	A3		1	8,500	16	1,000
R-403A	zeotrope	R-290/22/218 (5/75/20)	<u>A4 A2</u>	2-0-0	7.6	33,000	120	1,000
<u>R-433B</u>	<u>zeotrope</u>	<u>R-1270/290 (5.0-95.0)</u>	<u>A3</u>		<u>0.51</u>	<u>4,500</u>	<u>8.1</u>	<u>950</u>
<u>R-433C</u>	<u>zeotrope</u>	<u>R-1270/290 (25.0/75.0)</u>	<u>A3</u>		<u>0.41</u>	<u>3,600</u>	<u>6.6</u>	<u>790</u>
<u>R-438A</u>	<u>zeotrope</u>	<u>R-32/125/134a/600/601a (8.5/45.0/44.2/1.7/0.6)</u>	<u>A1</u>		<u>4.9</u>	<u>19,000</u>	<u>79</u>	<u>990</u>
R-600a	CH(CH <sub>3</sub> ) <sub>2</sub> -CH <sub>3</sub>	<u>isobutane (2-methyl propane) 2-methyl propane (isobutane)</u>	A3	2-4-0	0.6	4,000	9.6	1,000
R-601a	(CH <sub>3</sub> ) <sub>2</sub> CHCH <sub>2</sub> CH <sub>3</sub>	<u>2-methylbutane (isopentane)</u>	A3		0.2	1,000	2.9	600

(Portions of table and notes not shown remain unchanged)



**Reason:** R-433B, R-433C, R-438A were recently added to ASHRAE Standard 34.

The classification of R-403A has been changed from A1 to A2 based on data developed as part of an ASHRAE research project using the current method of measuring the LFL of refrigerants.

The chemical names of R-E170, R-600a and R-601a have been changed to be consistent with IUPAC rules for naming organic compounds. The common names are listed in parenthesis.

If approved for publication by ASHRAE prior to the code hearings, a floor modification will be brought forward to add R-1234yf to this table.

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

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

ICCFILENAME: FERGUSON-M-2-T. 1103.1

## M135-09/10

### 1105.6, 1105.6.3 (New), 1105.6.3.1, 1105.6.3.2

**Proponent:** Jeffrey M. Shapiro, PE, International Code Consultants, representing the International Institute of Ammonia Refrigeration

#### 1. Revise as follows:

**1105.6 Ventilation.** Machinery rooms shall be mechanically ventilated to the outdoors. ~~Mechanical ventilation shall be capable of exhausting the minimum quantity of air both at normal operating and emergency conditions. Multiple fans or multispeed fans shall be allowed in order to produce the emergency ventilation rate and to obtain a reduced airflow for normal ventilation.~~

**Exception:** Where a refrigerating system is located outdoors more than 20 feet (6096 mm) from any building opening and is enclosed by a penthouse, lean-to or other open structure, natural or mechanical ventilation shall be provided. Location of the openings shall be based on the relative density of the refrigerant to air. The free-aperture cross section for the ventilation of the *machinery room* shall be not less than:

$$F = \sqrt{G}$$

(Equation 11-1)

For SI:

$$F = 0.138 \sqrt{G}$$

where:

F = The free opening area in square feet (m<sup>2</sup>).

G = The mass of refrigerant in pounds (kg) in the largest system, any part of which is located in the *machinery room*.

#### 2. Add new text as follows:

**1105.6.3 Ventilation rate.** For other than ammonia systems, the mechanical ventilation systems shall be capable of exhausting the minimum quantity of air both at normal operating and emergency conditions, as required by Sections 1105.6.3.1 and 1105.6.3.2. The minimum required ventilation rate for ammonia shall be in accordance with IAR 2.

Multiple fans or multispeed fans shall be allowed to produce the emergency ventilation rate and to obtain a reduced airflow for normal ventilation.

#### 3. Revise as follows:

~~1105.6.3~~ **1105.6.3.1 Quantity—normal ventilation.** During occupied conditions, the mechanical ventilation system shall exhaust the larger of the following:

1. Not less than 0.5 cfm per square foot (0.0025 m<sup>3</sup>/s·m<sup>2</sup>) of *machinery room* area or 20 cfm (0.009 m<sup>3</sup>/s) per person; or
2. A volume required to limit the room temperature rise to 18°F (10°C) taking into account the ambient heating effect of all machinery in the room.

**1105.6.4 1105.6.3.2 Quantity—emergency conditions.** Upon actuation of the refrigerant detector required in Section 1105.3, the mechanical ventilation system shall *exhaust air* from the *machinery room* in the following quantity:

$$Q = 100 \times \sqrt{G} \quad \text{(Equation 11-2)}$$

For SI:  $Q = 0.07 \times \sqrt{G}$

Where:

Q = The airflow in cubic feet per minute (m<sup>3</sup>/s).

G = The design mass of refrigerant in pounds (kg) in the largest system, any part of which is located in the *machinery room*.

**Reason:** The proposed change will defer the required ventilation rate for ammonia refrigeration machinery rooms to IAR2, which is the ANSI accredited industry standard. IAR 2 is in the process of being revised to change the basis of calculating required ventilation to an "air changes per minute/hour" basis. There is general agreement in the industry that the minimum ventilation rate for ammonia needs to be greater than the rate calculated using the current formula, and IAR 2 is out for public comment so that a consensus rate that is unique based on the properties of ammonia can be established. It is anticipated that the public comment period for IAR 2 will close prior to the ICC hearing in Baltimore, and additional information on the new calculation approach will be presented at that time to support this proposal.

As part of this change, requirements related to the required ventilation rate in Section 1105.6 have been moved to Section 1105.6.3 to create a single subsection on this topic rather than the current approach of splitting related requirements between two sections. This improves the usability of the code.

**Cost Impact:** Larger fans to be required by IAR 2 will slightly increase the cost of construction.

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

ICCFILENAME: SHAPIRO-M-1-1105.6

## M136–09/10

### [F] 1105.8.1 (New), [F] 1105.8.2 (New), [F] 1105.8.3 (New), [F] 1105.8.4 (New)

**Proponent:** Guy McMann, Jefferson County, CO, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Add new text as follows:**

[F] 1105.8.1 Ammonia refrigerant. Systems containing ammonia refrigerant shall discharge vapor to the atmosphere through an approved treatment system in accordance with Section 1105.8.2, a flaring system in accordance with Section 1105.8.3 or through an approved ammonia diffusion system in accordance with Section 1105.8.4, or by other approved means.

#### Exceptions:

1. Ammonia/water absorption systems containing less than 22 pounds (10 kg) of ammonia and for which the ammonia circuit is located entirely outdoors.
2. Where the fire code official determines, on review of an engineering analysis prepared in accordance with Section 104.7.2 of the *International Fire Code*, that a fire, health or environmental hazard would not result from discharging ammonia directly to the atmosphere.

[F] 1105.8.2 Treatment systems. Treatment systems shall be designed to reduce the allowable discharge concentration of the refrigerant gas to not more than 50 percent of the IDLH at the point of exhaust. Treatment systems shall be in accordance with Chapter 37 of the *International Fire Code*

[F] 1105.8.3 Flaring systems. Flaring systems for incineration of flammable refrigerants shall be designed to incinerate the entire discharge. The products of refrigerant incineration shall not pose health or environmental hazards. Incineration shall be automatic upon initiation of discharge, shall be designed to prevent blowback, and shall not expose structures or materials to threat of fire. Standby fuel, such as LP gas, and standby power shall have the capacity to operate for one and one-half the required time for complete incineration of refrigerant in the system.

[F] 1105.8.4 Ammonia diffusion systems. Ammonia diffusion systems shall include a tank containing 1 gallon of water for each pound of ammonia (4 L of water for each 1 kg of ammonia) that will be released in 1 hour from the largest relief device connected to the discharge pipe. The water shall be prevented from freezing. The discharge pipe from the pressure relief device shall distribute ammonia in the bottom of the tank, but not lower than 33 feet (10 058 mm) below the maximum liquid level. The tank shall contain the volume of water and ammonia without overflowing.

**Reason:** This is an effort to make Chapter 11 a little more complete. This language is extracted from The Fire Code. There have been complaints that the I-codes in general refer to too many standards requiring many different documents to accomplish one thing. Some of the complaints have merit. The reference to ASHRAE-15 is left in tact but the Fire Code requirements satisfy the issue. Why not just say what is required for ammonia discharge rather than referring to the standard or the Fire Code. This will aid in plan review as well as field inspection because the requirements will be right there in the chapter.

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

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

ICCFILENAME: MCMANN-M-7-1105.8

## M137–09/10

### 1106.4

**Proponent:** Gary Kreutziger, City of San Antonio, TX, representing the Planning and Development Services Department

**Revise as follows:**

**1106.4 Flammable refrigerants.** Where refrigerants of Groups A2, A3, B2 and B3 are used, the *machinery room* shall conform to the Class 1, Division 2, *hazardous location* classification requirements of NFPA 70.

**Exception:** Ammonia machinery rooms that are provided with ventilation in accordance with section 1106.3.

**Reason:** The purpose of the proposed code change is to eliminate confusion and create consistency between the International Fire Code Section 606.16 Exception and the International Mechanical Code Section 1106.4 Exception, without changing the intent of either. Both code sections require electrical installations in refrigeration machinery rooms to conform with Class 1, Division 2 prescriptives as per NFPA 70, however, the IMC Exception does not explicitly explain that the ammonia machinery room be ventilated in accordance with IMC Section 1106.3 to qualify for the exception as does the IFC. The proposal is to insert the same additional language as in the IFC for consistency and 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: KREUTZIGER-M-1-1106.4

## M138–09/10

### 1201 through 1203

**Proponent:** Walter Sperko, PE, Sperko Engineering, representing the Mechanical Contractors Association of America

**1. Revise as follows:**

**1201.3 Standards.** ~~As an alternative to the provisions of Sections 1202 and 1203, piping shall be designed, installed, inspected and tested in accordance with ASME B31.9. Piping shall be designed, installed, inspected and tested in accordance with ASME B31.9 except as otherwise specified in this chapter.~~

### SECTION 1202 MATERIAL

**1202.1 Piping.** Piping material shall conform to the standards ~~cited in this section.~~ listed in ASME B31.9.

**Exception:** Embedded piping regulated by Section 1209.

**1202.2 Used materials.** Reused pipe, fittings, valves or other materials shall be clean and free of foreign materials ~~and shall be approved by the code official for reuse.~~ Reused piping components shall be identified to a specification, grade or manufacturer's identification suitable for use in the system into which they will be installed and shall be approved.

**1202.3 Material rating.** ~~Materials shall be rated for the operating temperature and pressure of the hydronic system.~~ Materials shall be suitable for the type of fluid in the hydronic system. The exterior of pipe shall be protected from corrosion and degradation.

**1202.4 Piping materials standards.** Hydronic pipe shall conform to the standards listed in Table 1202.4 in addition to those listed in ASME B31.9. The exterior of the pipe shall be protected from corrosion and degradation.

**2. Revise table as follows:**

**TABLE 1202.4  
HYDRONIC PIPE**

<b>MATERIAL</b>	<b>STANDARD (see Chapter 15)</b>
Acrylonitrile butadiene styrene (ABS) plastic pipe	ASTM D 1527; ASTM D 2282
Brass pipe	ASTM B 43
Brass tubing	ASTM B 135
Copper or copper-alloy pipe	ASTM B 42; ASTM B 302
Copper or copper-alloy tube (Type K, L or M)	ASTM B 75; ASTM B 88; ASTM B 254
Chlorinated polyvinyl chloride (CPVC) plastic pipe	ASTM D 2846; ASTM F 441; ASTM F 442
Cross-linked polyethylene/aluminum/cross-linked polyethylene (PEX-AL-PEX) pressure pipe	ASTM F 1284; CSA CAN/CSA-B-137.10
Cross-linked polyethylene (PEX) tubing	ASTM F 876; ASTM F 877
Ductile iron pipe	AWWA C151/A21.51; AWWA C115/A21.15
Lead pipe	FS WW-P-325B
Polybutylene (PB) plastic pipe and tubing	ASTM D 3309
Polyethylene/aluminum/polyethylene (PE-AL-PE) pressure pipe	ASTM F 1282; CSA B137.9
Polyethylene (PE) pipe, tubing and fittings (for ground source heat pump loop systems)	ASTM D 2513; ASTM D 3035; ASTM D 2447; ASTM D 2683; ASTM F 1055; ASTM D 2837; ASTM D 3350; ASTM D 1693
Polypropylene (PP) plastic pipe	ASTM F 2389
Polyvinyl chloride (PVC) plastic pipe	ASTM D 1785; ASTM D 2241
Raised temperature polyethylene PE-RT)	ASTM F 2623
Steel pipe	ASTM A 53; ASTM A 106
Steel tubing	ASTM A 254

**3. Delete without substitution:**

**1202.5 Pipe fittings.** Hydronic pipe fittings shall be *approved* for installation with the piping materials to be installed, and shall conform to the respective pipe standards or to the standards listed in Table 1202.5.

**TABLE 1202.5  
HYDRONIC PIPE FITTINGS**

<b>MATERIAL</b>	<b>STANDARD (see Chapter 15)</b>
Brass	ASTM F 1974
Bronze	ASME B16.24
Copper and copper alloys	ASME B16.15; ASME B16.18; ASME B16.22; ASME B16.23; ASME B16.26; ASME B16.29
Ductile iron and gray iron	ANSI/AWWA C110/A21.10
Ductile iron	ANSI/AWWA C153/A21.53
Gray iron	ASTM A 126
Malleable iron	ASME B16.3
Plastic	ASTM D 2466; ASTM D 2467; ASTM D 2468; ASTM F 438; ASTM F 439; ASTM F 877; ASTM F 2389
Steel	ASME B16.5; ASME B16.9; ASME B16.11; ASME B16.28; ASTM A 420

~~1202.6 Valves.~~ Valves shall be constructed of materials that are compatible with the type of piping material and fluids in the system. Valves shall be rated for the temperatures and pressures of the systems in which the valves are installed.

## **SECTION 1203 JOINTS AND CONNECTIONS**

~~1203.1 Approval.~~ Joints and connections shall be of an *approved* type. Joints and connections shall be tight for the pressure of the hydronic system.

~~1203.2 Preparation of pipe ends.~~ Pipe shall be cut square, reamed and chamfered, and shall be free of burrs and obstructions. Pipe ends shall have full bore openings and shall not be undercut.

~~1203.3 Joint preparation and installation.~~ When required by Sections 1203.4 through 1203.14, the preparation and installation of brazed, mechanical, soldered, solvent cemented, threaded and welded joints shall comply with Sections 1203.3.1 through 1203.3.7.

~~1203.3.1 Brazed joints.~~ Joint surfaces shall be cleaned. An *approved* flux shall be applied where required. The joint shall be brazed with a filler metal conforming to AWS A5.8.

~~1203.3.2 Mechanical joints.~~ Mechanical joints shall be installed in accordance with the manufacturer's instructions.

~~1203.3.3 Soldered joints.~~ Joint surfaces shall be cleaned. A flux conforming to ASTM B 813 shall be applied. The joint shall be soldered with a solder conforming to ASTM B 32.

~~1203.3.4 Solvent cemented joints.~~ Joint surfaces shall be clean and free of moisture. An *approved* primer shall be applied to CPVC and PVC pipe joint surfaces. Joints shall be made while the cement is wet. Solvent cement conforming to the following standards shall be applied to all joint surfaces:

1. ASTM D 2235 for ABS joints.
2. ASTM F 493 for CPVC joints.
3. ASTM D 2564 for PVC joints.

CPVC joints shall be made in accordance with ASTM D 2846.

~~1203.3.5 Threaded joints.~~ Threads shall conform to ASME B1.20.1. Schedule 80 or heavier plastic pipe shall be threaded with dies specifically designed for plastic pipe. Thread lubricant, pipe joint compound or tape shall be applied on the male threads only and shall be *approved* for application on the piping material.

~~1203.3.6 Welded joints.~~ Joint surfaces shall be cleaned by an *approved* procedure. Joints shall be welded with an *approved* filler metal.

~~1203.3.7 Grooved and shouldered mechanical joints.~~ Grooved and shouldered mechanical joints shall conform to the requirements of ASTM F 1476 and shall be installed in accordance with the manufacturer's installation instructions.

~~1203.3.8 Mechanically formed tee fittings.~~ Mechanically extracted outlets shall have a height not less than three times the thickness of the branch tube wall.

~~1203.3.8.1 Full flow assurance.~~ Branch tubes shall not restrict the flow in the run tube. A dimple/depth stop shall be formed in the branch tube to ensure that penetration into the outlet is of the correct depth. For inspection purposes, a second dimple shall be placed 1/4 inch (6.4 mm) above the first dimple. Dimples shall be aligned with the tube run.

~~1203.3.8.2 Brazed joints.~~ Mechanically formed tee fittings shall be brazed in accordance with Section 1203.3.1.

~~1203.4 ABS plastic pipe.~~ Joints between ABS plastic pipe or fittings shall be solvent cemented or threaded joints conforming to Section 1203.3.

~~1203.5 Brass pipe.~~ Joints between brass pipe or fittings shall be brazed, mechanical, threaded or welded joints conforming to Section 1203.3.

~~**1203.6 Brass tubing.** Joints between brass tubing or fittings shall be brazed, mechanical or soldered joints conforming to Section 1203.3.~~

~~**1203.7 Copper or copper-alloy pipe.** Joints between copper or copper-alloy pipe or fittings shall be brazed, mechanical, soldered, threaded or welded joints conforming to Section 1203.3.~~

~~**1203.8 Copper or copper-alloy tubing.** Joints between copper or copper-alloy tubing or fittings shall be brazed, mechanical or soldered joints conforming to Section 1203.3, flared joints conforming to Section 1203.8.1 or push-fit joints conforming to Section 1203.8.2.~~

~~**1203.8.1 Flared joints.** Flared joints shall be made by a tool designed for that operation.~~

~~**1203.8.2 Push-fit joints.** Push-fit joints shall be installed in accordance with the manufacturer's instructions.~~

~~**1203.9 CPVC plastic pipe.** Joints between CPVC plastic pipe or fittings shall be solvent-cemented or threaded joints conforming to Section 1203.3.~~

~~**1203.10 Polybutylene plastic pipe and tubing.** Joints between polybutylene plastic pipe and tubing or fittings shall be mechanical joints conforming to Section 1203.3 or heat-fusion joints conforming to Section 1203.10.1.~~

~~**1203.10.1 Heat fusion joints.** Joints shall be of the socket fusion or butt fusion type. Joint surfaces shall be clean and free of moisture. Joint surfaces shall be heated to melt temperatures and joined. The joint shall be undisturbed until cool. Joints shall be made in accordance with ASTM D 3309.~~

~~**1203.11 Cross-linked polyethylene (PEX) plastic tubing.** Joints between cross-linked polyethylene plastic tubing and fittings shall conform to Sections 1203.11.1 and 1203.11.2. Mechanical joints shall conform to Section 1203.3.~~

~~**1203.11.1 Compression-type fittings.** When compression-type fittings include inserts and ferrules or O-rings, the fittings shall be installed without omitting the inserts and ferrules or O-rings.~~

~~**1203.11.2 Plastic-to-metal connections.** Soldering on the metal portion of the system shall be performed at least 18 inches (457 mm) from a plastic-to-metal adapter in the same water line.~~

~~**1203.12 PVC plastic pipe.** Joints between PVC plastic pipe and fittings shall be solvent-cemented or threaded joints conforming to Section 1203.3.~~

~~**1203.13 Steel pipe.** Joints between steel pipe or fittings shall be mechanical joints that are made with an *approved* elastomeric seal, or shall be threaded or welded joints conforming to Section 1203.3.~~

~~**1203.14 Steel tubing.** Joints between steel tubing or fittings shall be mechanical or welded joints conforming to Section 1203.3.~~

(Remainder of Section 1203 unchanged)

**Reason:** While the current rules provide a respectable list of materials for hydronic piping, the design requirements are nonexistent. The present rules provide nothing that the code official can use to determine if any of the following are adequate:

- 1) The thickness of the pipe for the pressure and temperature; while some components are "pressure rated," ordinary pipe and fittings have no such ratings. Unless the engineer has established the minimum wall thickness of steel pipe by calculation, the code official has no way to determine if it is thick enough to sustain the pressure and temperature.
- 2) Thermal expansion effects: present rules provide nothing that requires the designer to consider the effects of fatigue on piping due to thermal expansion and contraction, or the effects of thermal expansion on loads on equipment or the supporting building
- 3) Supports; nothing in the rules gives the code official guidance on the proper distance between supports to avoid overstress.
- 4) Seismic: there are no provisions for support or restraint of piping due to seismic events.

B31.9 covers these shortcomings. All materials deleted by this action are permitted by B31.9 plus many other materials commonly found in hydronic piping systems (see appendix A) Some joining techniques for joining plastic and composite piping were not deleted as B31.9 only provides partial requirements for joining these materials.

**Cost Impact:** Reduced. Most designers of larger facilities specify ASME B31.1, *Power Piping*, rather than B31.9, *Building Services Piping*. B31.1 is written for steam piping operating at 1000F and 3000 psi, imposing unnecessarily expensive requirements on hydronic piping systems.

**Appendix 1**  
**List of Materials permitted by in B31.9 and not in IMC Chapter 12**

**The American Society of Mechanical Engineers (ASME)**

Cast Iron Pipe Flanges and Flanged Fittings . . . . .	B16.1
CI Thd Fittings, Classes 125 and 250 . . . . .	B16.4
Face-to-Face and End-to-End Dimensions of Ferrous Valves . . . . .	B16.10
Ferrous Pipe Plugs, Bushings, and Locknuts With Pipe Threads . . . . .	B16.14
Manually Operated Metallic Gas Valves for Use in Gas Piping Systems Up to 125 psig (Sizes 1/2 Through 2) . . . . .	B16.33
Valves, Flanged, Threaded, and Welding End . . . . .	B16.34
Orifice Flanges . . . . .	B16.36
Malleable Iron Threaded Pipe Unions, Classes 150, 250, and 300 . . . . .	B16.39
Ductile Iron Pipe Flanges and Flanged Fittings, Classes 150 and 300 . . . . .	B16.42
Welded and Seamless Wrought Steel Pipe . . . . .	B36.10M
Stainless Steel Pipe . . . . .	B36.19M

**American Society for Testing and Materials (ASTM)**

Ferritic Malleable Iron Castings . . . . .	A 47
Gray Iron Castings . . . . .	A 48
Forgings, Carbon Steel, for Piping Components . . . . .	A 105
Electric-Resistance-Welded Steel Pipe . . . . .	A 135
Forgings, Carbon Steel for General Purpose Piping . . . . .	A 181/A 181M
Cupola Malleable Iron . . . . .	A 197
Spiral-Welded Steel or Iron Pipe . . . . .	A 211
Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures . . . . .	A 234/A 234M
Gray Iron Castings for Pressure-Containing Parts for Temperatures up to 650°F (345°C) . . . . .	A 278/A 278M
Seamless and Welded Austenitic Stainless Steel Pipes . . . . .	A 312/A 312M
Ductile Iron Pressure Pipe . . . . .	A 377
Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures . . . . .	A 395/A 395M
Wrought Austenitic SS Piping Fittings . . . . .	A 403/A 403M
Ductile Iron Castings . . . . .	A 536
Electric-Resistance-Welded Coiled Steel Tubing for Gas and Fuel Oil Lines . . . . .	A 539
Aluminum-Alloy Sand Castings . . . . .	B 26/B 26M
Steam or Valve Bronze Castings . . . . .	B 61
Composition Bronze or Ounce Metal Castings . . . . .	B 62
Seamless Copper Tube, Bright Annealed . . . . .	B 68/B 68M
Aluminum-Alloy Drawn Seamless Tubes . . . . .	B 210/B 210M
Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube . . . . .	B 241/B 241M
Aluminum and Aluminum-Alloy Die, Hand, and Rolled Ring Forgings . . . . .	B 247/B 247M
Seamless Copper Tube for Air Conditioning and Refrigeration Field Service . . . . .	B 280
Copper and Copper-Alloy Die Forgings (Hot-Pressed) . . . . .	B 283
Factory-Made Wrought Aluminum and Aluminum-Alloy Welding Fittings . . . . .	B 361
Aluminum-Alloy Formed and Arc Welded Round Tube . . . . .	B 547

**American Water Works Association (AWWA or ANSI/AWWA)**

Ductile Iron Pipe Centrifugally Cast in Metal Molds or Sand-Lines Molds, for Water and Other Liquids . . . . .	C151/A21.51
Steel Pipe Flanges for Waterworks Service — Sizes 4 in. Through 144 in. . . . .	C207
Dimensions for Fabricated Steel Water Pipe Fittings . . . . .	C208
Gate Valves for Water and Sewage Systems . . . . .	C500
Grooved and Shouldered Type Joints . . . . .	C606

**Federal Government**

Pipe, Cast Iron and Ductile Iron (Pressure, for Water and Other Liquids) . . . . .	FS WW-P-421
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**Manufacturers Standardization Society of the Valve and Fittings Industry (MSS)**

Class 150 Corrosion Resistant Gate, Globe, Angle, and Check Valves With Flanged and Butt Weld Ends . . . . .	SP-42
Wrought Stainless Steel Butt Weld Fittings . . . . .	SP-43
By-Pass and Drain Connection Standard . . . . .	SP-45
Class 150 LW Corrosion Resistant Cast Flanges and Flanged Fittings . . . . .	SP-51
Butterfly Valves . . . . .	SP-67
Cast Iron Gate Valves, Flanged and Threaded Ends . . . . .	SP-70
Cast Iron Swing Check Valves, Flanged and Threaded Ends . . . . .	SP-71
Ball Valves With Flanged or Butt Weld Ends for General Service . . . . .	SP-72
Cast Iron Plug Valves, Flanged and Threaded Ends . . . . .	SP-78
SW Reducer Inserts . . . . .	SP-79
Bronze Gate, Angle, and Check Valves . . . . .	SP-80
Carbon Steel Pipe Unions — SW and Thd. . . . .	SP-83
Steel Valves — SW and Thd Ends . . . . .	SP-84
Cast Iron Globe and Angle Valves, Flanged and Thd Ends . . . . .	SP-85
Diaphragm Type Valves . . . . .	SP-88
Pipe Hangers and Supports — Selection and Application . . . . .	SP-69
Pipe Hangers and Supports — Fabrication and Installation Practices . . . . .	SP-89
Guidelines on Terminology for Pipe Hangers and Supports . . . . .	SP-90

**American Society for Testing and Materials (ASTM) Nonferrous Materials**

Reinforced Concrete Low-Head Pressure Pipe . . . . .	C 361/C 361M
Contact-Molded Reinforced Thermosetting Plastic (RTP) Laminants for Corrosion Resistant Equipment . . . . .	C 582
PE Plastic Pipe, Schedule 40 . . . . .	D 2104
PE Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter . . . . .	D 2239

Classification for Machine-Made RTR Pipe .....	D 2310
Threaded PVC Plastic Pipe Fittings, Schedule 80 .....	D 2464
Reinforced Epoxy Resin Piping Gas Pressure Pipe and Fittings .....	D 2517
Plastic Insert Fittings for PE Plastic Pipe .....	D 2609
PB Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter .....	D 2662
PB Plastic Tubing .....	D 2666
Joints for IPS PVC Using Solvent Cement .....	D 2672
PE Plastic Tubing .....	D 2737
Filament-Wound RTR Pipe .....	D 2996
Centrifugally Cast Glass Fiber RTR Pipe .....	D 2997
PB Plastic Pipe (SDR-PR), Based on Outside Diameter .....	D 3000
Butt Heat Fusion PE Plastic Fittings for PE Plastic Pipe and Tubing .....	D 3261
Biaxially Oriented PE (PEO) Plastic Pipe (SDR-PR) Based on Controlled Outside Diameter .....	D 3287
Specification for "Fiberglass" (Glass-Fiber-Reinforced-Thermosetting Resin) Pressure Pipe .....	D 3517
Specification for Fiberglass Sewer and Industries Pressure Pipe .....	D 3754
Specification for Reinforced Plastic Mortar Pipe Fittings for Non-Pressure Applications .....	D 3840
Threaded CPVC Plastic Pipe Fittings, Schedule 80 .....	F 437
Standard Specification for Polyethylene/Aluminum/Polyethylene (PE-AL-PE) Composite Pressure Pipe .....	F 1282
Standard Specification for Pressure-Rated Composite Pipe for Elevated Temperature Service .....	F 1335
<b>American Water Works Association (AWWA or ANSI/AWWA)</b>	
Reinforced Concrete Pressure Pipe, Steel Cylinder Type, for Water and Other Liquids .....	C300
Prestressed Concrete Pressure Pipe, Steel Cylinder Type, for Water and Other Liquids .....	C301
Reinforced Concrete Pressure Pipe, Noncylinder Type, for Water and Other Liquids .....	C302
PVC Pressure Pipe, 4 in. Through 12 in., for Water .....	C900
<b>Miscellaneous Components</b>	
<b>The American Society of Mechanical Engineers (ASME)</b>	
Unified Screw Threads .....	B1.1
Pipe Threads (Except Dryseal) .....	B1.20.1
Dryseal Pipe Threads .....	B1.20.3
Hose Coupling Screw Threads .....	B1.20.7
Nonmetallic Flat Gaskets for Pipe Flanges .....	B16.21
BW Ends for Pipe, Valves, Flanges, and Fittings .....	B16.25
Square and Hex Bolts and Screws .....	B18.2.1
Square and Hex Nuts .....	B18.2.2
<b>American Society for Testing and Materials (ASTM)</b>	
Structural Steel .....	A 36/A 36M
Carbon Steel Track Bolts and Nuts .....	A 183
Alloy-Steel and SS Bolting Materials for HT Service .....	A 193/A 193M
Carbon and Alloy Steel Nuts for Bolts for High Pressure and HT Service A 194/A 194M	
Carbon Steel Bolts and Studs, 60,000 PSI Tensile .....	A 307
Solder Metal .....	B 32
Threads (60-Deg. Stud) for Glass RTR Pipe .....	D 1694
Solvent Cement for ABS Plastic Pipe and Fittings .....	D 2235
Solvent Cements for PVC Plastic Pipe and Fittings .....	D 2564
Solvent Cements for Transition Joints Between ABS and PVC Non-Pressure Piping Components .....	D 3138
Joints for Plastic Pressure Pipes Using Flexible Elastometric Seals .....	D 3139
Solvent Cements for CPVC Plastic Pipe and Fittings .....	F 493
Test Methods for Flash Point by Pensky-Martens Closed Tester .....	D 93
Test Method for Time-to-Failure of Plastic Pipe Under Constant Internal Pressure .....	D 1598
Test Method for Cyclic Pressure Strength of RTP Pipe .....	D 2143
Practice for Heat Joining of Polyolefin Pipe and Fittings .....	D 2657
Practice for Underground Installation of Thermoplastic Pressure Piping .....	D 2774
Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials .....	D 2837
Practice for Making Solvent-Cemented Joints With PVC Pipe and Fittings .....	D 2855
Method for Obtaining Hydrostatic Design Basis for RTR Pipe and Fittings .....	D 2992
Practice for Flaring Polyolefin Pipe and Tubing .....	D 3140
Test Method for Strength of Anchors in Concrete and Masonry Elements .....	E 488
Practice for Safe Handling of Solvent Cements Used for Joining Thermoplastic Pipe and Fittings .....	F 402
Definition of Terms Relating to Plastic Piping Systems .....	F 412
Standard Specification for Non-Reinforced Extruded Tee Connections for Piping Applications .....	F 2014
<b>American Water Works Association (AWWA or ANSI/AWWA)</b>	
Thickness Design of DI Pipe .....	C150/A21.50
Installation of DI Water Mains and Other Appurtenances .....	C600
Rubber-Gasket Joints for DI and Gray-Iron Pressure Pipe and Fittings .....	C111/A21.11
<b>Society of Automotive Engineers (SAE)</b>	
Refrigeration Tube Fittings .....	J513
Hydraulic Tube Fittings .....	J514

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

ICCFILENAME: SPERKO-M-1-1201-1203



# M139–09/10

## Table 1202.4, 1203.15, 1203.15.1, 1203.15.2, 1203.15.3, 1208.1, 1208.1.1, 1210 (New), Chapter 15

**Proponent:** Michael Cudahy, Plastic Pipe and Fittings Association (PPFA)

### 1. Revise table as follows:

**TABLE 1202.4  
HYDRONIC PIPE**

MATERIAL	STANDARD
Polyethylene (PE) pipe, tubing and fittings (for ground source heat pump loop systems)	ASTM D 2513; ASTM D 3035; ASTM D 2447; ASTM D 2683; ASTM F 1055; ASTM D 2837; ASTM D 3350; ASTM D 1693

(Portions of table not shown are unchanged)

### 2. Delete without substitution:

~~**1203.15 Polyethylene plastic pipe and tubing for ground source heat pump loop systems.** Joints between polyethylene plastic pipe and tubing or fittings for ground source heat pump loop systems shall be heat fusion joints conforming to Section 1203.15.1, electrofusion joints conforming to Section 1203.15.2, or stab-type insertion joints conforming to Section 1203.15.3.~~

~~**1203.15.1 Heat fusion joints.** Joints shall be of the socket fusion, saddle fusion or butt fusion type, joined in accordance with ASTM D 2657. Joint surfaces shall be clean and free of moisture. Joint surfaces shall be heated to melt temperatures and joined. The joint shall be undisturbed until cool. Fittings shall be manufactured in accordance with ASTM D 2683 or ASTM D 3261.~~

~~**1203.15.2 Electrofusion joints.** Joints shall be of the electrofusion type. Joint surfaces shall be clean and free of moisture, and scoured to expose virgin resin. Joint surfaces shall be heated to melt temperatures for the period of time specified by the manufacturer. The joint shall be undisturbed until cool. Fittings shall be manufactured in accordance with ASTM F 1055.~~

~~**1203.15.3 Stab-type insert fittings.** Joint surfaces shall be clean and free of moisture. Pipe ends shall be chamfered and inserted into the fittings to full depth. Fittings shall be manufactured in accordance with ASTM F 1924.~~

### 3. Revise as follows:

#### **SECTION 1208 TESTS**

~~**1208.1 General.** Hydronic piping systems other than ground source heat pump loop systems shall be tested hydrostatically at one and one-half times the maximum system design pressure, but not less than 100 psi (689 kPa). The duration of each test shall be not less than 15 minutes. Ground source heat pump loop systems shall be tested in accordance with Section 1208.1.1.~~

### 4. Delete without substitution:

~~**1208.1.1 Ground source heat pump loop systems.** Before connection (header) trenches are backfilled, the assembled loop system shall be pressure tested with water at 100 psi (689 kPa) for 30 minutes with no observed leaks. Flow and pressure loss testing shall be performed and the actual flow rates and pressure drops shall be compared to the calculated design values. If actual flow rate or pressure drop values differ from calculated design values by more than 10 percent, the problem shall be identified and corrected.~~

5. Add new text as follows:

**SECTION 1210**  
**GROUND SOURCE HEAT PUMP LOOP SYSTEMS**

**1210.1 General.** Ground-source heat pump loop systems shall comply with this section.

**1210.2 Piping material.** Ground-source heat pump loop system piping material for water-based systems shall comply with Sections 1210.2.1 through 1210.2.4.

**1210.2.1 Used materials.** Reused piping, fittings, valves, or other materials shall not be used in ground-source heat pump loop systems.

**1210.2.2 Material rating.** Piping shall be rated for the operating temperature and pressure of the ground-source heat pump loop systems. Fittings shall be approved for pressure applications and recommended by the manufacturer for installation with the piping material installed. Materials installed underground shall be suitable for burial.

**1210.2.3 Piping and tubing materials standards.** Ground source heat pump loop system piping shall conform to the standards listed in Table 1210.2.3.

**TABLE 1210.2.3**  
**GROUND SOURCE HEAT PUMP LOOP SYSTEM PIPING**

<b><u>MATERIAL</u></b>	<b><u>STANDARD</u></b>
Chlorinated polyvinyl chloride (CPVC) plastic pipe	ASTM D 2846; ASTM F 441; ASTM F 442
Cross-linked polyethylene (PEX) tubing	ASTM F 876; ASTM F 877
Polyethylene/aluminum/polyethylene (PE-AL-PE) pressure pipe	ASTM F 1282; CSA B137.9
Polyethylene (PE) pipe, tubing and fittings	ASTM D 3035; ASTM D 2447; ASTM D 2737; ASTM F 714; AWWA C901; CSA CAN/CSA-B-137.1
Polypropylene (PP-R) pipe, tubing and fittings	ASTM F 2389
Polyvinyl chloride (PVC) plastic pipe	ASTM D 1785; ASTM D 2241
Raised temperature polyethylene (PE-RT)	ASTM F 2623

**1210.2.4 Fittings.** Geothermal pipe fittings shall be approved for installation with the piping materials to be installed, suitable for use underground if buried, and shall conform to the standards listed in Table 1210.2.4.

**TABLE 1210.2.4**  
**GROUND SOURCE HEAT PUMP LOOP SYSTEM FITTINGS**

<b><u>PIPE MATERIAL</u></b>	<b><u>STANDARD</u></b>
Chlorinated polyvinyl chloride (CPVC) plastic pipe	ASTM D 2846; ASTM F 437; ASTM F 438; ASTM F 439; CSA B137.6
Cross-linked polyethylene (PEX) tubing	ASTM F 877; ASTM F 1807; ASTM F 1960; ASTM F 2080; ASTM F 2098; ASTM F 2159; ASTM F 2434; CSA B137.5
Polyethylene/aluminum/polyethylene (PE-AL-PE) pressure pipe	ASTM D 3261; ASTM F 877; ASTM F 1807; ASTM F 2098; ASTM F 2159; ASTM F 2434; CSA B137.5, B137.1
Polyethylene (PE) pipe, tubing and fittings	ASTM D 2609; ASTM D 2683; ASTM D 3261; ASTM F 1055; CSA B137.1
Polypropylene (PP-R) pipe, tubing and fittings	ASTM F 2389; CSA B137.11
Polyvinyl chloride (PVC) plastic pipe	ASTM D 2464; ASTM D 2466; ASTM D 2467; CSA B137.2; CSA B137.3
Raised temperature polyethylene (PE-RT)	ASTM D 3261; ASTM F 877; ASTM F 1807; ASTM F 2098; ASTM F 2159; ASTM F 2434; CSA B137.5, B137.1

**1210.3 Joints and connections.** Joints and connections in ground source heat pump loop systems shall be of an approved type and shall comply with Sections 1210.3.1 through 1210.3.9. Joints and connections shall be leak-free for the pressure of the ground source heat pump loop systems. Joints used underground shall be approved for buried applications.

**1210.3.1 Joints between different piping materials.** Joints between different piping materials shall be made with approved transition fittings.

**1210.3.2 Preparation of pipe ends.** Piping shall be cut square, reamed, and shall be free of burrs and obstructions. CPVC, PE, and PVC pipe shall be chamfered. Pipe ends shall have full-bore openings and shall not be undercut.

**1210.3.3 Joint preparation and installation.** Where required by Sections 1210.3.4 through 1210.3.6, the preparation and installation of mechanical and thermoplastic-welded joints shall comply with Sections 1210.3.3.1 and 1210.3.3.2 as applicable.

**1210.3.3.1 Mechanical joints.** Mechanical joints shall be installed in accordance with the manufacturer's instructions.

**1210.3.3.2 Thermoplastic-welded joints.** Joint surfaces shall be cleaned by an approved procedure. Joints shall be welded according to the manufacturer's instructions.

**1210.3.4 CPVC plastic pipe.** Joints for CPVC plastic piping and fittings shall be solvent-cemented or threaded joints conforming to Section 1203.3.

**1210.3.5 Cross-linked polyethylene (PEX) plastic tubing.** Joints for cross-linked polyethylene plastic piping and fittings shall conform to Sections 1210.3.5.1 and 1210.3.5.2. Mechanical joints shall conform to Section 1210.3.3.

**1210.3.5.1 Compression-type fittings.** Where compression-type fittings include inserts and ferrules or O-rings, the fittings shall be installed without omitting the inserts and ferrules or O-rings.

**1210.3.5.2 Plastic-to-metal connections.** Solder joints in a metal pipe shall not occur within 18 inches (457 mm) of a transition from such metal pipe to PEX pipe.

**1210.3.6 Polyethylene plastic pipe and tubing for ground source heat pump loop systems.** Joints for polyethylene plastic piping and fittings for ground source heat pump loop systems shall be heat-fusion joints conforming to Section 1210.3.6.1, electrofusion joints conforming to Section 1210.3.6.2, or stab-type insertion joints conforming to Section 1210.3.6.3.

**1210.3.6.1 Heat-fusion joints.** Joints shall be of the socket-fusion, saddle-fusion or butt-fusion type, joined in accordance with ASTM D 2657. Joint surfaces shall be clean and free of moisture. Joint surfaces shall be heated to melt temperatures and joined. The joint shall be undisturbed until cool. Fittings shall be manufactured in accordance with ASTM D 2683 or ASTM D 3261.

**1210.3.6.2 Electrofusion joints.** Joints shall be of the electrofusion type. Joint surfaces shall be clean and free of moisture, and scoured to expose virgin resin. Joint surfaces shall be heated to melt temperatures for the period of time specified by the manufacturer. The joint shall be undisturbed until cool. Fittings shall be manufactured in accordance with ASTM F 1055.

**1210.3.6.3 Stab-type insert fittings.** Joint surfaces shall be clean and free of moisture. Pipe ends shall be chamfered and inserted into the fittings to full depth. Fittings shall be manufactured in accordance with ASTM F 1924.

**1210.3.7 Polypropylene (PP) plastic.** Joints for PP plastic piping and fittings shall comply with Sections 1210.3.7 and 1210.3.7.2.

**1210.3.7.1 Heat-fusion joints.** Heat-fusion joints for polypropylene (PP) piping joints shall be installed with socket-type heat-fused polypropylene fittings, electrofusion polypropylene fittings or by butt-fusion. Joint surfaces shall be clean and free from moisture. The joint shall be undisturbed until cool. Joints shall be made in accordance with ASTM F 2389.

**1210.3.7.2 Mechanical and compression sleeve joints.** Mechanical and compression sleeve joints shall be installed in accordance with the manufacturer's instructions.

**1210.3.8 Raised temperature polyethylene (PE-RT) plastic tubing.** Joints for raised temperature polyethylene piping and fittings shall conform to Sections 1210.3.8.1 and 1210.3.8.2. Mechanical joints shall conform to Section 1210.3.3.

**1210.3.8.1 Compression-type fittings.** Where compression-type fittings include inserts and ferrules or O-rings, the fittings shall be installed without omitting the inserts and ferrules or O-rings.

**1210.3.8.2 PE-RT-to-metal connections.** Solder joints in a metal pipe shall not occur within 18 inches (457 mm) of a transition from such metal pipe to PE-RT pipe.

**1210.3.9 PVC plastic pipe.** Joints for PVC plastic pipe and fittings shall be solvent-cemented or threaded joints conforming to Section 1203.3.

**1210.4 Shutoff valves.** Shutoff valves shall be installed in ground source heat pump loop systems in the locations indicated in Sections 1210.4.1 through 1210.4.6. Pressure relief valves shall be installed in accordance with Section 1210.4.7.

**1210.4.1 Heat exchangers.** Shutoff valves shall be installed on the supply and return side of a heat exchanger.

**Exception:** Shutoff valves shall not be required where heat exchangers are integral with a boiler; or are a component of a manufacturer's boiler and heat exchanger packaged unit and are capable of being isolated from the hydronic system by the supply and return valves required by Section 1005.1.

**1210.4.2 Central systems.** Shutoff valves shall be installed on the building supply and return of a central utility system.

**1210.4.3 Pressure vessels.** Shutoff valves shall be installed on the connection to any pressure vessel.

**1210.4.4 Pressure-reducing valves.** Shutoff valves shall be installed on both sides of a pressure-reducing valve.

**1210.4.5 Equipment and appliances.** Shutoff valves shall be installed on connections to mechanical *equipment* and appliances. This requirement does not apply to components of a ground source heat pump loop system such as pumps, air separators, metering devices, and similar *equipment*.

**1210.4.6 Expansion tanks.** Shutoff valves shall be installed at connections to nondiaphragm-type expansion tanks.

**1210.4.7 Reduced pressure.** A pressure relief valve shall be installed on the low-pressure side of a hydronic piping system that has been reduced in pressure. The relief valve shall be set at the maximum pressure of the system design. The valve shall be installed in accordance with Section 1006.

**1210.5 General.** Piping, valves, fittings, and connections shall be installed in accordance with the conditions of approval and Sections 1210.5.1 through 1210.5.10.

**1210.5.1 Protection of potable water.** The potable water system shall be protected from backflow in accordance with the *International Plumbing Code*.

**1210.5.2 Pipe penetrations.** Openings for pipe penetrations in walls, floors and ceilings shall be larger than the penetrating pipe. Openings through concrete or masonry building elements shall be sleeved. The annular space surrounding pipe penetrations shall be protected in accordance with the *International Building Code*.

**1210.5.3 Clearance to combustibles.** Where the exterior temperature of piping in a geothermal piping system exceeds 250°F (121°C), such piping shall have a minimum *clearance* of 1 inch (25 mm) to combustible materials.

**1210.5.4 Contact with building material.** A ground source heat pump loop system shall not be in direct contact with building materials that cause the piping material to degrade or corrode, or that interfere with the operation of the system.

**1210.5.5 Strains and stresses.** Piping shall be installed so as to prevent detrimental strains and stresses in the pipe. Provisions shall be made to protect piping from damage resulting from expansion, contraction and structural settlement. Piping shall be installed so as to avoid structural stresses or strains within building components.

**1210.5.6 Flood hazard.** Piping located in a flood hazard area shall be capable of resisting hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the *design flood elevation*.

**1210.5.7 Pipe support.** Pipe shall be supported in accordance with Section 305.

**1210.5.8 Velocities.** Flow velocities in ground source heat pump loop systems shall be designed to not exceed the maximum flow velocity recommended by the pipe and fitting manufacturer and shall be controlled to reduce the possibility of water hammer.

**1210.5.9 Labeling and marking.** Ground source heat pump loop system piping shall be marked with tape, metal tags or other method where it enters a building indicating "GROUND SOURCE HEAT PUMP LOOP SYSTEM". The marking shall indicate any antifreeze used in the system by name and concentration.

**1210.5.10 Chemical compatibility.** Antifreeze and other materials used in a ground source heat pump loop system shall be chemically compatible with the pipe, tubing, fittings, and mechanical systems.

**1210.6 Makeup water.** The transfer fluid used in ground source heat pump loop systems shall be compatible with the makeup water supplied to the system.

**1210.7 Ground source heat pump loop systems tests.** Before connection (header) trenches are backfilled, the assembled loop system shall be pressure tested with water at 100 psi (689 kPa) for 30 minutes with no observed leaks. Flow and pressure loss testing shall be performed and the actual flow rates and pressure drops shall be compared to the calculated design values. If actual flow rate or pressure drop values differ from calculated design values by more than 10 percent, the cause shall be identified and corrective action taken.

**1210.7.1 Pressurizing during installation.** Ground source heat pump loop piping to be embedded in concrete shall be pressure tested prior to pouring concrete. During pouring, the pipe shall be maintained at the proposed operating pressure.

## **6. Add new standards to Chapter 15 as follows:**

### **ASTM**

<u>D 2464-06</u>	<u>Standard Specification for Threaded Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80</u>
<u>D 2466-06</u>	<u>Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40</u>
<u>D 2467-06</u>	<u>Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80</u>
<u>D 2609-02</u>	<u>Standard Specification for Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe</u>
<u>D 2737-03</u>	<u>Standard Specification for Polyethylene (PE) Plastic Tubing</u>
<u>F 437-06</u>	<u>Standard Specification for Threaded Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80</u>
<u>F 714-08</u>	<u>Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter</u>
<u>F 1807-08</u>	<u>Standard Specification for Metal Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing</u>
<u>F1960-08</u>	<u>Standard Specification for Cold Expansion Fittings with PEX Reinforcing Rings for Use with Cross-linked Polyethylene (PEX) Tubing</u>
<u>F 2080-08</u>	<u>Standard Specification for Cold-Expansion Fittings with Metal Compression-Sleeves for Cross-Linked Polyethylene (PEX) Pipe</u>
<u>F 2098-08</u>	<u>Standard Specification for Stainless Steel Clamps for Securing SDR9 Cross-linked Polyethylene (PEX) Tubing to Metal Insert and Plastic Insert Fittings</u>
<u>F 2159-05</u>	<u>Standard Specification for Plastic Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing</u>
<u>F 2434-08</u>	<u>Standard Specification for Metal Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Crosslinked Polyethylene/Aluminum/Cross-linked Polyethylene (PEX-AL-PEX) Tubing</u>

### **AWWA**

C901-08 Polyethylene (PE) Pressure Pipe and Tubing, ½ In. (13 mm) through 3 In. (76 mm), for Water Service

### **CSA**

<u>B137.1-02</u>	<u>Polyethylene Pipe, Tubing and Fittings for Cold Water Pressure Services</u>
<u>B137.2-02</u>	<u>PVC Injection-moulded Gasketed Fittings for Pressure Applications</u>
<u>B137.3-02</u>	<u>Rigid Poly (Vinyl Chloride) (PVC) Pipe for Pressure Applications</u>

- B137.5-02 Cross-linked Polyethylene (PEX) Tubing Systems for Pressure Applications— with Revisions through September 1992
- B137.6-02 CPVC Pipe, Tubing and Fittings for Hot and Cold Water Distribution Systems— with Revisions through May 1986
- B137.11-02 Polypropylene (PP-R) Pipe and Fittings for Pressure Applications

**Reason:** Water based ground-source heat pump loop PE piping is currently placed in the hydronics section where it doesn't quite fit. This special and growing application should have its own section, and it should cover other materials that could potentially be used. Green building rating systems are strongly promoting ground-source heat pump loop heating and cooling systems, and the code should have more information. I am introducing this proposal to accomplish that and would hope it would act to encourage further development. While HDPE dominates the technology with an expected 95% of the systems, other materials can and are be utilized in water based ground loop systems.

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

**Analysis:** Review of proposed new standard AWWA C901-08, 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. All other standards proposed for inclusion are already referenced standards of the International Plumbing Code (IPC).

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

ICCFILENAME: CUDAHY-M-1-1202-1210

## M140–09/10

### Table 1202.4, Chapter 15; IRC Table M2101.1, Chapter 44

**Proponent:** Larry Gill, IPEX, Inc.

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

#### PART I – IMC

##### 1. Revise table as follows:

**TABLE 1202.4  
HYDRONIC PIPE**

MATERIAL	STANDARD
Raised Temperature Polyethylene (PE-RT)	ASTM F2623; <u>ASTM F 2769</u>

(Portions of table not shown remain unchanged)

##### 2. Add new standard to Chapter 15 as follows:

#### ASTM

F 2769-09 Polyethylene of Raised Temperature (PE-RT) Plastic Hot and Cold-Water Tubing and Distribution Systems

#### PART II – IRC MECHANICAL

##### 1. Revise table as follows:

**TABLE M2101.1  
HYDRONIC PIPING MATERIALS**

MATERIAL	USE CODE <sup>a</sup>	STANDARD <sup>b</sup>	JOINTS	NOTES
Raised temperature polyethylene (PE-RT)	1, 2, 3	ASTM F 2623 <u>ASTM F 2769</u>	Copper crimp/insert fitting stainless steel clamp, insert fittings	

(Portions of table not shown remain unchanged)

**2. Add new standard to Chapter 44 as follows:**

**ASTM**

F 2769-09 Polyethylene of Raised Temperature (PE-RT) Plastic Hot and Cold-Water Tubing and Distribution Systems

**Reason:** This change adds a new ASTM standard F2769 for Polyethylene of Raised Temperature (PE-RT) to the IMC. This will provide manufacturers and purchasers with additional options for PE-RT tubing.

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

**Analysis:** Review of proposed new standard ASTM F 2769-09, 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.

**PART I – IMC**

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

**PART II – IRC MECHANICAL**

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

ICCFILENAME: GILL-M-2-T. 1202.4-CH 15-RM-T. M2101.1-CH 44

**M141–09/10**

**Table 1202.5; IRC Table M2101.1**

**Proponent:** Andrew Granzow, Viega, LLC

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC BUILDING/ENERGY COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

**PART I – IMC**

**Revise table as follows:**

**1202.5 TABLE  
 HYDRONIC PIPE FITTINGS**

<b>MATERIAL</b>	<b>STANDARD (see Chapter 15)</b>
Brass	ASTM F 1974
Bronze	ASME B16.24
Copper and copper alloys	ASME B16.15; ASME B16.18; ASME B16.22; ASME B16.23; ASME B16.26; ASME B16.29; <u>ASTM F 877 ; ASTM F 1807</u>
Ductile iron and gray iron	ANSI/AWWA C110/A21.10
Ductile iron	ANSI/AWWA C153/A21.53;
Gray iron	ASTM A 126
Malleable iron	ASME B16.3;
Plastic	ASTM D 2466; ASTM D 2467; ASTM D 2468; ASTM F 438; ASTM F 439; ASTM F 877; <u>ASTM F 2159; ASTM F 2389</u>
Steel	ASME B16.5; ASME B16.9; ASME B16.11; ASME B16.28 ASTM A 420

**Reason:** To include nationally recognized standards for piping materials currently being used for hydronic applications.

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

**PART II – IRC MECHANICAL**

Revise table as follows:

**TABLE M2101.1  
HYDRONIC PIPING MATERIALS**

<b>MATERIAL</b>	<b>USE CODE<sup>a</sup></b>	<b>STANDARD<sup>b</sup></b>	<b>JOINTS</b>	<b>NOTES</b>
Brass pipe	1	ASTM B 43	Brazed, welded, threaded, mechanical and flanged fittings	
Brass tubing	1	ASTM B 135	Brazed, soldered and mechanical fittings	
Chlorinated poly (vinyl chloride) (CPVC) pipe and tubing	1, 2, 3	ASTM D 2846	Solvent cement joints, compression joints and threaded adapters	
Copper pipe	1	ASTM B 42, B 302	Brazed, soldered and mechanical fittings threaded, welded and flanged	
Copper tubing (type K, L or M)	1, 2	ASTM B 75, B 88, B 251, B 306	Brazed, soldered and flared mechanical fittings	Joints embedded in concrete
Cross-linked polyethylene (PEX)	1, 2, 3	ASTM F 876, F 877	(See PEX fittings)	Install in accordance with manufacturer's instructions.
Cross-linked polyethylene/aluminum/cross-linked polyethylene-(PEX-AL-PEX) pressure pipe	1, 2	ASTM F 1281 or CAN/ CSA B137.10	Mechanical, crimp/insert	Install in accordance with manufacturer's instructions.
PEX Fittings		ASTM F 877 ASTM F 1807 ASTM F 1960 ASTM F 2098 ASTM F 2159	Copper-crimp/insert fittings, cold expansion fittings, stainless steel clamp, insert fittings, plastic-crimp/insert fittings	Install in accordance with manufacturer's instructions
<del>Plastic fittings-PEX</del>		<del>ASTM F 1807</del>		
Polybutylene (PB) pipe and tubing	1, 2, 3	ASTM D 3309	Heat-fusion, crimp/insert and compression	Joints in concrete shall be heat-fused.
Polyethylene (PE) pipe, tubing and fittings (for ground source heat pump loop systems)	1, 2, 4	ASTM D 2513; ASTM D 3350; ASTM D 2513; ASTM D 3035; ASTM D 2447; ASTM D 2683; ASTM F 1055; ASTM D 2837; ASTM D 3350; ASTM D 1693	Heat-fusion	
Polyethylene/aluminum/polyethylene (PE-AL-PE) pressure pipe	1, 2, 3	ASTM F 1282 CSA B 137.9	Mechanical, crimp/insert	
Polypropylene (PP)	1, 2, 3	ISO 15874 ASTM F 2389	Heat-fusion joints, mechanical fittings, threaded adapters, compression joints	
Raised temperature polyethylene (PE-RT)	1, 2, 3	ASTM F 2623	Copper crimp/insert fitting stainless steel clamp, insert fittings	
Soldering fluxes	1	ASTM B 813	Copper tube joints	
Steel pipe	1, 2	ASTM A 53, A 106	Brazed, welded, threaded, flanged and mechanical fittings	Joints in concrete shall be welded. Galvanized pipe shall not be welded or brazed.
Steel tubing	1	ASTM A 254	Mechanical fittings, welded	

For SI: °C = [(°F)-32]/1.8.



- a. Use code:
  - 1. Above ground.
  - 2. Embedded in radiant systems.
  - 3. Temperatures below 180°F only.
  - 4. Low temperature (below 130°F) applications only.
- b. Standards as listed in Chapter 44.

**Reason: (Row #8-PEX Fittings-ASTM F877)** The added standard reference clearly identifies a nationally recognized standard for PEX fittings and allows installers the option to utilize products under this standard for use in residential PEX hydronic applications.

“ASTM F877 - 07 Standard Specification for Crosslinked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems”

**(Row #8-PEX Fittings-ASTM F2159)** The added standard reference clearly identifies a nationally recognized standard for PEX fittings and allows installers the option to utilize products under this standard for use in residential PEX hydronic applications.

“ASTM F2159 - 05 Standard Specification for Plastic Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing”

**(Row #9-Plastic Fittings PEX)** The standard identified above makes no reference to plastic fittings and therefore the code reference is not consistent with the intent of the standard. This proposed code change has no impact on the use of product manufactured to this standard as this standard is already referenced in the appropriate section of the table under “PEX fittings”. Below is the title and scope of F1807

“ASTM F1807 - 08 Standard Specification for Metal Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing”

“1. Scope

- 1.1 This specification covers metal insert fittings and copper crimp rings for use with cross-linked polyethylene (PEX) tubing in  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{5}{8}$ ,  $\frac{3}{4}$ , and 1 in. and 1  $\frac{1}{4}$  nominal diameters that meet the requirements for Specifications F 876 and F 877. These fittings are intended for use in 100 psi (689.5 kPa) cold- and hot-water distribution systems operating at temperatures up to, and including, 180°F (82°C). The requirements for materials, workmanship, dimensions, and markings to be used on the fittings and rings are also included.
- 1.2 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are mathematical conversions to SI units which are provided for information only and are not considered the standard.
- 1.3 Compliance with this specification requires that these fittings be tested and certified to Specification F 877.
- 1.4 This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use. “

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

**PART I – IMC**

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

**PART II – IRC MECHANICAL**

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

ICCFILENAME: GRANZOW-M-1-T. 1202.5-RM-T. M2101.1

**M142–09/10**

**Table 1202.5, Chapter 15; Table M2101.1, Chapter 44**

**Proponent:** Larry Gill, IPEX, Inc.

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC BUILDING/ENERGY COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

**PART I – IMC**

**1. Revise table as follows:**

**TABLE 1202.5  
 HYDRONIC PIPE FITTINGS**

MATERIAL	STANDARD
Plastic	ASTM D2466; ASTM D2467; ASTM D2468; ASTM F438; ASTM F439; ASTM F877; ASTM F2389; <u>ASTM F2735</u>

(Portions of table not shown remain unchanged)

**2. Add new standard to Chapter 15 as follows:**

**ASTM**

F 2735-08a     Standard Specification for SDR9 Cross-linked Polyethylene (PEX) and Raised Temperature (PE-RT) Tubing

**PART II – IRC MECHANICAL**

**1. Revise table as follows:**

**TABLE M2101.1  
HYDRONIC PIPING MATERIALS**

MATERIAL	USE CODE <sup>a</sup>	STANDARD <sup>b</sup>	JOINTS	NOTES
Plastic Fittings PEX		ASTM F 1807 ASTM F 2735		

(Portions of table not shown remain unchanged)

**2. Add new standard to Chapter 44 as follows:**

**ASTM**

F 2735-08a     Standard Specification for SDR9 Cross-linked Polyethylene (PEX) and Raised Temperature (PE-RT) Tubing

**Reason:** This Code change will add the new ASTM F 2735 standard as a new fittings standard for plastics to the IMC. This will provide manufacturers and purchasers with additional options for PEX and PE-RT fittings.

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

**Analysis:** Review of proposed new standard ASTM F 2735-08a, 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 – IMC**

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

**PART II – IRC MECHANICAL**

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

ICCFILENAME: GILL-M-1-T. 1202.5-CH 15-RM-1-T. M2101.1

**M143–09/10  
1203.1.1**

**Proponent:** Walter Sperko, PE, Sperko Engineering, representing the Mechanical Contractors Association of America

**Delete without substitution:**

~~**1203.1.1 Joints between different piping materials.** Joints between different piping materials shall be made with approved adapter fittings. Joints between different metallic piping materials shall be made with approved dielectric fittings or brass converter fittings.~~

**Reason:** When the chemical makeup of the water or steam in a hydronic system is controlled to minimize the corrosion of the materials in the piping system, that control also eliminates any selective corrosion of dissimilar metal connections. There are thousands of hydronic piping systems where copper, steel and aluminum are used successfully without dielectric fittings or brass converters, and they work fine. When failure does occur due to water chemistry excursions, failures are system-wide, not just at dissimilar metal joints.

**Bibliography:** "Dissimilar Metals in Heating and AC Piping" April, 2009 by Walter J. Sperko, P.E.

**Cost Impact:** The code change proposal will reduce construction costs by eliminating an unnecessary component and maintenance costs since dielectric couplings used in hot water systems (>170°F) will leak after several thermal cycles.

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

ICCFILENAME: SPERKO-M-2-1203.1.1

# M144–09/10

## 1203.1.1

**Proponent:** Andrew Granzow, Viega, LLC

**Revise as follows:**

**1203.1.1 Joints between different piping materials.** Joints between different piping materials shall be made with *approved* adapter fittings. Joints between different metallic piping materials shall be made with *approved* dielectric fittings ~~of~~ brass, or bronze converter fittings.

**Reason:** Bronze is a proven material the same as brass for converter fittings.

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

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

ICCFILENAME: GRANZOW-M-2-1203.1.1

# M145–09/10

## 1203.3.4

**Proponent:** David W. Ash, Lubrizol Advanced Materials, Inc.

**Revise as follows:**

**1203.3.4 Solvent-cemented joints.** Joint surfaces shall be clean and free of moisture. An approved primer shall be applied to CPVC and PVC pipe-joint surfaces. Joints shall be made while the cement is wet. Solvent cement conforming to the following standards shall be applied to all joint surfaces:

1. ASTM D 2235 for ABS joints.
2. ASTM F 493 for CPVC joints.
3. ASTM D 2564 for PVC joints.

CPVC joints shall be made in accordance with ASTM D 2846.

**Exception:** For CPVC pipe-joint connections, a primer is not required where all of the following conditions apply:

1. The solvent cement used is third-party certified as conforming to ASTM F 493.
2. The solvent cement used is yellow in color.
3. The solvent cement is used only for joining 1/2 inch (12.7 mm) through 2 inch (51 mm) diameter CPVC pipe and fittings.
4. The CPVC pipe and fittings are manufactured in accordance with ASTM D 2846.

**Reason:** One step CPVC solvent cement has been allowed by the International Plumbing Code for a number of years for water distribution systems. This is proven technology and should be recognized for hydronic applications as well.

There are existing one step solvent cements for CPVC that meet the requirements of ASTM D2846 and ASTM F493.

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

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

ICCFILENAME: ASH-M-1-1203.3.4

## M146–09/10

### 1203.8

**Proponent:** Andrew Granzow, Viega, LLC

**Revise as follows:**

**1203.8 Copper or copper-alloy tubing.** Joints between copper or copper-alloy tubing or fittings shall be brazed, mechanical or soldered joints conforming to Section 1203.3; flared joints conforming to Section 1203.8.1, ~~or~~ push fit joints conforming to Section 1203.8.2, or press type joints conforming to Section 1203.8.3.

**Reason:** This code change will clarify/ confirm press type joints are to be installed in accordance with the manufacturer's instructions.

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

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

ICCFILENAME: GRANZOW-M-4-1203.8

## M147–09/10

### 1203.8.3 (New)

**Proponent:** Andrew Granzow, Viega, LLC

**Add new text as follows:**

**1203.8.3 Press joints.** Press joints shall be installed in accordance with the manufacturer's installation instructions.

**Reason:** This code change will establish the installation requirements for press joints.

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

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

ICCFILENAME: GRANZOW-M-3-1203.8.3

## M148–09/10

### 1203.20 (New); IRC M2104.5 (New)

**Proponent:** Julius Ballanco, P.E., JB Engineering and Code Consulting, P.C.

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC BUILDING/ENERGY COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

#### PART I – IMC

**Add new text as follows:**

**1203.20 Listed joints and connections.** Joints and connections that are not otherwise addressed in Section 1203 shall be certified by a third party agency as acceptable for hydronic piping systems. The joints and connections shall be installed in accordance with their certification and manufacturer's installation instructions.

#### PART II – IRC MECHANICAL

**Add new text as follows:**

**M2104.5 Listed joints and connections.** Joints and connections that are not otherwise addressed in Section 2104 of the *International Mechanical Code* shall be certified by a third party agency as acceptable for hydronic piping systems. The joints and connections shall be installed in accordance with their certification and manufacturer's installation instructions.

**Reason:** There are various types of joints and connections utilized in water distribution and water supply systems that are not listed in Section 605. However, these joints or connections are listed by a third party agency as being acceptable for water distributions systems. This new section will indicate that such joints and connections are acceptable. Some examples of these types of joints and connections are unions, rolled groove fittings, and cut groove fittings.

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

**PART I – IMC**

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

**PART II – IRC MECHANICAL**

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

ICCFILENAME: BALLANCO-M-2-1203.20-M1204.5

**M149–09/10**  
**Table 1302.3, Chapter 15**

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

**1. Revise table as follows:**

**TABLE 1302.3**  
**FUEL OIL PIPING**

<b>PIPE OR TUBING TYPE MATERIAL</b>	<b>STANDARD (see Chapter 15)</b>
Brass pipe	ASTM B43
Brass tubing	ASTM B135
Copper or copper-alloy pipe	ASTM B42; ASTM B302
Copper or copper-alloy tubing (Type K, L or M)	ASTM B75; ASTM B88; ASTM B280
Labeled Nonmetallic pipe	(See Section 1302.4)
Nonmetallic pipe	ASTM D2996
Steel pipe	ASTM A53; ASTM A106
Steel tubing	ASTM A254; ASTM A539
Metallic Underground Fuel Pipe	UL 971A
Nonmetallic Underground Fuel Pipe	UL 971

**2. Add new standards to Chapter 15 as follows:**

**UL**

971-95 Nonmetallic Underground Piping For Flammable Liquids – with revisions through March 2006  
971A-06 Outline of Investigation for Metallic Underground Fuel Pipe

**Reason:** This proposal accomplishes the following:

1. The first column of the table is not material, but specific pipe and tubing types.
2. The reference to “Labeled pipe” requirements in the table applies to ‘Nonmetallic pipe’, the title of section 1302.4.
3. ASTM D2996 is limited to only FRP pipe, so it does not reflect other forms of ‘nonmetallic pipes’ used in fuel applications today. In addition this standard does not contain any physical assembly, use/misuse tests or fuel compatibility tests, such as those found in UL971, which would make it suitable for use in fuel oil piping applications.
4. ASTM A539 was withdrawn without replacement in 1999.
5. The proposed new standard (UL 971) for nonmetallic underground fuel pipe and the Outline of Investigation (UL 971A) for metallic underground fuel pipe include a comprehensive set of construction and performance requirements, including tests to address physical abuse and misuse, and long-term compatibility with fuels and fluids.

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

**Analysis:** Review of proposed new standards, UL 971-95 and UL 971A-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.

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

ICCFILENAME: EUGENE-M-31-T. 1302.3-CH 15

# M150–09/10

## 1302.4, Chapter 15

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

### 1. Revise as follows:

**1302.4 Nonmetallic pipe.** All nonmetallic pipe and connectors shall be *listed* and *labeled* as being acceptable for the intended application for flammable and combustible liquids. Nonmetallic pipe shall be installed only ~~outside~~ outdoors, underground.

**Exception:** Nonmetallic flexible connectors listed and labeled for aboveground use in accordance with UL 2039 shall be permitted to be installed aboveground.

### 2. Add new standard to Chapter 15 as follows:

**UL**  
2039-02 Outline of Investigation for Flexible Connectors for Flammable Liquids

**Reason:** This proposal clarifies that both nonmetallic pipe and connectors need to be listed and labeled. In addition it allows flexible nonmetallic connectors listed in accordance with UL 2039 to be installed aboveground.

The Subject 2039 Outline of Investigation includes a comprehensive set of performance requirements for evaluating metallic and nonmetallic connectors for aboveground and underground transfer of noncorrosive, stable, flammable and combustible liquids. The connectors have a maximum length of eight feet.

Connectors listed in accordance with 2039 are fabricated, inspected, and tested for leakage before shipment from the factory as completely assembled vessels.

The intended use of these connectors is for the transfer of flammable and combustible liquids in, among other applications, underground carrier piping to a dispenser, carrier piping in an open dispenser sump to a dispenser, carrier piping in an open tank sump to a tank pump, and aboveground carrier piping to an aboveground tank.

Six companies currently have listings for these products.

In the second sentence, the intent is "outdoors" and the word "outside" does not necessarily mean outdoors.

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

**Analysis:** Review of proposed new standard UL 22039-02, 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-M-32-1302.4-CH 15

# M151–09/10

## 1306.4, Chapter 15; IRC M2201.5, Chapter 44

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC MECHANICAL COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

### PART I – IMC

#### 1. Revise as follows:

**1306.4 Gauging devices.** Gauging devices such as liquid level indicators or signals shall be designed and installed so that oil vapor will not be discharged into a building from the liquid fuel supply system. Liquid-level indicating gauges shall comply with UL 180.

#### 2. Add new standard to Chapter 15 as follows:

**UL**  
180-03 Liquid-Level Indicating Gauges for Oil Burner Fuels – with revisions through March 2007

## PART II – IRC MECHANICAL

### 1. Revise as follows:

**M2201.5 Oil gauges.** Inside tanks shall be provided with a device to indicate when the oil in the tank has reached a predetermined safe level. Glass gauges or a gauge subject to breakage that could result in the escape of oil from the tank shall not be used. Liquid-level indicating gauges shall comply with UL 180.

### 2. Add new standard to Chapter 44 as follows:

#### UL

180-03     Liquid-Level Indicating Gauges for Oil Burner Fuels – with revisions through March 2007

**Reason:** UL 180 includes a comprehensive set of construction and performance requirements that are specifically used to evaluate and list liquid level indicating gauges for oil burner fuels. Three companies currently have burner-fuel liquid level gauges listed.

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

**Analysis:** Review of proposed new standard UL 180-03, 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.

## PART I – IMC

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

## PART II – IRC

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

ICCFILENAME: EUGENE-M-27-1306.4-CH 15-RM-M2201.5-CH 44

## M152–09/10

### 1307.1, Chapter 15; IRC M2204.2, Chapter 44

**Proponent:** Bob Eugene, Underwriters Laboratories, Inc.

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IMC COMMITTEE. PART II WILL BE HEARD BY THE IRC BUILDING/ENERGY COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

## PART I – IMC

### 1. Revise as follows:

**1307.1 Building shutoff.** A shutoff valve shall be installed on the fuel-oil supply line at the entrance to the building. Inside or above-ground tanks are permitted to have valves installed at the tank. The valve shall be capable of stopping the flow of fuel oil to the building or to the appliance served where the valve is installed at a tank inside the building. Valves shall comply with UL 842.

### 2. Add new standard to Chapter 15 as follows:

#### UL

842-07     Valves for Flammable Fluids

## PART II – IRC MECHANICAL

### 1. Revise as follows:

**M2204.2 Shutoff valves.** A *readily accessible* manual shutoff valve shall be installed between the oil supply tank and the burner. Where the shutoff valve is installed in the discharge line of an oil pump, a pressure-relief valve shall be incorporated to bypass or return surplus oil. Valves shall comply with UL 842.

### 2. Add new standard to Chapter 44 as follows:

#### UL

842-07     Valves for Flammable Fluids

**Reason:** UL 842 includes a comprehensive set of construction and performance requirements that are specifically used to evaluate and list valves that are intended to be used for the control of flammable fluids, commonly used in piping systems and in the assembly of fuel burning equipment. These valves are of the manually operated, pressure operated, or temperature operated types, or combinations of such to the exclusion of types operated wholly or partially by electricity.

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

**Analysis:** Review of proposed new standard ASTM F 842-07, 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.

## PART I – IMC

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

## PART II – IRC MECHANICAL

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

ICCFILENAME: EUGENE-M-29-1307.1-CH 15-RM-M2204.2

# M153–09/10

## Chapter 15

**Proponent:** Guy Tomberlin, Fairfax County, VA, representing the Virginia Plumbing and Mechanical Inspectors/Virginia Building and Code Officials

**Revise standard reference in Chapter 15 as follows:**

**UL**  
~~2043-2008~~ 96 Fire Test for Heat and Visible Smoke Release for Discrete Products and their Accessories Installed in Air-handling Spaces

**Reason:** This change was not just an update of the standard. The title and scope were completely overhauled and expanded to incorporate many more products than the 1996 edition addressed. The new scope expansion now incorporates plumbing and mechanical products, not just electrical, which would allow many more products to be installed within a plenum space that do not meet flame spread and smoke developed ratings of 25/50 when tested in accordance with ASTM E 84. This new edition of this Standard virtually makes ASTM E 84 void and null. ASTM E 84 has been the industry standard for many years and has assured safe plenum spaces with limited allowance for many plumbing and mechanical products that simply cannot meet its provisions by producing the results of 25/50 ratings. But now, many of these products will be acceptable in plenum spaces because they can otherwise meet the provisions of the UL 2043, 2008 edition. During the Final Action Hearings in MN, M 72 was disapproved. This was the proposal to the IMC text that would have incorporated the new provisions and the reference to this new Standard that would have allowed the expanded testing provisions of UL 2043 for plumbing and mechanical products to be installed within plenum spaces. For informational purposes, it is important to be aware that the IMC Code Development Committee disapproved the same change during the Public Comment Hearings in the first half of the last code change cycle. Based on the disapproval action of M 72 the proponent should have withdrawn their proposed reference to this new edition. Unfortunately, now we have a Standard in the 2009 IMC that includes many allowances that the code text itself does not contain provisions for. This leads to misapplication of the code provisions. Uniformity, ease of use and consistent application of the code has been the primary focus of Virginia's participation in the code development process over the years and this situation falls well beyond that philosophy.

If you look in the 2009 edition of the IMC you will find the only location that references UL 2043, is Section 602.2.1.4.2. This Section is specific to "electrical" *equipment in combustible enclosures*.

Just a side note, you will also notice that the reference to UL 2043–2008 was inadvertently omitted in the first print edition of the 2009 IMC Chapter 15 Reference Standards, altogether .

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

**Analysis:** It is the opinion of staff that the 1996 Edition of UL 2043 does not comply with Sections 3.6.3.1 and 3.6.3.2 of CP #28 as it is no longer readily available and no longer maintained. Staff was not required to evaluate the 2008 edition of UL 2043 for compliance with CP #28 because the standard was a currently referenced standard at the time it was updated from the 1996 to 2008 edition.

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

ICCFILENAME: TOMBERLIN-M-17-CHAPTER 15



# M154-09/10

## Appendix A

**Proponent:** Sam Dardano, City of Boulder, CO, representing CO Association of Plumbing and Mechanical Officials (CAPMO)

**Delete without substitution:**

~~Figures A-1 through A-4 are illustrations of appliances located in confined spaces.~~

~~For SI: 1 square inch = 645 mm<sup>2</sup>, 1 British thermal unit per hour = 0.2931 W.~~

**FIGURE A-1  
ALL AIR FROM INSIDE THE BUILDING**

~~NOTE: Each opening shall have a free area of not less than 1 square inch per 1,000 Btu per hour of the total input rating of all appliances in the enclosure and not less than 100 square inches.~~

~~For SI: 1 square inch = 645 mm<sup>2</sup>, 1 British thermal unit per hour = 0.2931 W.~~

**FIGURE A-2  
ALL AIR FROM OUTDOORS—INLET AIR FROM VENTILATED CRAWL SPACE AND OUTLET AIR TO VENTILATED ATTIC**

~~NOTE: The inlet and outlet air openings shall each have a free area of not less than 1 square inch per 4,000 Btu per hour of the total input rating of all appliances in the enclosure.~~

~~For SI: 1 foot = 304.8 mm, 1 square inch = 645 mm<sup>2</sup>, 1 British thermal unit per hour = 0.2931 W.~~

**FIGURE A-3  
ALL AIR FROM OUTDOORS THROUGH VENTILATED ATTIC**

~~NOTE: The inlet and outlet air openings shall each have a free area of not less than 1 square inch per 4,000 Btu per hour of the total input rating of all appliances in the enclosure.~~

~~For SI: 1 foot = 304.8 mm, 1 square inch = 645 mm<sup>2</sup>, 1 British thermal unit per hour = 0.2931 W.~~

**FIGURE A-4  
ALL AIR FROM OUTDOORS THROUGH HORIZONTAL DUCTS OR DIRECT OPENINGS**

~~NOTE: Each air duct opening shall have a free area of not less than 1 square inch per 2,000 Btu per hour of the total input rating of all appliances in the enclosure. If the appliance room is located against an outside wall and the air openings communicate directly with the outdoors, each opening shall have a free area of not less than 1 square inch per 4,000 Btu per hour or the total input rating of all appliances in the enclosure.~~

(Portions of Appendix not shown remain unchanged)

**Reason:** As a result of Chapter 7 being re-written, there is no need for the illustrations pertaining to combustion air in Appendix-A, as it is covered under the Standard.

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

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

ICCFILENAME: DARDANO-M-8-APPENDIX A