2006/2007 PROPOSED CHANGES TO THE INTERNATIONAL MECHANICAL CODE

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TENTATIVE ORDER OF DISCUSSION

2006-2007 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.

G1-06/07, Part VII
G221-06/07, Part VI
G3-06/07, Part V
M1-06/07
M2-06/07
M3-06/07
M4-06/07
M5-06/07
M6-06/07
M7-06/07
M8-06/07
M9-06/07, Part I
M10-06/07
M11-06/07
M12-06/07
M13-06/07
M14-06/07
M15-06/07
M16-06/07
M17-06/07
FG18-06/07, Part II
FG20-06/07, Part II
EC28-06/07, Part VI
M18-06/07, Part I
M19-06/07
M20-06/07, Part I
RP1-06/07, Part IV
M21-06/07
M22-06/07, Part I
M23-06/07, Part I
M24-06/07, Part I
M25-06/07, Part I
M26-06/07, Part I
M27-06/07, Part I
M28-06/07
M29-06/07
M30-06/07
M31-06/07
M32-06/07, Part I
M33-06/07, Part I
M34-06/07
M35-06/07, Part I
M36-06/07, Part I
M37-06/07, Part I
M38-06/07, Part I
M39-06/07, Part I
M40-06/07, Part I
M41-06/07, Part I
M42-06/07
G170-06/07, Part II
M43-06/07
M44-06/07
M45-06/07
M46-06/07
M47-06/07
M48-06/07
M49-06/07
M50-06/07
M51-06/07
M52-06/07
M53-06/07
M54-06/07
M55-06/07
M56-06/07
M57-06/07
M58-06/07
M59-06/07, Part I
M60-06/07, Part I
M61-06/07, Part I
M62-06/07, Part I
M63-06/07, Part I
M64-06/07, Part I
M65-06/07, Part I
M66-06/07
M67-06/07
M68-06/07
M69-06/07
M70-06/07
M71-06/07
M72-06/07
M73-06/07
M74-06/07
FS8-06/07, Part II
M75-06/07
M76-06/07
M77-06/07
M78-06/07
M79-06/07
M80-06/07
M81-06/07
M82-06/07
M83-06/07
M84-06/07
M85-06/07
M86-06/07
M87-06/07
M88-06/07
M89-06/07
M90-06/07
M91-06/07, Part I
M92-06/07
M93-06/07
M94-06/07, Part I
M95-06/07, Part I
M96-06/07
M97-06/07
M98-06/07
M99-06/07
M100-06/07, Part I
M101-06/07
F113-06/07, Part II
F120-06/07, Part II
M102-06/07, Part I
M103-06/07, Part I
M104-06/07
M105-06/07, Part I
M106-06/07
M107-06/07
M108-06/07, Part I
M109-06/07
M110-06/07
M111-06/07
M112-06/07, Part I
M113-06/07
M114-06/07
M115-06/07
M116-06/07
M117-06/07
M118-06/07
M119-06/07
M120-06/07
M121-06/07
M122-06/07
M123-06/07
M124-06/07
M125-06/07
M126-06/07
M127-06/07
M128-06/07, Part I
M129-06/07, Part I
M130-06/07, Part I
M131-06/07, Part I
M132-06/07

M1–06/07
102.1, 102.8, 102.10 (New), 102.11 (New)

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

Revise as follows:

SECTION 102
APPLICABILITY

102.1 General. ~~The provisions of this code shall apply to all matters affecting or relating to structures and premises, as set forth in Section 101.~~ Where, in a specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

102.8 Referenced codes and standards. The codes and standards referenced herein shall be those that are listed in Chapter 15 and such codes and standards shall be considered as part of the requirements of this code to the prescribed extent of each such reference. Where differences occur between provisions of this code and the referenced standards, the provisions of this code shall apply.

Exception: Where enforcement of a code provision would violate the conditions of the listing of the equipment or appliance, the conditions of the listing and the manufacturer's installation instructions shall apply.

Add new text as follows:

102.10 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law.

102.11 Application of references. Reference to chapter section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

This proposal focuses on the scope and applicability provisions of the IMC. A section-by-section discussion follows:

102.1: This purpose of this proposed change is to provide correlation with Section 102.1 of the *International Building Code*, *International Residential Code*, and *International Existing Building Code* and Section 102.9 of the *International Fire Code*. The proposal adds an important provision that deals with provisions on the same topic that could be different in technical content. In such an instance, the specific provision (e.g., the one having the narrower scope of application) is to govern.

A similar correlating proposal has been submitted to the *International Plumbing Code, International Private Sewage Disposal Code* and the *International Fuel Gas Code.*

102.8: This section is being editorially revised to provide an important exception, the source text for which is Section 102.8 of the International Fuel Gas Code and Section 102.4 of the *International Residential Code*.

The proposed exception recognizes the extremely unlikely but possible occurrence of the code requiring or allowing something less restrictive or stringent than the product's listing or manufacturer's instructions. This correlation will provide an added level of safety by recognizing and deferring to the expertise of the manufacturer and the independent testing laboratory process and fill a gap that currently exists in the IMC. The intent is for the highest level of safety to prevail.

A similar correlating proposal has been submitted to the *International Building Code*, *International Existing Building Code*, *International Fire Code*, *International Plumbing Code, International Private Sewage Disposal Code, International Energy Conservation Code, International Property Maintenance Code*, and *International Wildland-Urban Interface Code*.

102.10: The purpose of this proposed change is to add a needed administrative provision not currently in the IMC, the source text for which is Section 102.2 of the *International Building Code*, *International Residential Code* and *International Existing Building Code* and Section 102.3 of the *ICC Electrical Code---Administrative Provisions.*

This proposed provision would assist the code official in dealing with situations where other laws enacted by the jurisdiction or the state or federal government may be applicable to a condition that is also governed by a requirement in the code. In such circumstances, the requirements of the code would be in addition to that other law that is still in effect, although the code official may not be responsible for its enforcement.

A similar correlating proposal has also been submitted to the *International Fire Code*, *International Plumbing Code, International Private Sewage Disposal Code*, *International Fuel Gas Code, International Energy Conservation Code, International Property Maintenance Code* and *International Wildland-Urban Interface Code.*

102.11: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC, the source text for which is Section 102.3 of the *International Building Code, International Residential Code* and *International Existing Building Code* and Section 102.5 of the *ICC Electrical Code---Administrative Provisions.*

This new provision would provide a code application tool for the code official by making it clear that, in a situation where the code makes reference to a chapter or section number or to another code provision without specifically identifying its location in the code, then that referenced section, chapter or provision is in this code and not in a referenced code or standard.

A similar correlating proposal has also been submitted to the *International Fire Code*, *International Private Sewage Disposal Code*, *International Plumbing Code, International Private Sewage Disposal Code, International Property Maintenance Code* and *International Wildland-Urban Interface Code.*

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

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

M2–06/07
102.10 (New)

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

Add new text as follows:

102.10 Subjects not regulated by this code. Where no applicable standards or requirements are set forth in this code, or are contained within other laws, codes, regulations, ordinances or policies adopted by the jurisdiction, compliance with applicable standards of other nationally recognized safety standards, as approved, shall be deemed as prima facie evidence of compliance with the intent of this code.

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

The purpose of this proposed change is to add a needed provision not currently in the IMC, the source text for which is Section 102.7 of the *International Fire Code* and Section 102.8 of the *ICC Electrical Code---Administrative Provisions*. This new provision, while similar to current Section 102.9, would provide guidance to the code official for dealing with situations in which no specific standard is designated in the code or otherwise adopted by the jurisdiction. In such instances compliance with the requirements of an appropriate nationally recognized standard which may not be referenced in the code could be approved by the code official as meeting the intent of the code.

A similar correlating proposal has also been submitted to the *International Plumbing Code, International Private Sewage Disposal Code* and *International Fuel Gas Code*.

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

Analysis: If this code change is approved, the final number of this new section will be correlated with all other approved code changes affecting Section 102 of this code.

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

M3–06/07
103.2, 103.3, 103.4

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

Revise as follows:

SECTION 103
DEPARTMENT OF MECHANICAL INSPECTION

103.2 Appointment. The code official shall be appointed by the chief appointing authority of the jurisdiction~~; and the code official shall not be removed from office except for cause and after full opportunity to be heard on specific and relevant charges by and before the appointing authority~~.

103.3 Deputies. In accordance with the prescribed procedures of this jurisdiction and with the concurrence of the appointing authority, the code official shall have the authority to appoint a deputy code official, other related technical officers, inspectors and other employees. Such employees shall have powers as delegated by the code official.

103.4 Liability. The code official, ~~officer~~ member of the board of appeals or employee charged with the enforcement of this code, while acting for the jurisdiction in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered liable personally, and is hereby relieved from ~~all~~ personal liability for any damage accruing to persons or property as a result of an act ~~required or permitted~~ or by reason of an act or omission in the discharge of official duties.

Any suit instituted against any officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be defended by the legal representative of the jurisdiction until the final termination of the proceedings. The code official or any subordinate shall not be liable for costs in an action, suit or proceeding that is instituted in pursuance of the provisions of this code; ~~and any officer of the department of mechanical inspection, acting in good faith and without malice, shall be free from liability for acts performed under any of its provisions or by reason of any act or omission in the performance of official duties in connection therewith~~.

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

This proposal focuses on the provisions applicable to the enforcing agency and enforcement personnel. A section-by-section discussion follows:

103.2: The purpose of this change is to correlate with current Section 103.2 of the *International Building Code*, *International Residential Code*, *International Existing Building Code*, and Section 301.2 of the *ICC Electrical Code---Administrative Provisions*.

The AHC felt that text relating to the removal of the code official should be deleted because it is a local personnel procedural matter that is outside the scope of the code. Removal from office is not usually associated with an administrative code chapter, but is more frequently found in state statute, a union contract or civil service law.

A similar correlating proposal has also been submitted to the *International Fire Code*, *International Private Sewage Disposal Code*, *International Plumbing Code, International Property Maintenance Code*, *International Zoning Code, International Wildland-Urban Interface Code*, *International Fuel Gas Code.*

103.3: The purpose of this proposed change is to provide correlation with Section 103.3 of the *International Building Code*, *International Residential Code* and *International Existing Building Code*, and Section 301.3 of the *ICC Electrical Code---Administrative Provisions*.

The new text would provide the code official with an important administrative tool in assigning personnel to assist with the administration and enforcement of the code within the department.

A similar correlating proposal has also been submitted to the *International Fire Code*, *International Plumbing Code, International Private Sewage Disposal Code*, *International Property Maintenance Code*, *International Wildland-Urban Interface Code*, *International Fuel Gas Code.*

103.4: The purpose of this change is to provide correlation with Section 104.8 of the *International Building Code*, *International Residential Code*, *International Existing Building Code*, the text of which provides a more logical presentation of the provision. It will also afford important protection to members of the appeals board who typically serve voluntarily and might not personally have the liability protection afforded by the revised text.

A similar correlating proposal has been submitted to the *International Fire Code*, *International Plumbing Code, International Private Sewage Disposal Code*, *International Property Maintenance Code*, *International Wildland-Urban Interface Code* and *International Fuel Gas Code.*

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

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

M4–06/07

104.1, 104.2, 104.3, 104.7

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

1. Revise as follows:

SECTION 104
DUTIES AND POWERS OF THE CODE OFFICIAL

104.1 General. The code official ~~shall enforce the provisions of this code and shall act on any question relative to the installation, alteration, repair, maintenance or operation of mechanical systems, except as otherwise specifically provided for by statutory requirements or as provided for in Sections 104.2 through 104.8.~~ is hereby authorized and

directed to enforce the provisions of this code. The code official shall have the authority to render interpretations of this code and to adopt policies and procedures in order to clarify the application of its provisions. Such interpretations, policies, and procedures shall be in compliance with the intent and purpose of this code. Such policies and procedures shall not have the effect of waiving requirements specifically provided for in this code.

2. Delete without substitution:

~~**104.2 Rule-making authority.** The code official shall have authority as necessary in the interest of public health, safety and general welfare, to adopt and promulgate rules and regulations; to interpret and implement the provisions of this code; to secure the intent thereof; and to designate requirements applicable because of local climatic or other conditions. Such rules shall not have the effect of waiving structural or fire performance requirements specifically provided for in this code, or of violating accepted engineering methods involving public safety.~~

3. Revise as follows:

104.2 ~~104.3~~ Applications and permits. The code official shall receive applications, review construction documents and issue permits for the installation and alteration of mechanical systems, inspect the premises for which such permits have been issued and enforce compliance with the provisions of this code.

104.7 ~~104.8~~ Department records. The code official shall keep official records of applications received, permits and certificates issued, fees collected, reports of inspections, and notices and orders issued. Such records shall be retained in the official records for the period required for retention of public records. ~~as long as the building or structure to which such records relate remains in existence, unless otherwise provided for by other regulations.~~

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

This proposal focuses on the duties and powers of the code official. A section-by-section discussion follows:

104.1: The purpose of this proposed change is to provide correlation with current Section 104.1 of the *International Building Code*, *International Residential Code*, *International Existing Building Code*, and Section 302.1 of the *ICC Electrical Code---Administrative Provisions* the text of which the AHC-Admin felt provide a more comprehensive and orderly approach than the current text of this section.

A similar correlating proposal has been submitted to the *International Fire Code*, *International Private Sewage Disposal Code*, *International Plumbing Code, International Property Maintenance Code*, *International Wildland-Urban Interface Code* and *International Fuel Gas Code.*

104.2: This section is proposed for deletion because the AHC judged that the subject is better addressed in the proposed language for Section 104.1. Also, no comparable provision exists in the *International Building Code*, *International Residential Code*, *International Fire Code*, *International Existing Building Code*, *International Energy Conservation Code,* or *International Wildland-Urban Interface Code.* A similar correlating proposal has been submitted to the *International Plumbing Code, International Private Sewage Disposal Code*, *International Property Maintenance Code* and *International Fuel Gas Code.*

104.2 ~~104.3~~: The purpose of this proposed change is to provide correlation with current Section 104.2 of the *International Building Code*, *International Residential Code* and *International Fire Code* and Section 302.2 of the *ICC Electrical Code---Administrative Provisions*. Review of construction documents is an integral power and duty of the code official and warrants inclusion here. A similar correlating proposal has been submitted to the *International Fuel Gas*, *International Plumbing Code, International Private Sewage Disposal Code*, and *International Wildland-Urban Interface Code*.

104.7 ~~104.8~~ The purpose of this change is to provide correlation with current Section 104.7 of the *International Building Code*, *International Residential Code* and *International Existing Building Code*. Records retention in the public domain is often established by state laws with which the revision here should also provide correlation.

A similar correlating proposal has also been submitted to the *International Fire Code*, *International Fuel Gas Code*, *International Plumbing Code*, *International Property Maintenance Code* and *International Private Sewage Disposal Code.*

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

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

M5–06/07
105.1, 105.2.1 (New), 105.4 (New)

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

1. Revise as follows:

SECTION 105
APPROVAL

105.1 Modifications. Whenever there are practical difficulties involved in carrying out the provisions of this code, the code official shall have the authority to grant modifications for individual cases, upon application of the owner or

owner's representative provided the code official shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and does not lessen health, life and fire safety requirements. The details of action granting modifications shall be recorded and entered in the files of the mechanical inspection department.

2. Add new text as follows:

105.2.1 Research reports. Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall consist of valid research reports from approved sources.

105.4 Approved materials and equipment. Materials, equipment and devices approved by the code official shall be constructed and installed in accordance with such approval.

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

This proposal focuses on the approval provisions of the IMC. A section-by-section discussion follows:

105.1: The purpose of this proposed change is to provide correlation with current Section 104.10 of the *International Building Code* and *International Existing Building Code* and Section 601.2 of the *ICC Electrical Code---Administrative Provisions* by adding an important element to the requirements in the form of a clear statement of what the basis is for the code official to consider a modification, i.e. upon application by the owner.

A similar correlating proposal has also been submitted to the *International Residential Code*, *International Fire Code*, *International Plumbing Code, International Private Sewage Disposal Code*, *International Fuel Gas Code, International Energy Conservation Code* and *International Property Maintenance Code.*

105.2.1: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC, the source text for which is Section 104.11.1 of the *International Building Code*.

The section would provide a means for the code official to judge the suitability or equivalency of an alternative method being proposed. Reports providing evidence of this equivalency must be supplied by a source that the code official considers reliable and accurate.

A similar correlating proposal has also been submitted to the *International Existing Building Code*, *International Residential Code*, *International Fire Code*, *International Private Sewage Disposal Code*, *International Plumbing Code, International Private Sewage Disposal Code*, *International Energy Conservation Code, International Property Maintenance Code*, *International Wildland-Urban Interface Code* and *International Fuel Gas Code.*

105.4: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC and to provide correlation with Section104.9 of the *International Building Code*, *International Residential Code*, and *International Existing Building Code* and Section 104.7 of the *International Fire Code*.

This new provision would make it clear that once equipment and materials are approved by the code official, their installation must be conducted in full accord with that approval.

A similar correlating proposal has also been submitted to the *International Plumbing Code, International Fuel Gas Code, International Energy Conservation Code, International Property Maintenance Code*, and *International Wildland-Urban Interface Code.*

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

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

M6–06/07

106.1.1 (New), 106.1.2 (New), 106.2.1 (New), 106.2.2 (New), 106.3, 106.3.1 (New), 106.3.2.1 (New), 106.3.3 (New), 106.4.1, 106.4.1.1 (New), 106.4.5, 106.4.6, 106.4.7 (New), 106.4.8 (New), 106.5.1, 106.5.3 (New)

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

1. Add new text as follows:

SECTION 106
PERMITS

106.1.1Annual permit. In lieu of an individual permit for each alteration to an already approved mechanical installation, the code official is authorized to issue an annual permit upon application therefore to any person, firm or corporation regularly employing one or more qualified trade persons in the building, structure or on the premises owned or operated by the applicant for the permit.

106.1.2 Annual permit records. The person to whom an annual permit is issued shall keep a detailed record of alterations made under such annual permit. The code official shall have access to such records at all times or such records shall be filed with the code official as designated.

106.2.1 Repairs. Application or notice to the code official is not required for ordinary repairs. Such repairs shall not include the cutting away of any wall, partition or portion thereof, the removal or cutting of any structural beam or load-bearing support, or the removal or change of any required means of egress, or rearrangement of parts of a structure affecting the egress requirements; nor shall ordinary repairs include addition to, alteration of, replacement or relocation of any standpipe, water supply, sewer, drainage, drain leader, gas, soil, waste, vent or similar piping, electric wiring or mechanical or other work affecting public health or general safety.

106.2.2 Public service agencies. A permit shall not be required for the installation, alteration or repair of generation, transmission, distribution or metering or other related equipment that is under the ownership and control of public service agencies by established right.

2. Revise as follows:

106.3 Application for permit. ~~Each application for a permit, with the required fee, shall be filed with the code official on a form furnished for that purpose and shall contain a general description of the proposed work and its location. The application shall be signed by the owner or an authorized agent. The permit application shall indicate the proposed occupancy of all parts of the building and of that portion of the site or lot, if any, not covered by the building or structure and shall contain such other information required by the code official.~~ To obtain a permit, the applicant shall first file an application therefore in writing on a form furnished by the department for that purpose. Such application shall:

1. Identify and describe the work to be covered by the permit for which application is made.
2. Describe the land on which the proposed work is to be done by legal description, street address or similar description that will readily identify and definitely locate the proposed building or work.
3. Indicate the use and occupancy for which the proposed work is intended.
4. Be accompanied by construction documents and other information as required in Section 106.3.
5. State the valuation of the proposed work.
6. Be signed by the applicant, or the applicant's authorized agent.
7. Give such other data and information as required by the code official.

3. Add new text as follows:

106.3.1 Time limitation of application. An application for a permit for any proposed work shall be deemed to have been abandoned 180 days after the date of filing, unless such application has been pursued in good faith or a permit has been issued; except that the code official is authorized to grant one or more extensions of time for additional periods not exceeding 180 days each. The extension shall be requested in writing and justifiable cause demonstrated.

106.3.2.1 Information on construction documents. Construction documents shall be dimensioned and drawn upon suitable material. Electronic media documents are permitted to be submitted when approved by the code official. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the code official.

106.3.3 Preliminary inspection. Before a permit is issued, the code official is authorized to inspect and approve the systems, equipment, buildings, devices, premises, and spaces or areas to be used.

4. Revise as follows:

106.4.1 ~~Approved~~ Reviewed construction documents. When the code official issues the permit where construction documents are required, the construction documents shall be endorsed in writing and stamped "Reviewed for Code Compliance" ~~"APPROVED."~~ Such ~~approved~~ construction documents shall not be changed, modified or altered without authorization from the code official. Work shall be done in accordance with the reviewed ~~approved~~ construction documents.

The code official shall have the authority to issue a permit for the construction of part of a mechanical system before the construction documents for the entire system have been submitted or reviewed ~~approved~~, provided adequate information and detailed statements have been filed complying with all pertinent requirements of this code. The holder of such permit shall proceed at his or her own risk without assurance that the permit for the entire mechanical system will be granted.

5. Add new text as follows:

106.4.1.1 Amended construction documents. Changes made during construction that are not in compliance with the approved construction documents shall be resubmitted for approval as an amended set of construction documents.

6. Revise as follows:

106.4.5 Suspension or revocation ~~of permit~~. The code official is authorized to suspend or revoke a permit issued under the provisions of this code wherever the permit is issued in error or on the basis of incorrect, inaccurate or incomplete information, or in violation of any ordinance or regulation or any of the provisions of this code. ~~shall revoke a permit or approval issued under the provisions of this code in case of any false statement or misrepresentation of fact in the application or on the construction documents upon which the permit or approval was based.~~

106.4.6 Retention of construction documents. One set of approved construction documents shall be retained by the code official for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws ~~until final approval of the work covered therein~~. One set of approved construction documents shall be returned to the applicant, and said set shall be kept on the site of the building or job at all times during which the work authorized thereby is in progress.

7. Add new text as follows:

106.4.7 Posting of permit. The permit or a copy shall be kept on the site of the work until the completion of the project.

106.4.8 Previous approvals. This code shall not require changes in the construction documents, construction or designated occupancy of a structure for which a lawful permit has been heretofore issued or otherwise lawfully authorized, and the construction of which has been pursued in good faith within 180 days after the effective date of this code and has not been abandoned.

8. Revise as follows:

106.5.1 Work commencing before permit issuance. Any person who commences work on a mechanical system before obtaining the necessary permits shall be subject ~~to 100 percent of the usual permit~~ an additional fee established by the code official, which shall be in addition to the required permit fees.

9. Add new text as follows:

106.5.3 Related fees. The payment of the fee for the construction, alteration, removal, or demolition of work done in connection to or concurrently with the work or activity authorized by a permit shall not relieve the applicant or holder of the permit from the payment of other fees that are prescribed by law

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

This proposal focuses on the permit requirements in the IMC. A section-by-section discussion follows:

106.1.1: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC and provide correlation with current Section 105.1.1 of the *International Building Code*, and *International Existing Building Code*.

This section would provide the code official with a useful administrative tool to issue an annual permit for recurring work in large facilities that would otherwise be required to obtain a permit every time the repair, replacement or alteration of mechanical systems occurs on a frequent basis. This would relieve both the department and the owners of such facilities from the burden of filing and processing individual applications for this activity subject, however, to the restrictions and limitations indicated.

A similar correlating proposal has also been submitted to the *International Plumbing Code, International Fuel Gas Code* and *International Fire Code.*

106.1.2: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC and provide correlation with current Section 105.1.2 of the *International Building Code*, and *International Existing Building Code*.

This section would provide the code official with a useful administrative tool in conjunction with the issuance of an annual permit. The work performed in accordance with an annual permit must be inspected by the code official, so it is necessary to know the location of such work and when it was performed. This can be accomplished by having records of the work available to the code official either at the premises or in the official's office, as determined by the official.

A similar correlating proposal has also been submitted to the *International Plumbing Code, International Fuel Gas Code* and *International Fire Code.*

106.2.1: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC and correlate with current Section 105.2.2 of the *International Building Code*, *International Residential Code*, and *International Existing Building Code*.

This section would provide the code official with a valuable tool in distinguishing between what might be termed by some as repairs but are in fact alterations, wherein the code is to be applicable, and ordinary repairs, which are maintenance activities that do not require a permit. While many

of the items in the list could be viewed as inappropriate for inclusion in the IMC, it is also true that mechanical contractors are often called upon to get involved in one or more of the activities listed when it could affect their work. Having this provision would make it clear to anyone concerned exactly what cannot be done without obtaining a permit.

A similar correlating proposal has been submitted to the *International Fuel Gas Code*, and *International Plumbing Code.*

106.2.2: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC, the source text for which is Section 105.2.3 of the *International Building Code*, *International Existing Building Code*, and the *International Residential Code.*

This section would provide the code official with a useful administrative tool by making it clear that public utilities do not require permits for work involving equipment or appliances that they own and control. Utilities are typically regulated by other laws that give them specific rights and authority in this area. Any equipment or appliances installed or serviced by such agencies that are not owned by them and under their full control are not exempt from a permit.

A similar correlating proposal has been submitted to the *International Fuel Gas Code* and *International Plumbing Code.*

106.3: The purpose of this change is to correlate with current Section 105.3 of the *International Existing Building Code* and *International Residential Code* and Section 105.4 of the *International Wildland-Urban Interface Code.* The reformatting into list form will also make the provision more user-friendly.

A similar correlating proposal has been submitted to the *International Fuel Gas Code, International Private Sewage Disposal Code* and *International Plumbing Code.*

106.3.1: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC and to correlate with current Section 105.3.2 of the *International Building Code, International Existing Building Code* and *International Residential Code* and Section 402.5 of the *ICC Electrical Code---Administrative Provisions*.

Abandoned permit applications and their accompanying documents can become an administrative burden and take up valuable storage space. The section would provide the code official with a useful administrative tool in the processing of permit applications by limiting the time between the review process and the issuance of a permit and reduce the burden of storing abandoned applications. It would also provide the authority to grant extensions of time when such extensions are justified.

A similar correlating proposal has also been submitted to the *International Fuel Gas Code, International Private Sewage Disposal Cod, International Plumbing Code* and *International Wildland-Urban Interface Code*.

106.3.2.1: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC, the source text for which is Section 106.1.1 of the *International Building Code, International Existing Building Code* and *International Residential Code*.

The section will make it clear that construction documents must be of a quality and detail such that the code official can determine that the work conforms to the code and other applicable laws and regulations. It also makes it clear that general statements on the documents, such as “all work must comply with the *International Mechanical Code,*” will not be an acceptable substitute for showing the required information. The section also provides that, when specifically allowed by the code official, documents can be submitted in electronic form.

A similar correlating proposal has also been submitted to the *International Private Sewage Disposal Code.*

106.3.3: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC, the source text for which is Section 402.4 of the *ICC Electrical Code---Administrative Provisions.*

This provision would provide the code official with a useful tool in the permit process, especially in cases of permits being issued for an existing building. While the construction documents may show the scope and nature of work to be done, there may be other existing conditions in the building that could affect the continued safety profile of the building and the approval of a permit which could only be discovered by inspection.

A similar correlating proposal has also been submitted to the *International Residential Code*, *International Fuel Gas Code*, *International Plumbing Code, International Private Sewage Disposal Code* and *International Wildland-Urban Interface Code.*

106.4.1: The intent of this proposed change is to provide correlation with current Section 106.3.1 of the International Building Code and International Existing Building Code.

The revision from "Approved" to "Reviewed for Code Compliance" is consistent with the duties ascribed to the code official in Section 106.4 of the code and thereby limits the responsibility of the code official to that of functions associated with evaluating design plans for code compliance only. Other aspects of design creation and development are peculiar to the design professions and outside the scope of code compliance, and therefore are not approved or disapproved in any circumstance.

A similar correlating proposal has also been submitted to the *International Fire Code*, *International Plumbing Code, International Private Sewage Disposal Code*, *International Fuel Gas Code, International Energy Conservation Code,* and *International Wildland-Urban Interface Code.*

106.4.1.1: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC, the source text for which is Section 106.4 of the *International Building Code*, *International Existing Building Code* and *International Residential Code* and Section 504.2 of the *ICC Electrical Code---Administrative Provisions.*

This provision would provide the code official with a useful administrative tool for dealing with the common problem of tracking revisions to construction documents during the construction process by requiring that amendments to the original approved construction documents must be filed before constructing the amended item. This will reduce the likelihood of a significant amendment not being submitted resulting in an activity or change that is not approved and that causes a needless delay in obtaining approval of the finished work.

A similar correlating proposal has also been submitted to the *International Private Sewage Disposal Code*, *International Fire Code* and *International Energy Conservation Code.*

106.4.5: The purpose of this change is to provide correlation with Section 105.6 of the *International Building Code*, *International Existing Building Code* and *International Residential Code* and Section 403.7 of the *ICC Electrical Code---Administrative Provisions.*

The revised text relies upon the judgement of the code official as to whether a permit should be revoked, which the AHC judged to be more appropriate than the current IMC text. The revision also provides guidance to the code official as to conditions which could lead to suspension or revocation.

A similar correlating proposal has also been submitted to the *International Fuel Gas Code, International Private Sewage Disposal Code* and *International Plumbing Code.*

106.4.6: The purpose of this proposed change is to provide correlation with Section 106.5 of the *International Building Code*, Section R106.5 of the *International Residential Code* and Section 504.3 of the *ICC Electrical Code---Administrative Provisions*.

It is not unusual for state laws to establish records retention criteria and the goal of this change is to not only make the I-Code family consistent with such laws but also to provide a minimum post-construction retention period since the months immediately following construction completion is typically when most disputes arise that depend on the construction documents for resolution.

A similar correlating proposal has also been submitted to the *International Existing Building Code, International Mechanical Code, International Fuel Gas Code, International Private Sewage Disposal Code* and *International Plumbing Code.*

106.4.7: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC, the source text for which is Section 105.7 of the *International Building Code*, *International Existing Building Code* and *International Residential Code* and Section 105.3.5 of the *International Fire Code*.

This provision would provide the code official with a useful administrative tool by requiring the permit to be posted and available on the jobsite so that inspector entries can be made thereon and to provide evidence to anyone needing it that the project has been duly authorized.

A similar correlating proposal has also been submitted to the *International Fuel Gas Code*, *International Plumbing Code,* and *International Private Sewage Disposal Code*.

106.4.8: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC, the source text for which is Section 106.3.2 of the *International Building Code*, *International Existing Building Code* and *International Residential Code* and Section 502.2.1 of the *ICC Electrical Code---Administrative Provisions*.

This provision would provide the code official with a useful tool to protect the continuity of permits issued under previous codes or code editions, as long as such permits are being actively executed subsequent to the effective date of the ordinance adopting this edition of the code.

A similar correlating proposal has also been submitted to the *International Fire Code*, International Energy Conservation Code, *International Private Sewage Disposal Code* and *International Fuel Gas Code.*

106.5.1: The purpose of this proposed change is to provide correlation with Section 108.4 of the *International Building Code* and *International Existing Building Code* and Section 404.2 of the *ICC Electrical Code---Administrative Provisions.*

The code official will incur certain costs (i.e., inspection time and administrative) when investigating and citing a person who has commenced work without having obtained a permit and is, therefore entitled to recover those costs by establishing a fee, in addition to that collected when the required permit is issued, to be imposed on the responsible party. However, the amount of the fee should be determined by the code official based on the actual costs incurred which may or may not be equal to 100% of the original permit fee. It is not the intent of this section that the additional fee be a penalty for violating the code, as covered in Section 108.4.

A similar correlation proposal has been submitted to the *International Fuel Gas Code, International Plumbing Code* and *International Private Sewage Disposal Code.*

106.5.3: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC, the source text for which is Section 108.5 of the *International Building Code* and *International Existing Building Code,* Section 108.4 of the *International Residential Code* and Section 404.4 of the *ICC Electrical Code---Administrative Provisions*.

This provision would provide the code official with a useful administrative tool that makes it clear that all applicable fees of the jurisdiction for regulated work that is done collateral to the work being done under this code's permit must be paid.

A similar correlating proposal has also been submitted to the *International Fuel Gas Code, International Private Sewage Disposal Code* and *International Plumbing Code.*

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

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

M7–06/07

107.1 (New), 107.2.1 (New), 107.2.2 (New), 107.2.3 (New), 107.2.4, 107.4.1 (New), 107.6 (New)

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

1. Add new text as follows:

SECTION 107
INSPECTIONS AND TESTING

107.1 General. The code official is authorized to conduct such inspections as are deemed necessary to determine compliance with the provisions of this code. Construction or work for which a permit is required shall be subject to inspection by the code official, and such construction or work shall remain accessible and exposed for inspection purposes until approved. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances of the jurisdiction shall not be valid.

2. Revise as follows:

~~**107.1**~~ **107.2 Required inspections and testing.** The code official, upon notification from the permit holder or the permit holder's agent, shall make the following inspections and other such inspections as necessary, and shall either release that portion of the construction or shall notify the permit holder or the permit holder's agent of violations that must be corrected. The holder of the permit shall be responsible for the scheduling of such inspections.

1. Underground inspection shall be made after trenches or ditches are excavated and bedded, piping installed, and before backfill is put in place. When excavated soil contains rocks, broken concrete, frozen chunks and other rubble that would damage or break the piping or cause corrosive action, clean backfill shall be on the job site.
2. Rough-in inspection shall be made after the roof, framing, fireblocking and bracing are in place and all ducting and other components to be concealed are complete, and prior to the installation of wall or ceiling membranes.
3. Final inspection shall be made upon completion of the mechanical system.

   Exception: Ground-source heat pump loop systems tested in accordance with Section 1208.1.1 shall be permitted to be backfilled prior to inspection.

The requirements of this section shall not be considered to prohibit the operation of any heating equipment or appliances installed to replace existing heating equipment or appliances serving an occupied portion of a structure provided that a request for inspection of such heating equipment or appliances has been filed with the department not more than 48 hours after such replacement work is completed, and before any portion of such equipment or appliances is concealed by any permanent portion of the structure.

3. Add new text as follows:

107.2.1 Other inspections. In addition to the inspections specified above, the code official is authorized to make or require other inspections of any construction work to ascertain compliance with the provisions of this code and other laws that are enforced.

107.2.2 Inspection requests. It shall be the duty of the holder of the permit or their duly authorized agent to notify the code official when work is ready for inspection. It shall be the duty of the permit holder to provide access to and means for inspections of such work that are required by this code.

107.2.3 Approval required. Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the code official. The code official, upon notification, shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed, or notify the permit holder or his or her agent wherein the same fails to comply with this code. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the code official.

4. Revise as follows:

107.2.4 ~~107.1.1~~ Approved inspection agencies. The code official ~~shall~~ is authorized to accept reports of approved agencies, provided that such agencies satisfy the requirements as to qualifications and reliability.

(Renumber subsequent sections)

107.4 ~~107.3~~ Approval. After the prescribed tests and inspections indicate that the work complies in all respects with this code, a notice of approval shall be issued by the code official.

Add new text as follows:

107.4.1 Revocation. The code official is authorized to, in writing, suspend or revoke a notice of approval issued under the provisions of this code wherever the notice is issued in error, or on the basis of incorrect information supplied, or where it is determined that the building or structure, premise, or portion thereof is in violation of any ordinance or regulation or any of the provisions of this code.

Revise as follows:

107.~~4~~ 5 Temporary connection. The code official shall have the authority to authorize the temporary connection of a mechanical system to the sources of energy for the purpose of testing mechanical systems or for use under a temporary certificate of occupancy.

Add new text as follows:

107.6 Connection of service utilities. No person shall make connections from a utility, source of energy, fuel, or power to any building or system that is regulated by this code for which a permit is required, until released by the code official.

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

This proposal focuses on the inspection and testing provisions in the IMC. A section-by-section discussion follows:

107.1: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC, the source texts for which are, in part, Section 109.1 of the *International Building Code* and *International Existing Building Code,* Section 106.2 of the *International Fire Code*, Section 107.1.1 of the *International Wildland-Urban Interface Code* and Section 702.2 of the *ICC Electrical Code---Administrative Provisions.*

The inspection function is one of the more important aspects of department operations. This section authorizes the code official to inspect the work for which a permit has been issued and requires that the work to be inspected remain accessible to the code official until inspected and approved. As with the issuance of permits, approval as a result of an inspection is not a license to violate the code and an approval in violation of the code does not relieve the applicant from complying with the code and is not valid.

A similar correlation change has been submitted to the *International Building Code*, *International Plumbing Code, International Private Sewage Disposal Code*, *International Energy Conservation Code,* and *International Fuel Gas Code.*

107.2.1: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC, the source text for which is Section 109.3.8 of the *International Building Code*, Section 109.3.7 of the *International Existing Building Code,* and Section 702.1.5 of the *ICC Electrical Code---Administrative Provisions*.

Any item regulated by the code is subject to inspection by the code official to determine compliance with the applicable code provision, and no list can include all items in a given building. This section would give the code official the authority to inspect any regulated items.

A similar correlating proposal has also been submitted to the *International Fire Code*, *International Plumbing Code*, *International Private Sewage Disposal Code*, and *International Fuel Gas Code.*

107.2.2: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC, the source text for which is Section 109.5 of the *International Building Code* and *International Existing Building Code,* Section 109.3 of the *International Residential Code* and Section 706.2 of the *ICC Electrical Code---Administrative Provisions.*

This section would provide the code official with a useful administrative tool that would make it clear that it is the responsibility of the permit holder to arrange for the required inspections when completed work is ready, thus providing sufficient time for the code official to schedule an inspection visit. It also establishes the responsibility for keeping work open for inspection and providing all means needed to accomplish the inspection.

A similar correlating proposal has also been submitted to the *International Fire Code*, *International Wildland-Urban Interface Code, International Plumbing Code*, *International Private Sewage Disposal Code*, and *International Fuel Gas Code.*

107.2.3: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC, the source text for which is Section 109.6 of the *International Building Code* and *International Existing Building Code,* Section 109.4 of the *International Residential Code* and Section 702.1.8 of the *ICC Electrical Code---Administrative Provisions.*

This section would provide the code official with a useful administrative tool that would establish that work cannot progress beyond the point of a required inspection without the code official's approval and that any item not approved cannot be concealed until it has been corrected and approved by the code official.

A similar correlating proposal has also been submitted to the *International Fire Code*, *International Wildland-Urban Interface Code, International Plumbing Code*, *International Private Sewage Disposal Code*, and *International Fuel Gas Code.*

107.2.4 ~~107.1.1~~: The purpose of this change is to provide correlation with Section 109.4 of the *International Building Code* and *International Existing Building Code*, Section 106.2 of the *International Fire Code*, Section 109.2 of the *International Residential Code*, and Section 702.5 of the *ICC Electrical Code---Administrative Provisions.*

The determination as to whether to accept an agency report should rest with the code official and not be mandated by the code.

A similar correlating proposal has also been submitted to the *International Plumbing Code, International Fuel Gas Code* and *International Private Sewage Disposal Code.*

107.4.1: The purpose of this proposed change is to provide a needed administrative provision complementary to Section 107.3 but not currently in the IMC, the source text for which is Section 110.4 of the *International Building Code, International Existing Building Code* and *International Residential Code.*

This proposed section would give the code official the authority to revoke a notice of approval for the reasons indicated in the text. The code official may also suspend the notice until any code violations are corrected.

A similar correlating proposal has also been submitted to the *International Fuel Gas Code, International Plumbing Code* and *International Private Sewage Disposal Code.*

107.6: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC, the source text for which is Section 111.1 of the *International Building Code, International Existing Building Code* and *International Residential Code* and Section 801.1 of the *ICC Electrical Code---Administrative Provisions*.

This proposed section would provide the code official with a valuable administrative tool by establishing the authority of the code official to approve utility connections to a building for the protection of building occupants, including workers.

A similar correlating proposal has also been submitted to the *International Plumbing Code, International Fuel Gas Code* and *International Private Sewage Disposal Code.*

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

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

M8–06/07

108.2.1 (New), 108.6.1 (New), 108.7.1 (New), 108.7.5 (New), 108.7.6 (New), 108.7.6.1 (New), 108.7.7 (New)

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

Add new text as follows:

SECTION 108
VIOLATIONS

108.2.1 Service. A notice of violation issued pursuant to this code shall be served upon the owner, operator, occupant, or other person responsible for the condition or violation, either by personal service, mail, or by delivering the same to, and leaving it with, some person of responsibility upon the premises. For unattended or abandoned locations, a copy of such notice of violation shall be posted on the premises in a conspicuous place at or near the entrance to such premises and the notice of violation shall be mailed by certified mail with return receipt requested or a certificate of mailing, to the last known address of the owner, occupant or both.

108.6.1 Abatement methods. The owner, operator, or occupant of a building, premises or equipment deemed unsafe by the code official shall abate or cause to be abated or corrected such unsafe conditions either by repair, rehabilitation, demolition or other approved corrective action.

108.7.1 Record. The code official shall cause a report to be filed on an unsafe condition. The report shall state the occupancy of the structure and the nature of the unsafe condition.

108.7.5 Unauthorized tampering. Signs, tags or seals posted or affixed by the code official shall not be mutilated, destroyed or tampered with or removed without authorization from the code official.

108.7.6 Placarding. Upon failure of the owner or person responsible to comply with the notice provisions within the time given, the code official shall post on the premises or on defective equipment a placard bearing the word "Condemned" and a statement of the penalties provided for occupying the premises, operating the equipment or removing the placard.

108.7.6.1 Placard removal. The code official shall remove the condemnation placard whenever the defect or defects upon which the condemnation and placarding action were based have been eliminated. Any person who defaces or removes a condemnation placard without the approval of the code official shall be subject to the penalties provided by this code.

108.7.7 Evacuation. The code official shall be authorized to order the immediate evacuation of any occupied building deemed unsafe when such building has hazardous conditions that present imminent danger to building occupants. Persons so notified shall immediately leave the structure or premises and shall not enter or reenter until authorized to do so.

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

This proposal focuses on the violations and unsafe systems provisions in the IMC. A section-by-section discussion follows:

108.2.1: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC, the source text for which is Section 109.2.1 of the *International Fire Code*.

The section would provide the code official with useful guidance on what are generally recognized as legally sound methods of service of violation notices.

A similar correlating proposal has also been submitted to the *International Existing Building Code*, *International Private Sewage Disposal Code*, *International Plumbing Code,* and *International Fuel Gas Code.*

108.6.1: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC, the source text for which is Section 110.4 of the *International Fire Code.*

The section would provide the code official with a useful administrative tool by making it clear that the responsible party must take action to abate hazardous systems or conditions. The section also provides guidance on acceptable abatement measures.

A similar correlating proposal has also been submitted to the *International Private Sewage Disposal Code*, *International Plumbing Code,* and *International Fuel Gas Code.*

108.7.1: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC, the source text for which is Section 115.2 of the *International Building Code* and *International Existing Building Code* and Section 901.4 of the *ICC Electrical Code---Administrative Provisions*.

The section would provide the code official with a useful administrative tool by requiring the filing of a report on each investigation of unsafe conditions, stating the occupancy of the structure and the nature of the unsafe condition. This report would then provide the basis for the notice described in Section 108.2.

A similar correlating proposal has also been submitted to the *International Private Sewage Disposal Code*, *International Plumbing Code* and *International Fuel Gas Code.*

108.7.5: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC, the source text for which is Section 109.2.4 of the *International Fire Code.*

When a mechanical system is found to be in violation and is removed from service by the code official, notice and warning of such action is typically given by signs, tags or seals which must remain in place until the hazard is abated as approved by the code official. The section would provide the code official with a useful enforcement tool by prohibiting any action that would diminish the effectiveness of the warnings since the safety of the occupants may depend on the warning signs posted by the code official remaining intact and in place.

A similar correlating proposal has been submitted to the *International Building Code, International Existing Building Code, International Fuel Gas Code*, *International Plumbing Code* and *International Private Sewage Disposal Code.*

108.7.6, 108.7.6.1: The purpose of this proposed change is to provide needed administrative provisions not currently in the IMC, the source texts for which are Sections 108.4 and 108.4.1of the *International Property Maintenance Code.*

Proposed Section 108.7.6 would provide the code official with a useful administrative and enforcement tool by providing for the posting of an unsafe system as being condemned and also the means for having such designation removed by the code official.

Because the safety of the occupants may depend on the warning signs posted by the code official remaining in place, proposed Section 108.7.6.1 would be an important tool placing any other person who removes or defaces a placard in violation of the code and subject to its penalties.

A similar correlating proposal has been submitted to the *International Building Code, International Existing Building Code, International Residential Code, International Fuel Gas Code and International Plumbing Code, International Private Sewage Disposal Code* and *International Wildland-Urban Interface Code.*

108.7.7: The purpose of this proposed change is to provide a needed administrative provision not currently in the IMC, the source text for which is Section 110.2 of the *International Fire Code.*

The proposed section would provide the code official with an important tool in the event that a building or system in a building is determined to be in such condition that life safety is compromised and immediate evacuation is needed. The severe and immediate danger anticipated in this proposed section dictates such extreme measures to protect public health, safety and welfare.

A similar correlating proposal has also been submitted to the *International Building Code*, *International Existing Building Code*, *International Residential Code*, *International Plumbing Code, International Fuel Gas Code* and *International Wildland-Urban Interface Code.*

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

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

M9–06/07
108.7; IPC 108.7; IFGC 108.7

Proponent: Wayne R. Jewell, CBO, City of Southfield, MI, representing the Hazard Abatement in Existing Buildings Committee

THIS PROPOSAL IS ON THE AGENDA OF THE IMC, THE IPC AND THE IFGC CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I - IMC

Revise as follows:

108.7 Unsafe mechanical systems. A mechanical system that is unsafe, constitutes a fire or health hazard, or is otherwise dangerous to human life, as regulated by this code, is hereby declared as an unsafe mechanical system. Use of a mechanical system regulated by this code constituting a hazard to health, safety or welfare by reason of inadequate maintenance, dilapidation, fire hazard, disaster, damage or abandonment is hereby declared an unsafe use. Such unsafe equipment and appliances are hereby declared to be a public nuisance and shall be abated by repair, rehabilitation, demolition or removal, in accordance with the provisions of this code and the *International Property Maintenance Code*.

PART II - IPC

Revise as follows:

108.7 Unsafe plumbing. Any plumbing regulated by this code that is unsafe or that constitutes a fire or health hazard, insanitary condition, or is otherwise dangerous to human life is hereby declared unsafe. Any use of plumbing regulated by this code constituting a hazard to safety, health or public welfare by reason of inadequate maintenance, dilapidation, obsolescence, fire hazard, disaster, damage or abandonment is hereby declared an unsafe use. Any such unsafe equipment is hereby declared to be a public nuisance and shall be abated by repair, rehabilitation, demolition or removal, in accordance with the provisions of this code and the *International Property Maintenance Code*.

PART III – IFGC

Revise as follows:

108.7 Unsafe installations. An installation that is unsafe, constitutes a fire or health hazard, or is otherwise dangerous to human life, as regulated by this code, is hereby declared an unsafe installation. Use of an installation regulated by this code constituting a hazard to health, safety or welfare by reason of inadequate maintenance, dilapidation, fire hazard, disaster, damage or abandonment is hereby declared an unsafe use. Such unsafe installations are hereby declared to be a public nuisance and shall be abated by repair, rehabilitation, demolition or removal, in accordance with the provisions of this code and the *International Property Maintenance Code*.

Reason: The ICC Board approved the development of a new code with the scope including a compilation of current provisions in the I-Codes which address hazards such as those from fire as well as the development of new requirements relative to issues such as hazardous conditions due to structural issues. This would provide a single source code book for all disciplines to be used by building owners to bring their existing building stock up to minimum standards and enforcing agencies when performing inspections of existing buildings. The Hazard Abatement of Existing Buildings Committee (HAEB) was formed to develop this code.

During this 06/07 cycle, the committee is proposing multiple unsafe conditions requirements for inclusion within the text of the existing International Codes, predominately the *International Property Maintenance Code* and the *International Fire Code*. These requirements will later be extracted from these International Codes and placed into a new International Code dealing primarily with unsafe conditions and the abatement thereof. It is intended that the maintenance of these provisions remain with the committee of origin. The draft of this new International Code is currently scheduled to be put through the 07/08 code change process for both public proposals and public comments. The first edition of this new code is currently scheduled for 2009.

This purpose of this proposal is to add a reference to the IPMC for the abatement of unsafe conditions. Currently, the IMC, IPC and IFGC do not reference the IPMC. Therefore, this reference is necessary to allow unsafe conditions related to mechanical, plumbing and fuel-gas burning equipment and systems to be abated under the provisions contained in the IPMC. If the HAEB committee proposals related to Chapter 1 of the IPMC are approved, the administrative provisions of the IPMC will contain provisions unique to the abatement of unsafe conditions, including notice, the form of notice and proof of service. Additionally, the Appendix of the IPMC will include procedures for hearing appeals that will be adoptable by reference.

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 – IPC

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

PART III – IFGC

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

M10–06/07

110 (New, 110.1 (New), 110.2 (New), 110.3 (New), 110.4 (New)

Proponent: Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin)

Add new text as follows:

SECTION 110
TEMPORARY EQUIPMENT, SYSTEMS AND USES

110.1 General. The code official is authorized to issue a permit for temporary equipment, systems and uses. Such permits shall be limited as to time of service, but shall not be permitted for more than 180 days. The code official is authorized to grant extensions for demonstrated cause.

110.2 Conformance. Temporary equipment, systems and uses shall conform to the structural strength, fire safety, means of egress, accessibility, light, ventilation and sanitary requirements of this code as necessary to ensure the public health, safety and general welfare.

110.3 Temporary utilities. The code official is authorized to give permission to temporarily supply utilities before an installation has been fully completed and the final certificate of completion has been issued. The part covered by the temporary certificate shall comply with the requirements specified for temporary lighting, heat or power in the code.

110.4 Termination of approval. The code official is authorized to terminate such permit for temporary equipment, systems or uses and to order the temporary equipment, systems or uses to be discontinued.

Reason: Consistency and coordination among the I-Codes is one of the cornerstones of the ICC Code Development Process. This holds true for not only the technical code provisions but also for the administrative code provisions as contained in Chapter 1 of all the I-Codes.

In response to concerns raised by the ICC membership since publication of the first editions of the I-Codes, the ICC Board established the Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in each code in the International Codes family and improve the correlation among the I-Codes through the code development process. In order to ensure that this correlation process will continue in an orderly fashion, it is also anticipated that future code development and maintenance of the administrative provisions of the I-Codes family will be overseen by a single, multi-discipline code development committee.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes using existing I-Code texts, as noted. The intent of this correlation effort is not to have absolutely identical text in each of the I-Codes but, rather, text that has the same intent in accomplishing the administrative tasks among the I-Codes. While some proposed text may be "new" because it was judged by the AHC to be necessary to this particular code, it is not new to the I-Code family, since it already exists in one or more of the International Codes. Unless otherwise noted, there are no technical changes being proposed to these sections. A comparative matrix of current I-Codes Chapter 1 text may be found on the ICC website at www.iccsafe.org/cs/cc/admin/index.html.

. This proposal focuses on proposed temporary structures and uses provisions in the IMC. The purpose of this proposed change is to provide needed administrative provisions not currently in the IMC, the source text for which is Section 107 of the *International Building Code*, *International Existing Building Code* and *International Residential Code* with the text having been modified for applicability to mechanical systems. A similar correlating proposal has also been submitted to the *International Plumbing Code, International Private Sewage Disposal Code*, *International Fuel Gas Code* and *International Wildland-Urban Interface Code.* A section-by-section discussion follows:

110.1: In the course of construction or other activities, equipment, systems and uses that have a limited service life are often necessary. This section contains the administrative provisions that allow the code official to issue permits for such temporary equipment, systems and uses and for them to exist without full compliance with the code requirements for permanent installations.

110.2: This section prescribes those categories of the code that must be complied with, despite the fact that the structure, equipment or system will be removed or the use discontinued at some time in the future. These criteria are essential for measuring the safety of any structure, equipment, system or use, temporary or permanent. Therefore, the application of these criteria to a temporary structure cannot be waived.

110.3: Commonly, the utilities on many construction sites are installed and energized long before all aspects of the system are completed. This section would allow such temporary or pre-certification systems to continue provided that they comply with the applicable safety provisions of the code.

110.4: This section provides the code official with the necessary authority to terminate the permit for temporary equipment, systems and uses if conditions of the permit have been violated or if they pose an imminent hazard to the public. This text is important because it allows the code official to act quickly when time is of the essence in order to protect public health, safety and welfare.

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

Analysis: If this code change is approved, the final number of this new section will be correlated with all other approved code changes affecting Chapter 1 of this code.

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

M11–06/07
202 (New)

Proponent: Bob Eugene, Underwriters Laboratories, Inc.

Add new definitions as follows:

CEILING RADIATION DAMPER. A listed device installed in a ceiling membrane of a fire-resistance-rated floor/ceiling or roof/ceiling assembly to limit automatically the radiative heat transfer through an air inlet/outlet opening.

COMBINATION FIRE/SMOKE DAMPER. A listed device installed in ducts and air transfer openings designed to close automatically upon the detection of heat and resist the passage of flame and smoke. The device is installed to operate automatically, controlled by a smoke detection system, and where required, is capable of being positioned from a fire command center.

FIRE DAMPER. A listed device installed in ducts and air transfer openings designed to close automatically upon detection of heat and to restrict the passage of flame. Fire Dampers are classified for use in either static systems that will automatically shut down in the event of a fire, or in dynamic systems that continue to operate during a fire. A dynamic fire damper is tested and rated for closure under elevated temperature airflow.

SMOKE DAMPER. A listed device installed in ducts and air transfer openings designed to resist the passage of smoke. The device is installed to operate automatically, controlled by a smoke detection system, and where required, is capable of being positioned from a fire command center.

Reason: The purpose of this proposed code change is to provide definitions for the various types of dampers described in Section 607 of the IMC. This assures consistency with the IBC definitions.
The proposed definitions are taken directly from Chapter 7 of the 2006 IBC.

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

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

M12–06/07
202

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

Revise definition 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.~~

Reason: A definition should not be a laundry list of possible types of conditions, materials, installation, etc., as the list may never be all inclusive. If the code is to apply to a particular condition, material, installation, etc., then it should be covered under a specific provision within the enforceable text of the code. The first sentence accurately defines the term without the need for the list.

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

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

M13–06/07
202

Proponent: Robert Adkins, Prince William County, VA, representing the Virginia Plumbing and Mechanical Inspectors Association/Virginia Building and Code Officials Association

Revise definitions as follows:

CHAPTER 202
GENERAL DEFINITIONS

LIGHT-DUTY COOKING APPLIANCE. Light-duty cooking appliances include gas and electric ovens (including standard, bake, roasting, revolving, retherm, convection, combination convection/steamer, conveyor, deck or deck-style pizza, and pastry), electric and gas steam-jacketed kettles, electric and gas pasta cookers, electric and gas compartment steamers (both pressure and atmospheric) and electric and gas cheesemelters.

MEDIUM-DUTY COOKING APPLIANCE. Medium-duty cooking appliances include electric discrete element ranges (with or without oven), electric and gas hot-top ranges, electric and gas griddles, electric and gas double-sided griddles, electric and gas fryers (including open deep fat fryers, donut fryers, kettle fryers, and pressure fryers), ~~electric and gas pasta cookers,~~ electric and gas conveyor pizza ovens, electric and gas tilting skillets (braising pans) and electric and gas rotisseries.

Reason: Section 507.2.2 allows pasta cookers to be installed beneath Type II hoods. Therefore, the term "pasta cookers" should not be included in the definition of MEDIUM-DUTY COOKING APPLIANCES because Section 507.13 requires a Type I hood for medium-duty appliances.

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

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

M14–06/07
202

Proponent: Sidney Cavanaugh, Cavanaugh Consulting, representing Nvent

Revise definition as follows:

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 system.

Reason: This code change will clarify the use of some types of mechanical joints and recognize a new technology that offers a solder-less joining system that complies with appropriate copper pipe, copper tube and fittings standards. The fittings are listed by all major code organizations and CSA. They can be used on water distributions systems and hydronic heating systems.

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

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

M15–06/07
202 (New)

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

Add new definition as follows:

PARKING GARAGE. Buildings, or parts of buildings, into which motor vehicles are driven for loading, unloading or storage.

Reason: The proposed code definition clearly defines that a parking garage is not just for cars and trucks. Such garages could include motorcycles, motor homes, tractors, ATV's, go carts, snowmobiles, jet-skies, boats, etc.

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

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

M16–06/07
202 (New)

Proponent: Sidney Cavanaugh, Cavanaugh Consulting, representing Nvent

Add new definition as follows:

PUSH-FIT JOINTS. A type of mechanical joint consisting of elastomeric seals and corrosion resistant tube grippers. Such joints are permanent or removable depending on the design.

Reason: This code change will recognize a new technology that offers a solder-less joining system that complies with appropriate copper pipe, copper tube and fittings standards. The fittings are listed by all major code organizations and CSA. They can be used on water distributions systems and hydronic heating systems.

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

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

M17–06/07
202 (New)

Proponent: Marcia L. Karr, P.E., City of Portland, OR

Add new definition as follows:

TRANSFER OPENING. A path by which air can move from one smoke compartment to another, whether ducted or not.

Reason: There are people with the understanding that we can have multiple openings in smoke partitions as long as we line the opening with sheetmetal and call the sheetmetal "duct". Not providing the definition for "TRANSFER" and allowing the current understanding/direction to continue would require removing the code sections about Suites in I-2 occupancies in the IBC, and corridor protections defined in IMC 607.5.4, Exception 3. These code sections would serve no purpose if we don't define "TRANSFER".

The following code sections and their respective Commentary's, IMC 607.1.1, IBC 407.2 and IBC 710.6, state to protect the penetrations in corridor walls built as smoke partitions, yet people aren't providing the protection since the IBC is removing the word "Duct" from IBC 710.7

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

Analysis: Transfer openings are not limited to openings between smoke compartments. The proposed definition seems to be including ducts as transfer openings.

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

M18–06/07
303.5; IFGC 303.5

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

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IFGC CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Revise as follows:

303.5 Indoor locations. Fuel-fired furnaces, water heaters and boilers installed in closets and alcoves shall be listed for such installation. For purposes of this section, a closet or alcove shall be defined as a room or space having a volume less than 12 times the total volume of fuel-fired appliances other than boilers and less than 16 times the total volume of boilers. Room volume shall be computed using the gross floor area and the actual ceiling height up to a maximum computation height of 8 feet (2438 mm).

PART II – IFGC

Revise as follows:

303.5 Indoor locations. Furnaces, water heaters and boilers installed in closets and alcoves shall be listed for such installation.

Reason: There is no reason to not include a water heater in this section. There are oil fired units that are designed to be installed in a closet and there are units that must have the space as required for a non-closet application as this section describes.

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 – IFGC

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

M19–06/07
Table 305.4

Proponent: Jim Paschal, Bodycote Testing Group, representing Aquatherm

Revise table as follows:

TABLE 305.4
PIPE SUPPORT SPACING

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (feet)	MAXIMUM VERTICAL SPACING (feet)
Polypropylene (PP) pipe or tubing 1 inch and smaller	2 2/3 (32 inches)	10[c]
Polypropylene (PP) pipe or tubing, 1 ¼ inches and larger	4	10[c]

(Portions of table not shown do not change)

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.
a. See Section 301.15.
b. The maximum horizontal spacing of cast-iron pipe hangers shall be increased to 10 feet where 10-foot lengths of pipe are installed.
c. Mid-story guide.

Reason: The purpose of this revision is to allow the use of PP piping materials in the IMC for hydronic applications. PP systems have been used in hydronic applications for over 20 years in Europe, and are currently being used in the U.S. through local jurisdictional approvals. There are architects and design engineers that would like to use these materials once they are in the IMC. The PP systems provide some advantages in green building design and LEED certification not available with current materials in the IMC.

PP piping systems were added to the IPC and IRC in 2006. In the IRC, the material is acceptable for both hydronic and plumbing applications. The systems are also listed by ICC under Evaluation Report (ESR) 1613 for hydronic applications in accordance with the IMC. There is an ASTM standard for the products, F 2389, and the products are also listed by NSF International.

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

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

M20–06/07
Table 305.4; IPC Table 308.5

Proponent: Lawrence L. Suggars, South Salt Lake City, representing the Utah Chapter of ICC

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IPC CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Revise table as follows:

TABLE 305.4
PIPING SUPPORT SPACING[a]

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (feet)	MAXIMUM VERTICAL SPACING (feet)
Steel tubing	~~8~~	~~10~~
1/2 inch	4	4
5/8 or 3/4 inch	6	6
7/8 or 1 inch	8	every floor level
Steel pipe	~~12~~	~~15~~
1/2 inch	6	6
3/4 or 1 inch	8	8
1 1/4 inch or larger	10	every floor level

(Portions of table not shown do not change)
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.
a. See Section 301.15.
b. The maximum horizontal spacing of cast-iron pipe hangers shall be increased to 10 feet where 10-foot lengths of pipe are installed.
c. Mid-story guide.

PART II – IPC

TABLE 308.5
HANGER SPACING

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (feet)	MAXIMUM VERTICAL SPACING (feet)
Steel tubing		
1/2 inch	4	4
5/8 or 3/4 inch	6	6
7/8 or 1 inch	8	every floor level
Steel pipe	~~12~~	~~15~~
1/2 inch	6	6
3/4 or 1 inch	8	8
1 1/4 inch or larger	10	every floor level

(Portions of table not shown do not change)
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.
a. The maximum horizontal spacing of cast-iron pipe hangers shall be increased to 10 feet where 10-foot lengths of pipe are installed.
b. Mid-story guide.

Reason: Currently there is a conflict between the IMC, the IPC and the IFGC. This is an attempt to bring uniformity between the three codes in the supporting of steel pipe and steel tubing.

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 – IPC

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

M21–06/07
306.1 (IFGC [M] 306.1)

Proponent: Charlie Gerber, Henrico County, VA, representing the Virginia Plumbing and Mechanical Inspectors Association/Virginia Building and Code Officials Association

Revise as follows:

306.1 ~~Clearances~~ Access for maintenance and replacement. ~~Clearances around appliances to elements of permanent construction, including other installed equipment and appliances, shall be sufficient to allow inspection,~~

~~service, repair or replacement without removing such elements of permanent construction or disabling the function of a required fire-resistance-rated assembly.~~ Appliances shall be accessible for inspection, service, repair and replacement without disabling the function of a fire-resistance-rated assembly or removing permanent construction, other appliances, or any other piping or ducts not connected to the appliance being inspected, serviced, repaired or replaced. A level working space at least 30 inches deep and 30 inches wide (762 mm by 762 mm) shall be provided in front of the control side to service an appliance.

Reason: This language was adopted in the IRC last code cycle. It is a clarification that prevents other systems from being altered in order to repair or replace another appliance.

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

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

M22–06/07

306.1 (IFGC [M[306.1); IRC M1305.1

Proponent: Tommy Poindexter, HVAC Consultants, Azle, TX

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Revise as follows:

306.1 Clearances for installation, maintenance and replacement. Clearances around appliances to elements of permanent construction including other installed equipment and appliances shall be sufficient to allow installation, inspection, service, repair or replacement without removing such elements of permanent construction or disabling the function of a required fire-resistance-rated assembly.

PART II – IRC

Revise as follows:

M1305.1 Appliance access for installation, inspection, service, repair and replacement. Appliances shall be accessible for installation, inspection, service, repair and replacement without removing permanent construction, other appliances, or any other piping or ducts not connected to the appliance being inspected, serviced, repaired or replaced. A level working space at least 30 inches deep and 30 inches wide (762 mm by 762 mm) shall be provided in front of the control side to service an appliance. Installation of room heaters shall be permitted with at least an 18-inch (457 mm) working space. A platform shall not be required for room heaters.

Reason: The Energy Conservation Code requirements have resulted with the equipment size being larger, thus requiring the openings to accommodate. The clearances at installation are just as important when you change the system out at a later time.

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

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

M23–06/07

306.3 (IFGC [M] 306.3); IRC M1305.1.3

Proponent: Tommy Poindexter, HVAC Consultants, Azle, TX

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Revise as follows:

306.3 Appliances in attics. Attics containing appliances requiring access shall be provided with a finished opening and unobstructed passageway large enough to allow removal of the largest appliance. The passageway shall not be less than 30 inches (762 mm) high and 22 inches (559 mm) wide and not more than 20 feet (6096 mm) in length measured along the center line of the passageway from the opening to the appliance. The passageway shall have continuous solid flooring not less than 24 inches (610 mm) wide. A level service space not less than 30 inches (762 mm) deep and 30 inches (762 mm) wide shall be present at the front or service side of the appliance. The clear finished access opening dimensions shall be a minimum of 20 inches by 30 inches (508 mm by 762 mm), where such dimensions are large enough to allow removal of the largest appliance without removing any permanent construction. Where a pull-down stair is to be used, it shall be installed at the rough-in stage to allow inspection.

Exceptions:

1. The passageway and level service space are not required where the appliance is capable of being serviced and removed through the required opening.
2. Where the passageway is unobstructed and not less than 6 feet (1829 mm) high and 22 inches wide for its entire length, the passageway shall be not greater than 50 feet (15250 mm) in length.

PART II – IRC

Revise as follows:

M1305.1.3 Appliances in attics. Attics containing appliances requiring access shall be provided with a finished opening and unobstructed passageway large enough to allow removal of the largest appliance. The passageway shall not be less than 30 inches (762 mm) high and 22 inches (559 mm) wide and not more than 20 feet (6096 mm) in length measured along the center line of the passageway from the opening to the appliance. The passageway shall have continuous solid flooring not less than 24 inches (610 mm) wide. A level service space not less than 30 inches (762 mm) deep and 30 inches (762 mm) wide shall be present at the front or service side of the appliance. The clear finished access opening dimensions shall be a minimum of 20 inches by 30 inches (508 mm by 762 mm), where such dimensions are large enough to allow removal of the largest appliance without removing any permanent construction. Where a pull-down stair is to be used, it shall be installed at the rough-in stage to allow inspection.

Exceptions:

1. The passageway and level service space are not required where the appliance can be serviced and removed through the required opening.
2. Where the passageway is unobstructed and not less than 6 feet (1829 mm) high and 22 inches (559 mm) wide for its entire length, the passageway shall be not more than 50 feet (15 250 mm) long.

Reason: The Energy Conservation Code requirements have resulted with the equipment size being larger, thus requiring the openings to accommodate. A permanent pull down stair used should be installed at the rough in stage and the finished interior of the staircase opening needs to be larger than the equipment. This should be inspected at the rough in and not on the final.

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

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

M24–06/07
306.4 (IFGC [M] 306.4); IRC M1305.1.4

Proponent: Tommy Poindexter, HVAC Consultants, Azle, TX

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Revise as follows:

306.4 Appliances under floors. Underfloor spaces containing appliances requiring access shall be provided with a finished access opening and unobstructed passageway large enough to remove the largest appliance. The passageway shall not be less than 30inches (762 mm) high and 22 inches (559 mm) wide, nor more than 20 feet (6096 mm) in length measured along the centerline of the passageway from the opening to the appliance. A level service space not less than 30 inches (762 mm) deep and 30inches (762 mm) wide shall be present at the front or service side of the appliance. If the depth of the passageway or the service space exceeds 12 inches (305 mm) below the adjoining grade, the walls of the passageway shall be lined with concrete or masonry. Such concrete or masonry shall extend a minimum of 4 inches (102 mm) above the adjoining grade and shall have sufficient lateral-bearing capacity to resist collapse. The clear finished access opening dimensions shall be a minimum of 22 inches by30 inches (559 mm by 762 mm), where such dimensions are large enough to allow removal of the largest appliance without removing any permanent construction.

Exceptions:

1. The passageway is not required where the level service space is present when the access is open and the appliance is capable of being serviced and removed through the required opening.
2. Where the passageway is unobstructed and not less than 6 feet high (1929 mm) and 22 inches wide for its entire length, the passageway shall not be limited in length.

PART II – IRC

Revise as follows:

M1305.1.4 Appliances under floors. Underfloor spaces containing appliances requiring access shall be provided with a finished access opening and unobstructed passageway large enough to remove the largest appliance, but not less than 30 inches (762 mm)high and 22 inches (559 mm) wide, nor more than 20 feet(6096 mm) in length when measured along the centerline of the passageway from the opening to the appliance. A level service space at least 30 inches (762 mm) deep and 30 inches(762 mm)wide shall be present at the front or service side of the appliance. If the depth of the passageway or the service space exceeds 12 inches (305 mm) below the adjoining grade, the walls of the passageway shall be lined with concrete or masonry extending 4 inches (102 mm) above the ad-joining grade in accordance with Chapter 4. The ~~rough framed~~ finished access opening dimensions shall be a minimum of 22 inches by 30 inches (559mmby 762 mm), where the dimensions are large enough to remove the largest appliance without removing any permanent construction.

Exceptions:

1. The passageway is not required where the level service space is present when the access is open, and the appliance is capable of being serviced and removed through the required opening.
2. Where the passageway is unobstructed and not less than 6 feet high (1929 mm) and 22 inches wide for its entire length, the passageway shall not be limited in length.

Reason: The Energy Conservation Code requirements have resulted with the equipment size being larger, thus requiring the openings to accommodate. Equipment installed in under floors that use a finished access, the clear access opening shall not require removal of the finished access.

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

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

M25–06/07
306.3; IRC M1305.1.3

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

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Revise as follows:

306.3 Appliances in attics. Attics containing appliances requiring access shall be provided with an opening and unobstructed passageway large enough to allow removal of the largest component of the appliance. The passageway shall not be less than 30 inches (762 mm) high and 22 inches (559 mm) wide and not more than 20 feet (6096 mm) in length measured along the center line of the passageway from the opening to the appliance. The passageway shall have continuous solid flooring not less than 24 inches (610 mm) wide. A level service space not less than 30 inches (762 mm) deep and 30 inches (762 mm) wide shall be present at the front or service side of the appliance. The clear access opening dimensions shall be a minimum of 20 inches by 30 inches (508 mm by 762 mm), where such dimensions are large enough to allow removal of the largest component of the appliance.

Exceptions:

1. The passageway and level service space are not required where the appliance is capable of being serviced and removed through the required opening.
2. Where the passageway is unobstructed and not less than 6 feet (1829 mm) high and 22 inches wide for its entire length, the passageway shall be not greater than 50 feet (15 250 mm) in length.

PART II – IRC

Revise as follows:

M1305.1.3 Appliances in attics. Attics containing appliances requiring access shall have with an opening and a clear and unobstructed passageway large enough to allow removal of the largest component of the appliance, but not less than 30 inches (762 mm) high and 22 inches (559 mm) wide and not more than 20 feet (6096 mm) long when measured along the centerline of the passageway from the opening to the appliance. The passageway shall have continuous solid flooring in accordance with Chapter 5 not less than 24 inches (610 mm) wide. A level service space at least 30 inches (762 mm) deep and 30 inches (762 mm) wide shall be present along all sides of the appliance where access is required. The clear access opening dimensions shall be a minimum of 20 inches by 30 inches (508 mm) by 762 mm), where such dimensions are large enough to allow removal of the largest component of the appliance.

Exceptions:

1. The passageway and level service space are not required where the appliance can be serviced and removed through the required opening.
2. Where the passageway is unobstructed and not less than 6 feet (1829 mm) high and 22 inches (559 mm) wide for its entire length, the passageway shall be not more than 50 feet (15 250 mm) long.

Reason: This seems to be left out in error. It doesn't make sense to require the access opening to be as large as the appliance when the intent of this section is to be able to disassemble the equipment and remove the largest piece. Access doors could potentially become very large. This additional language will make this section consistent with the IFGC. Also this is primarily aimed at commercial applications and not residential. Residential applications typically have smaller appliances.

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

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

M26–06/07

306.3.2 (New) [IFGC [M] 306.3.2 (New)]; IRC M1305.3.2 (New)

Proponent: Sylvester R. Caudle, Southern California Gas Company

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Add new text as follows:

306.3.2 Equipment and appliances in dwellings elevated above 9 feet. Where equipment and appliances requiring access are installed in a dwelling in an attic or in elevated structures at a height exceeding 9 feet (2438.5mm) above the floor level or grade to the equipment or appliance service space access opening, such access shall be provided with a permanent approved means of access.

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

1. Ladders shall not have a rung spacing not to exceed 14 inches (356mm) deep.
2. Ladders shall have a toe spacing not less than 6 inches (152mm) deep.
3. There shall be a minimum of 18 inches (457mm) between rails.
4. Rungs shall have a minimum 0.75 inch (119mm) diameter and be capable of withstanding a 300-pound (136kg) load.
5. Ladders shall be protected against corrosion by approved means.
6. Pull down stairways shall have an opening not less than 22 inches (559mm) in width and a load capacity of not less than 350-pounds (159kg)

PART II – IRC

Add new text as follows:

M1305.3.2 Equipment and appliances elevated above 9 feet. Where equipment and appliances requiring access are installed in a dwelling in an attic or in elevated structures at a height exceeding 9 feet (2438.5mm) above the floor level or grade to the equipment or appliance service space access opening, such access shall be provided with a permanent approved means of access.

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

1. Ladders shall not have a rung spacing not to exceed 14 inches (356mm) deep.
2. Ladders shall have a toe spacing not less than 6 inches (152mm) deep.
3. There shall be a minimum of 18 inches (457mm) between rails.
4. Rungs shall have a minimum 0.75 inch (119mm) diameter and be capable of withstanding a 300-pound (136kg) load.
5. Ladders shall be protected against corrosion by approved means.
6. Pull down stairways shall have an opening not less than 22 inches (559mm) in width and a load capacity of not less than 350-pounds (159kg)

Reason: The purpose of this code change proposal is to provide necessary increased safety when service personnel and homeowners require access to residential attics elevated above 8 feet in height.
This proposed code change would provide the added protection needed when service personnel and homeowners encounter situations where residential attic access exceeds 8 feet in height. Consumers now desire homes with elevated ceilings in residential new construction housing and this has brought about an increased level of difficulty and safety risks for service personnel when accessing appliances and equipment installed in elevated attics when appliance repair/service is required. The increased ceiling heights in many new homes makes accessing these appliances more difficult and increases the possibility of injury to service personnel and homeowners. In many instances service personnel must carry bulky ladders up multiple flights of winding stairs to access appliances in attics on the upper floor of residences. Attic accesses can be found in laundry rooms, walk-in closets, and other inconspicuous places and in some cases there is not enough room to properly set up ladders after laundry equipment is installed and closets are built out and filled. Once the ladder is in place, in many cases, there is not sufficient space to completely open “A” frame type ladders or attain the proper 1:4 ladder slope ratio for extension ladders due to many construction design factors which increases the risk of slips and falls. This increase risk of injury is also present when simply trying to remove overhead attic access panels when ceiling heights are greater than 8 feet.

Cost Impact: This code change proposal will cause a modest increase in the cost of construction.

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

M27–06/07
306.4; IRC M1305.1.4

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

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Revise as follows:

306.4 Appliances under floors. Under floor spaces containing appliances requiring access shall be provided with an access opening and unobstructed passageway large enough to remove the largest component of the appliance. The passageway shall not be less than 30 inches (762 mm) high and 22 inches (559 mm) wide, nor more than 20 feet (6096 mm) in length measured along the centerline of the passageway from the opening to the appliance. A level service space not less than 30 inches (762 mm) deep and 30 inches (762 mm) wide shall be present at the front or service side of the appliance. If the depth of the passageway or the service space exceeds 12 inches (305 mm) below the adjoining grade, the walls of the passageway shall be lined with concrete or masonry. Such concrete or masonry shall extend a minimum of 4 inches (102 mm) above the adjoining grade and shall have sufficient lateral-bearing capacity to resist collapse. The clear access opening dimensions shall be a minimum of 22 inches by 30 inches (559 mm by 762 mm), where such dimensions are large enough to allow removal of the largest component of the appliance.

Exceptions:

1. The passageway is not required where the level service space is present when the access is open and the appliance is capable of being serviced and removed through the required opening.
2. Where the passageway is unobstructed and not less than 6 feet high (1929 mm) and 22 inches wide for its entire length, the passageway shall not be limited in length.

PART II – IRC

Revise as follows:

M1305.1.4 Appliances under floors. Under floor spaces containing appliances requiring access shall have an unobstructed passageway large enough to remove the largest component of the appliance, but not less than 30 inches (762 mm) high and 22 inches (559 mm) wide, nor more than 20 feet (6096 mm) long when measured along the centerline of the passageway from the opening to the appliance. A level service space at least 30 inches (762 mm) deep and 30 inches (762 mm)wide shall be present at the front or service side of the appliance. If the depth of the passageway or the service space exceeds 12 inches (305 mm) below the adjoining grade, the walls of the passageway shall be lined with concrete or masonry extending 4 inches (102 mm) above the adjoining grade in accordance with Chapter 4. The rough-framed access opening dimensions shall be a minimum of 22 inches by 30 inches (559 mm by 762 mm), where the dimensions are large enough to remove the largest component of the appliance.

Exceptions:

1. The passageway is not required where the level service space is present when the access is open, and the appliance can be serviced and removed through the required opening.
2. Where the passageway is unobstructed and not less than 6 feet high (1929 mm) and 22 inches wide for its entire length, the passageway shall not be limited in length.

Reason: This seems to be left out in error. It doesn't make sense to require the access opening to be as large as the appliance when the intent of this section is to be able to disassemble the equipment and remove the largest piece. Access doors could potentially become very large. This additional language will make this section consistent with the IFGC. Also, this is primarily aimed at commercial applications and not dwellings. Residential applications typically have smaller appliances.

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

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

M28–06/07
306.5 (IFGC [M] 306.5)

Proponent: Robert Adkins, Prince William County, VA, representing the Virginia Plumbing and Mechanical Inspectors Association/Virginia Building and Code Officials Association

Revise as follows:

306.5 Equipment and appliances on roofs or elevated structures. Where equipment and appliances requiring access are installed on roofs or elevated structures, or are elevated within a structure, at a height exceeding 16 feet (4877 mm) above grade or the interior floor surface, 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).

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 withstanding 100 pounds (488.2 kg/m2) per square foot.
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: The intent of this code change is to clarify the point that equipment elevated inside a structure above 16' is required to be provided with a permanent means of access. This is the intent of the code section, however the text is currently ambiguous in relation to interior installations. This code change clarifies the intent.

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

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

M29–06/07
306.5 (IFGC [M] 306.5)

Proponent: Charlie Gerber, Henrico County, VA, representing the Virginia Plumbing and Mechanical Inspectors Association/Virginia Building and Code Officials Association

Revise as follows:

306.5 Equipment and appliances on roofs or elevated structures. Where equipment and appliances requiring access 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 withstanding 100 pounds (488.2 kg/m2) per square foot.
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: The current text would allow an appliance to be installed on a roof that is 15 feet in height from grade, with a 3 feet high parapet around the entire roof with no permanent access, even though the required height to access the appliance on the 15 feet high roof could actually be 18 feet in height or more depending on the size of the parapet. The intent of this section is safety and it is clear that the line of demarcation is 16 feet for requiring a permanent means of access. This corrects the loop hole some have attempted to take advantage of with the unfortunate end result being a less than safe installation.

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

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

M30–06/07
306.5 (IFGC [M] 306.5)

Proponent: Tony Longino, County of Greenville, SC, representing himself

Revise as follows:

306.5 Equipment and appliances on roofs or elevated structures. Where equipment and appliances requiring access 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).

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 withstanding 100 pounds (488.2 kg/m2) per square foot. <u>Landing dimensions shall be not less than 18" and not less than the width of the ladder served. A guard rail shall be provided on all open sides of the landing.</u>
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.

Reason: Landing dimension for stairways, doors and ramps are provided in the Building and Fire codes; all of which are a minimum of 36". No dimensions are given in any of the codes for ladder landings as required by this section of the Mechanical code.
All of the landing dimensions are required to be the size of the stairway or the door. For this reason the 18" minimum dimension was chosen to match the minimum width requirement of the ladder

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

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

M31–06/07
306.5.1 (IFGC [M] 306.5.1)

Proponent: Charlie Gerber, Henrico County, VA, representing the Virginia Plumbing and Mechanical Inspectors Association/Virginia Building and Code Officials Association

Revise as follows:

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 units vertical in 12 units horizontal (25-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 <u>or equipment</u> 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 to appliances 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 obstructions greater than 30 inches in height permanent ladders, or equivalent, shall be provided on all sides requiring access in accordance with the ladder requirements of Section 306.5.

Reason: The added language is from the existing proceeding section 306.5. It is not specifically stated in this section refereeing to sloped roofs and therefore some feel it is not applicable. The current section is provided to protect the health and welfare of service personnel. However it leaves a gap in safety coverage from where the appliance is actually located to where the roof accessed. If the roof is over 16 feet in height the code provides requirements for permanent access (Section 306.5) otherwise for lower installations a portable ladder is usually the method of choice to get to roof mounted appliances. But the appliance can be 10, 50 or 100 feet and further, (there's' currently no distance limit) from the roof access to the appliance, walking on a sloped roof! The service person has to not only carry the tools required for the task but what about the repair parts themselves? Compressors, motors etc.. This puts the serviceperson in a compromising position to get the job done safely. The proposed text provides a safe work environment for everyone, the installer and the service person and closes the gap for this important life-safety issue.

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

Analysis: It is not clear what is intended by requiring ladders "on all sides requiring access".

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

M32–06/07

307.2.1 (IPC [M] 314.2.1); IRC M1411.3; IFGC 307.2.1

THIS PROPOSAL IS ON THE AGENDA OF THE IMC, THE IRC MECHANICAL AND THE IFGC CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Charlie Gerber, Henrico County, VA, representing the Virginia Plumbing and Mechanical Inspectors Association/Virginia Building and Code Officials Association

PART I – IMC

Revise as follows:

307.2.1 (IPC 314.2.1) Condensate disposal. Condensate from all cooling coils and evaporators shall be conveyed by gravity from the drain pan outlet to an approved place of disposal. Where gravity drainage cannot be achieved, a condensate pump shall be used to lift the condensate to the place of disposal. Condensate shall not discharge into a street, alley or other areas so as to cause a nuisance.

PART II – IRC

Revise as follows:

M1411.3 Condensate disposal. Condensate from all cooling coils and evaporators shall be conveyed by gravity from the drain pan outlet to an approved place of disposal. Where gravity drainage cannot be achieved, a condensate pump shall be used to lift the condensate to the place of disposal. Condensate shall not discharge into a street, alley or other areas so as to cause a nuisance.

PART III – IFGC

Add new text as follows:

307.2.1 Condensate disposal. Condensate from all cooling coils and evaporators shall be conveyed by gravity from the drain pan outlet to an approved place of disposal. Where gravity drainage cannot be achieved, a condensate pump shall be used to lift the condensate to the place of disposal. Condensate shall not discharge into a street, alley or other areas so as to cause a nuisance.

Reason: This is to clarify the most reliable and primary way to dispose of condensation is through gravity. However, if gravity is not possible, then condensate pumps are allowed.

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

Analysis: The IFGC does not cover cooling coil drainage and defers to the IMC. The IFGC does cover condensate drainage for Category IV condensing appliances in Section 307.

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

PART III – IFGC

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

M33–06/07

307.2.1 (IPC [M] 314.2.1); IRC M1411.3

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

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Revise as follows:

307.2.1 (IPC [M] 314.2.1) Condensate disposal Condensate from all cooling coils and evaporators shall be conveyed from the drain pan outlet to an approved place of disposal. Such piping shall maintain a minimum horizontal slope in the direction of discharge of not less than one-eighth unit vertical in 12 units horizontal (1-percent slope). Condensate shall not discharge into a street, alley or other areas so as to cause a nuisance.

PART II – IRC

Revise as follows:

M1411.3 Condensate disposal. Condensate from all cooling coils or evaporators shall be conveyed from the drain pan outlet to an approved place of disposal. Such piping shall maintain a minimum horizontal slope in the direction of discharge of not less than one-eighth unit vertical in 12 units horizontal (1-percent slope). Condensate shall not discharge into a street, alley or other areas where it would cause a nuisance.

Reason: The slope requirements need to be re-stated in this section to make clear that evaporators and cooling coils are treated no different than fuel-burning appliances as it relates to drain slope.

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

Analysis: Similar action should be considered for M36-06/07.

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

M34–06/07

307.2.2, (IPC [M] 314.2.2) (IFGC [M] 307.3) Table 307.2.2 (New), IPC Table [M] 314.2.2 (New)

Proponent: Michael Baker, City of Prescott, AZ, representing the Arizona Building Officials

1. Revise as follows:

307.2.2 (IPC [M] 314.2.2, IFGC [M] 307.3) Drain pipe materials and sizes. Components of the condensate disposal system shall be cast iron, galvanized steel, copper, cross-linked polyethylene, polybutylene, polyethylene, ABS, CPVC

or PVC pipe or tubing. All components shall be selected for the pressure and temperature rating of the installation. Condensate waste and drain line size shall be not less than 3/4-inch (19 mm) internal diameter and shall not decrease in size from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized in accordance with Table 307.2.2. ~~All horizontal sections of drain piping shall be installed in uniform alignment at a uniform slope.~~ Such piping shall maintain a minimum horizontal slope in the direction of discharge of not less than one-eighth unit vertical in 12 units horizontal (1-percent slope).

2. Add new table as follows:

TABLE 307.2.2
CONDENSATE DRAIN SIZING

EQUIPMENT CAPACITY	MINIMUM CONDENSATE PIPE DIAMETER
Up to 20 tons (70.3 kw) of refrigeration	¾ inch (19 mm)
Over 20 tons (70.3 kw) to 40 tons (141 kw) of refrigeration	1 inch (25 mm)
Over 40 tons (141 kw) to 90 tons (317 kw) of refrigeration	1 1/4 inch (32 mm)
Over 90 tons (317 kw) to 125 tons (440 kw) of refrigeration	1 1/2 inch (38 mm)
Over 125 tons (440 kw) to 250 tons (879 kw) of refrigeration	2 inch (51 mm)

Reason: The purpose of this code change is to provide code language for officials and installers as a reference for condensate sizing of multiple unit systems.

Currently the code recognizes the minimum condensate disposal size, generally for a single unit. However it relies on the designer to use an approved method for condensate sizing for multiple units. There is no direction or reference as to what is an acceptable design standard. The ASHRAE Handbook and the ASPE handbook do not provide an effective way of sizing a condensate line system. Without the manufacturers literature at plan review or on the jobsite during inspection there is no accurate way to determine if the correct size has been installed. Many times this leaves the code official guessing as to the proper size of the condensate line. The table will allow for an effective way of determining the sizing requirements without having the manufacturer's literature available. This does not stop one from using the manufacturer's specifications if they are available prior to installation. The sizing requirements have been brought forward from one of the legacy codes. In the past ten years we have done nothing to address this issue, except to write it out of the code and put it back on the manufacturer.

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

Analysis: It is not clear why the text is being deleted. The proposed new table is not within the scope of the IFGC.

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

M35–06/07

307.2.2 (IFGC [M] 307.3) (IPC [M] 314.2.2); IRC M1411.3.2

Proponent: Charlie Gerber, Henrico County, VA, representing the Virginia Plumbing and Mechanical Inspectors Association/Virginia Building and Code Officials Association

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Revise as follows:

307.2.2 (IFGC [M] 307.3, IPC [M] 314.2.2) Drain pipe materials and sizes. Components of the condensate disposal system shall be cast iron, galvanized steel, copper, cross-linked polyethylene, polybutylene, polyethylene, ABS, CPVC or PVC pipe or tubing. All components shall be selected for the pressure and temperature rating of the installation. Joints and connections shall be made in accordance with the applicable provisions of Chapter 7 of the *International Plumbing Code* relative to the material type. Condensate waste and drain line size shall be not less than 3/4-inch (19 mm) internal diameter and shall not decrease in size from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized in accordance with an approved method. All horizontal sections of drain piping shall be installed in uniform alignment at a uniform slope.

PART II – IRC

Revise as follows:

M1411.3.2 Drain pipe materials and sizes. Components of the condensate disposal system shall be cast iron, galvanized steel, copper, cross-linked polyethylene, polybutylene, polyethylene, ABS, CPVC or PVC pipe or tubing. All

components shall be selected for the pressure and temperature rating of the installation. Joints and connections shall be made in accordance with the applicable provisions of Chapter 30 relative to the material type. Condensate waste and drain line size shall be not less than 3/4-inch (19 mm) internal diameter and shall not decrease in size from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized in accordance with an approved method. All horizontal sections of drain piping shall be installed in uniform alignment at a uniform slope.

Reason: There is no guidance provided in the IMC/IRC/IFGC on piping joints and connection requirements. This is sometimes overlooked and premature deterioration of systems is occurring. One example is primer is often not applied to PVC condensate line connections.

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

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

M36–06/07
307.2.2 (IPC [M] 314.2.2) (IFGC [M] 307.3); IRC M1411.3.2

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

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Revise as follows:

307.2.2 (IPC [M] 314.2.2, IFGC [M] 307.3) Drain pipe materials and sizes. Components of the condensate disposal system shall be cast iron, galvanized steel, copper, cross-linked polyethylene, polybutylene, polyethylene, ABS, CPVC or PVC pipe or tubing. All components shall be selected for the pressure and temperature rating of the installation. Condensate waste and drain line size shall be not less than 3/4-inch (19 mm) internal diameter and shall not decrease in size from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized in accordance with an approved method. ~~All horizontal sections of drain piping shall be installed in uniform alignment at a uniform slope.~~

PART II – IRC

Revise as follows:

M1411.3.2 Drain pipe materials and sizes. Components of the condensate disposal system shall be cast iron, galvanized steel, copper, polybutylene, polyethylene, ABS, CPVC or PVC pipe or tubing. All components shall be selected for the pressure and temperature rating of the installation. Condensate waste and drain line size shall be not less than 3/4-inch (19 mm) internal diameter and shall not decrease in size from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized in accordance with an approved method. ~~All horizontal sections of drain piping shall be installed in uniform alignment at a uniform slope.~~

Reason: Based on the outcome of language submitted to 307.2.1, this will not be needed. This subject is best addressed in 307.2.1.

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

Analysis: Similar action should be considered for M33-06/07.

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

M37–06/07
307.2.3 (IPC [M] 314.2.3); IRC M1411.3.1

Proponent: Tony Longino, County of Greenville, SC, representing himself

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Revise as follows:

307.2.3 (IPC [M] 314.2.3) Auxiliary and secondary drain systems. In addition to the requirements of Section 307.2.1, a secondary drain or auxiliary drain pan shall be required for each cooling or evaporator coil or fuel-fired appliance that produces condensate where damage to any building components will occur as a result of overflow from the equipment drain pan or stoppage in the condensate drain piping. One of the following methods shall be used:

1. An auxiliary drain pan with a separate drain shall be provided under the coils on which condensation will occur. The auxiliary pan drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The pan shall have a minimum depth of 1.5 inches (38 mm), shall not be less than 3 inches (76 mm) larger than the unit or the coil dimensions in width and length and shall be constructed of corrosion resistant material. Metallic pans shall have a minimum thickness of not less than 0.0276-inch (0.7 mm) galvanized sheet metal. Nonmetallic pans shall have a minimum thickness of not less than 0.0625 inch (1.6 mm).
2. A separate overflow drain line shall be connected to the drain pan provided with the equipment. Such overflow drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The overflow drain line shall connect to the drain pan at a higher level than the primary drain connection.
3. An auxiliary drain pan without a separate drain line shall be provided under the coils on which condensate will occur. Such pan shall be equipped with a water level detection device conforming to UL 508 that will shut off the equipment served prior to overflow of the pan. <u>The pan shall be equipped with a fitting to allow for drainage.</u> The auxiliary drain pan shall be constructed in accordance with Item 1 of this section.
4. A water level detection device conforming to UL 508 shall be provided that will shut off the equipment served in the event that the primary drain is blocked. The device shall be installed in the primary drain line, the overflow drain line, or in the equipment-supplied drain pan, located at a point higher than the primary drain line connection and below the overflow rim of such pan.

   Exception: Fuel-fired appliances that automatically shut down operation in the event of a stoppage in the condensate drainage system.

PART II – IRC

Revise as follows:

M1411.3.1 Auxiliary and secondary drain systems. In addition to the requirements of Section M1411.3, a secondary drain or auxiliary drain pan shall be required for each cooling or evaporator coil or fuel-fired appliance that produces condensate where damage to any building components will occur as a result of overflow from the equipment drain pan or stoppage in the condensate drain piping. One of the following methods shall be used:

1. An auxiliary drain pan with a separate drain shall be provided under the coils on which condensation will occur. The auxiliary pan drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The pan shall have a minimum depth of 1.5 inches (38 mm), shall not be less than 3 inches (76 mm) larger than the unit or the coil dimensions in width and length and shall be constructed of corrosion resistant material. Metallic pans shall have a minimum thickness of not less than 0.0276-inch (0.7 mm) galvanized sheet metal. Nonmetallic pans shall have a minimum thickness of not less than 0.0625 inch (1.6 mm).
2. A separate overflow drain line shall be connected to the drain pan provided with the equipment. Such overflow drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The overflow drain line shall connect to the drain pan at a higher level than the primary drain connection.
3. An auxiliary drain pan without a separate drain line shall be provided under the coils on which condensate will occur. Such pan shall be equipped with a water level detection device conforming to UL 508 that will shut off the equipment served prior to overflow of the pan. <u>The pan shall be equipped with a fitting to allow for drainage.</u> The auxiliary drain pan shall be constructed in accordance with Item 1 of this section.
4. A water level detection device conforming to UL 508 shall be provided that will shut off the equipment served in the event that the primary drain is blocked. The device shall be installed in the primary drain line, the overflow drain line, or in the equipment-supplied drain pan, located at a point higher than the primary drain line connection and below the overflow rim of such pan.

Reason: There are no current requirements in the code to prevent appliances, equipment or insulation from being installed inside of the auxiliary drain pan. It has been a long standing and bad practice for some.

The change will allow for pans to be drained. When an auxiliary drain pan fill to the point of raising the float on a water detection device the first thing a service person must do is drain the pan to restart the appliance. Pans should be equipped with drain fitting, with either a plug, a valve and by pass piping to the main drain or a hose bib. Which ever is appropriate for the installation conditions and approved by the Authority Having Jurisdiction

Cost Impact: Less than $10 for fittings.

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

M38–06/07

307.2.3 (IPC [M] 314.2.3); IRC M1411.3.1

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

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Revise as follows:

307.2.3 (IPC [M] 314.2.3) Auxiliary and secondary drain systems. In addition to the requirements of Section 307.2.1, a secondary drain or auxiliary drain pan shall be required for each cooling or evaporator coil or fuel-fired appliance that produces condensate, where damage to any building components will occur as a result of overflow from the equipment drain pan or stoppage in the condensate drain piping. One of the following methods shall be used:

1. An auxiliary drain pan with a separate drain shall be provided under the coils on which condensation will occur. The auxiliary pan drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The pan shall have a minimum depth of 1.5 inches (38 mm), shall not be less than 3 inches (76 mm) larger than the unit or the coil dimensions in width and length and shall be constructed of corrosion-resistant material. Metallic pans shall have a minimum thickness of not less than ~~0.0276 inch~~ 24 gage (nominal 0.0276) (0.7 mm) galvanized sheet metal. Nonmetallic pans shall have a minimum thickness of not less than 0.0625 inch (1.6 mm).
2. A separate overflow drain line shall be connected to the drain pan provided with the equipment. Such overflow drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The overflow drain line shall connect to the drain pan at a higher level than the primary drain connection.
3. An auxiliary drain pan without a separate drain line shall be provided under the coils on which condensate will occur. Such pan shall be equipped with a water-level detection device conforming to UL 508 that will shut off the equipment served prior to overflow of the pan. The auxiliary drain pan shall be constructed in accordance with Item 1 of this section.
4. A water level detection device conforming to UL 508 shall be provided that will shut off the equipment served in the event that the primary drain is blocked. The device shall be installed in the primary drain line, the overflow drain line, or in the equipment-supplied drain pan, located at a point higher than the primary drain line connection and below the overflow rim of such pan.

   Exception: Fuel-fired appliances that automatically shut down operation in the event of a stoppage in the condensate drainage system.

PART II – IRC

Revise as follows:

M1411.3.1 Auxiliary and secondary drain systems. In addition to the requirements of Section M1411.3, a secondary drain or auxiliary drain pan shall be required for each cooling or evaporator coil where damage to any building components will occur as a result of overflow from the equipment drain pan or stoppage in the condensate drain

piping. Such piping shall maintain a minimum horizontal slope in the direction of discharge of not less than 1/8 unit vertical in 12 units horizontal (1-percent slope). Drain piping shall be a minimum of 3/4-inch (19 mm) nominal pipe size. One of the following methods shall be used:

1. An auxiliary drain pan with a separate drain shall be installed under the coils on which condensation will occur. The auxiliary pan drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The pan shall have a minimum depth of 1.5 inches (38 mm), shall not be less than 3 inches (76 mm) larger than the unit or the coil dimensions in width and length and shall be constructed of corrosion-resistant material. Metallic pans shall have a minimum thickness of not less than ~~0.0276-inch~~ 24 gage (nominal 0.0276) (0.7 mm) galvanized sheet metal. Nonmetallic pans shall have a minimum thickness of not less than 0.0625 inch (1.6 mm).
2. A separate overflow drain line shall be connected to the drain pan provided with the equipment. This overflow drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The overflow drain line shall connect to the drain pan at a higher level than the primary drain connection.
3. An auxiliary drain pan without a separate drain line shall be installed under the coils on which condensate will occur. This pan shall be equipped with a water level detection device conforming to UL 508 that will shut off the equipment served prior to overflow of the pan. The auxiliary drain pan shall be constructed in accordance with Item 1 of this section.
4. A water level detection device conforming to UL 508 shall be provided that will shut off the equipment served in the event that the primary drain is blocked. The device shall be installed in the primary drain line, the overflow drain line or the equipment-supplied drain pan, located at a point higher than the primary drain line connection and below the overflow rim of such pan.

Reason: This is a global change. In an effort to make the code a little more user friendly, it would be helpful if the sheetmetal gage was always stated. For instance, 24 gage has a minimum tolerance of.0236 to a maximum tolerance of .0316 with a nominal thickness of .0276 according to the 1995 edition of SMACMA., which is the standard this code recognizes. 99 percent of installers do not identify with a decimal and most designers and purchasers of material identify with gage as opposed to a decimal. In the above-mentioned section,.0276 is the mid-point between the legal tolerance. The code specifies a MINIMUM of .0276 when .0236 is legal according to the standard. Also the reduction table indicates .024 metal which is 25 gage according to the standard. 25 gage has a minimum tolerance of .0217 and a maximum .0287. It would be legal to use metal with a thickness less than .024 as long as long as it was within the range of tolerance specified in the standard.

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

Analysis: If this proposal is successful, staff will identify and revise all instances of sheetmetal thickness to the appropriate gage.

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

M39–06/07

307.2.3.1 (IPC [M] 314.2.3.1); IRC M1411.3.1.1

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

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Revise as follows:

307.2.3.1 (IPC [M] 314.2.3.1) Water level monitoring devices. On down-flow units and all other coils that have no secondary drain ~~and no means~~ or provisions to install ~~an~~ a secondary or auxiliary drain pan, a water-level monitoring device shall be installed inside the primary drain pan. This device shall shut off the equipment served in the event that the primary drain becomes restricted. ~~Externally installed devices and~~ Devices installed in the drain line shall not be permitted.

PART II - IRC

Revise as follows:

M1411.3.1.1 Water level monitoring devices. On down-low units and all other coils that have no secondary drain ~~and no means~~ or provisions to install ~~an~~ a secondary or auxiliary drain pan, a water-level monitoring device shall be

installed inside the primary drain pan. This device shall shut off the equipment served in the event that the primary drain becomes restricted. ~~Externally installed devices and~~ Devices installed in the drain line shall not be permitted.

Reason: After consultation with engineers of the manufacturer's of these units, the proposed modification shown above better relates to the actual designs of the units, and allows a more performance approach to achieve the intent of this new provision. Many units already have the ability to install a "secondary" or an "auxiliary" drain pan designed into the unit (both are terms of the trade for these pans). The first part of the last sentence is deleted as it would preclude devices currently on the market that are designed to shut off the equipment. Though the float switch may be located in the drain pan (as required by this provision), other parts of the device may be external to the unit. This provision should not be limited to a device that is completely located internally to the unit. The concern that the device not be located in the drain line is retained.

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

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

M40–06/07

307.2.3.2 (New) [IPC [M] 314.2.3.2 (New)]; IRC M1411.3.3 (New)

Proponent: Tony Longino, County of Greenville, SC, representing himself

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Add new text as follows:

307.2.3.2 Appliance, equipment and insulation in pans. Where appliances, equipment or insulation are subject to water damage when auxiliary drain pans fill, such portions of the appliances, equipment and insulation shall be installed above the flood level rim of the pan. Supports located inside of the pan to support the appliance or equipment shall be water resistant and approved.

PART II – IRC

Add new text as follows:

M1411.3.3 Appliance, equipment and insulation in pans. Where appliances, equipment or insulation are subject to water damage when auxiliary drain pans fill, such portions of the appliances, equipment and insulation shall be installed above the flood level rim of the pan. Supports located inside of the pan to support the appliance or equipment shall be water resistant and approved.

Reason: There are no current requirements in the code to prevent appliances, equipment or insulation from being installed inside of the auxiliary drain pan. It has been a long standing and bad practice for some contractors to install up flow furnaces and air handlers on top of plenum boxes resting in the bottom of the drain pan, Therefore [1] reducing the capacity of the drain pan and [2] Allowing the required insulation, interior or exterior, to wick and absorb water as the pan fills. Insulation is not approved for wet locations and will hold water for a long period of time, which can cause mold and bacteria to form or cause the metal to rust and deteriorate.

Cost Impact: Less than $10 for supports.

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

M41–06/07
313 (New), Ch. 15; IRC M1309 (New), Ch. 43; IFGC 311 (New), Ch. 8

Proponent: Mark Riley, City of Troy, MI Building Department, representing himself

THIS PROPOSAL IS ON THE AGENDA OF THE IMC, THE IRC MECHANICAL AND THE IFGC CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

1. Add new text as follows:

SECTION 313
CARBON MONOXIDE ALARMS

313.1 Where required-new construction dwellings. In new construction, dwelling units within which fuel-fired appliances are installed shall be provided with an approved carbon monoxide alarm installed outside of each separate sleeping area in the immediate vicinity of the bedroom(s).

313.2 Where required-existing dwellings. In existing dwellings, where interior alterations, repairs, fuel-fired appliance replacements or additions requiring a permit occur, or where one or more sleeping rooms are added or created, carbon monoxide alarms shall be provided in accordance with Section 313.1.

313.3 Alarm requirements. The required carbon monoxide alarms shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed. Carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with this code and the manufacturer's installation instructions.

313.4 Power source and interconnection. The required carbon monoxide alarms shall be powered by the building wiring where such wiring is supplied by a commercial power source and when such source is interrupted, the alarms shall be battery powered. The power supply wiring shall be permanent and without a disconnecting switch other than the branch circuit overcurrent device.

Where more than one carbon monoxide alarm is required within a dwelling unit, the alarms shall be interconnected in a manner such that the activation of one alarm will cause actuation of all of the alarms within the dwelling.

Exceptions:

1. Alarms installed in existing dwelling units shall not be required to be interconnected and powered by a commercial power source where the work described in Section 313.2 does not result in the removal of interior wall or ceiling finishes thereby exposing the structure and there is no attic, crawl space or basement which could provide access for wiring without the removal of interior finishes.
2. Alarms shall not be required to be interconnected and shall be permitted to be powered only by batteries where installed in buildings without commercial power.

2. Add standard to Chapter 15 as follows:

UL

UL 2034 Standard for Single and Multiple Station Carbon Monoxide Alarms. Edition 2 including revisions through March 8, 2005

PART II – IRC

1. Add new text as follows:

SECTION M1309
CARBON MONOXIDE ALARMS

M1309.1 Where-required new construction dwellings. In new construction, dwelling units within which fuel-fired appliances are installed shall be provided with an approved carbon monoxide alarm installed outside of each separate sleeping area in the immediate vicinity of the bedroom(s).

M1309.2 Where required existing dwellings. In existing dwellings where interior alterations, repairs, fuel-fired appliance replacements or additions requiring a permit occur, or where one or more sleeping rooms are added or created, carbon monoxide alarms shall be provided in accordance with Section M1309.1.

M1309.3 Alarm requirements. The required carbon monoxide alarms shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed. Carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with this code and the manufacturer's installation instructions.

M1309.4 Power source and interconnection. The required carbon monoxide alarms shall be powered by the building wiring where such wiring is supplied by a commercial power source and when such source is interrupted, the alarms shall be battery powered. The power supply wiring shall be permanent and without a disconnecting switch other than the branch circuit overcurrent device.

Where more than one carbon monoxide alarm is required within a dwelling unit, the alarms shall be interconnected in a manner such that the activation of one alarm will cause actuation of all of the alarms within the dwelling.

Exceptions:

1. Alarms installed in existing dwelling units shall not be required to be interconnected and powered by a commercial power source where the work described in Section M1309.2 does not result in the removal of interior wall or ceiling finishes thereby exposing the structure and there is no attic, crawl space or basement which could provide access for wiring without the removal of interior finishes.
2. Alarms shall not be required to be interconnected and shall be permitted to be powered only by batteries where installed in buildings without commercial power.

2. Add standard to Chapter 43 as follows:

UL

UL 2034 Standard for Single and Multiple Station Carbon Monoxide Alarms. Edition 2 including revisions through March 8, 2005

PART III – IFGC

1. Add new text as follows:

SECTION 311
CARBON MONOXIDE ALARMS

311.1 Where required-new construction dwellings. In new construction, dwelling units within which fuel-fired appliances are installed shall be provided with an approved carbon monoxide alarm installed outside of each separate sleeping area in the immediate vicinity of the bedroom(s).

311.2 Where required-existing dwellings. In existing dwellings where interior alterations, repairs, fuel-fired appliance replacements or additions requiring a permit occur, or where one or more sleeping rooms are added or created, carbon monoxide alarms shall be provided in accordance with Section 311.1.

311.3 Alarm requirements. The required carbon monoxide alarms shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed. Carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with this code and the manufacturer's installation instructions.

311.4 Power source and interconnection. The required carbon monoxide alarms shall be powered by the building wiring where such wiring is supplied by a commercial power source and when such source is interrupted, the alarms shall be battery powered. The power supply wiring shall be permanent and without a disconnecting switch other than the branch circuit overcurrent device.

Where more than one carbon monoxide alarm is required within a dwelling unit, the alarms shall be interconnected in a manner such that the activation of one alarm will cause actuation of all of the alarms within the dwelling.

Exceptions:

1. Alarms installed in existing dwelling units shall not be required to be interconnected and powered by a commercial power source where the work described in Section 311.2 does not result in the removal of interior wall or ceiling finishes thereby exposing the structure and there is no attic, crawl space or basement which could provide access for wiring without the removal of interior finishes.
2. Alarms shall not be required to be interconnected and shall be permitted to be powered only by batteries where installed in buildings without commercial power.

2. Add standard to Chapter 8 as follows:

UL

UL 2034 Standard for Single and Multiple Station Carbon Monoxide Alarms. Edition 2 including revisions through March 8, 2005

Reason: Over 200 a deaths a year in the United States have been contributed to CO Poisoning, and over 10,000 cases where people were admitted to the hospital emergency rooms. Every major safety agency strongly recommends the use of CO detectors. GAMA recommends the use of CO detectors on their website.
C.S.P.C., U.L. and manufacturer's have spent many hours revising U.L. Standard 2034 to provide a more reliable device.
The location requirement is based on research of manufacturer's installation instructions and recommendations from NFPA 720, *Recommended Practice for the Installation of Household Carbon Monoxide (CO) Warning Equipment*

The U.S. Consumer Product Safety Commission (CPSC) recommends that consumers purchase and install carbon monoxide detectors with labels showing they meet the requirements of the new Underwriters Laboratories, Inc. (UL) voluntary standard (UL 2034). The UL standard, published in April 1992, requires detectors to sound an alarm when exposure to carbon monoxide reaches potentially hazardous levels over a period of time. Detectors that meet the requirements of UL 2034 provide a greater safety margin than previously-manufactured detectors.

Properly working carbon monoxide detectors can provide an early warning to consumers before the deadly gas builds up to a dangerous level. Exposure to a low concentration over several hours can be as dangerous as exposure to high carbon monoxide levels for a few minutes - the new detectors will detect both conditions. Most of the devices cost under $100. Each home should have at least one carbon monoxide detector in the area outside individual bedrooms. CPSC believes that carbon monoxide detectors are as important to home safety as smoke detectors are.

Bibliography: CPSC document #5010

Cost Impact: There is a slight impact of less than 100 dollars per dwelling.

Analysis: Results of review of the proposed standard will be posted on the ICC website by August 20, 2006.

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

PART III – IFGC

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

M42–06/07
401.1, 501.1, 501.2.1

Proponent: Maureen Traxler, City of Seattle, WA, representing Washington Association of Building Officials

Revise as follows:

401.1 Scope. This chapter shall govern the ventilation of spaces within a building intended to be occupied. ~~This chapter does not govern the requirements for smoke control systems.~~ Mechanical exhaust systems, including exhaust systems serving clothes dryers and cooking appliances; hazardous exhaust systems; dust, stock and refuse conveyor systems; subslab soil exhaust systems; smoke control systems; energy recovery ventilation systems; and other systems specified in Section 502 shall comply with Chapter 5.

501.1 Scope. This chapter shall govern the design, construction and installation of mechanical exhaust systems, including exhaust systems serving clothes dryers and cooking appliances; hazardous exhaust systems; dust, stock and refuse conveyor systems, ~~exhaust systems serving commercial cooking appliances~~ subslab soil exhaust systems; smoke control systems; ~~and~~ energy recovery ventilation systems; and other systems specified in Section 502.

501.2.1 Location of exhaust outlets. The termination point of exhaust outlets and ducts discharging to the outdoors shall be located with the following minimum distances:

1. For ducts conveying explosive or flammable vapors, fumes or dusts: 30 feet (9144 mm) from property lines; 10 feet (3048 mm) from operable openings into buildings; 6 feet (1829 mm) from exterior walls and roofs; 30 feet (9144 mm) from combustible walls and operable openings into buildings which are in the direction of the exhaust discharge; 10 feet (3048 mm) above adjoining grade.
2. For other product-conveying outlets: 10 feet (3048 mm) from the property lines; 3 feet (914 mm) from exterior walls and roofs; 10 feet (3048 mm) from operable openings into buildings; 10 feet (3048 mm) above adjoining grade.
3. ~~For e~~Environmental air duct exhaust terminations shall comply with Section 401.4.~~: 3 feet (914 mm) from property lines; 3 feet (914 mm) from operable openings into buildings for all occupancies other than Group U, and 10 feet (3048 mm) from mechanical air intakes.~~

4. For specific systems see the following sections:
   4.1. ~~For~~ Clothes dryer exhaust, ~~see~~ Section 504.4;
   4.2. ~~For~~ Kitchen hoods and other kitchen exhaust equipment, ~~see~~ Sections 506.3.12, 506.4 and 506.5;
   4.3. ~~For~~ Dust, stock and refuse conveying systems, ~~see~~ Section 511.2; ~~and~~
   4.4. ~~For~~ Subslab soil exhaust systems, ~~see~~ Section 512.4.
   4.5. ~~For~~ Smoke control systems, ~~see~~ Section 513.10.3.

Reason: The primary purpose of this proposal is to clarify the scope of chapters 4 and 5 with regard to exhaust equipment. The scope of Chapter 4 is general ventilation; the scope of Chapter 5 is specific mechanical exhaust systems. The proposal clarifies the scope by completing the existing list of exhaust systems currently found in Section 505.1. Currently Section 505.1 lists some, but not all, the types of exhaust equipment regulated in Chapter 5. The same list is added to Section 401.1 to clarify what equipment is beyond the scope of Chapter 4.

Another purpose of this proposal is to build on a proposal from the last code cycle that gathered the provisions for location of exhaust openings in one place. One provision related to ventilation systems is removed from Section 501.2.1 because it is repeated in Section 401. The provision in Section 501.2.1 is replaced with a cross reference to Chapter 4.

The third effect of this proposal is to add cross references to complete the list in Section 501.2.1.

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

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

M43–06/07
401.4.1

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

Revise as follows:

401.4.1 Intake openings. Mechanical and gravity outdoor air intake openings shall be located a minimum of 10 feet (3048 mm) horizontally from any hazardous or noxious contaminant source, such as vents, chimneys, plumbing vents, streets, alleys, parking lots and loading docks, except as otherwise specified in this code. Where a source of contaminant is located within 10 feet (3048 mm) horizontally of an intake opening, such opening shall be located a minimum of 2 feet (610 mm) below the contaminant source.

~~The exhaust from a bathroom or kitchen~~ Environmental air exhausted from ~~in~~ a residential dwelling shall not be considered to be a hazardous or noxious contaminant.

Reason: This is a fix. The text leaves out dryer exhaust, which would fall within the intent of this section.

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

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

M44–06/07
403.1, 403.2, 403.2.1, 403.2.2, 403.3, 403.3.1, 403.3.1.1 (New), 403.3.2.3.1 (New), 403.3.2.3.2 (New), 403.3.2.3.3 (New), 403.3.2.3.4 (New) 403.3.1.2 (New), Table 403.1 (New), 403.3.1.3 (New), 403.3.2.1 (New), 403.3.2.2 (New), 403.3.2.3 (New), 403.3.3, Table 403.3, 403.3.4, 403.4 (New), 403.5 (New), 403.6 (New), 403.7 (New), 404.2, 202 (New)

Proponent: Steven Ferguson, ASHRAE

1. Revise as follows:

403.1 Ventilation system. Mechanical ventilation shall be provided by a method of supply air and return or exhaust air. The amount of supply air shall be approximately equal to the amount of return and exhaust air. The amount of supply air shall be approximately equal to the amount of return and exhaust air. The system shall not be prohibited from producing negative or positive pressure. The system to convey ventilation air shall be designed and installed in accordance with Chapter 6.

~~Ventilation supply systems shall be designed to deliver the required rate of supply air to the occupied zone within an occupied space. The occupied zone shall have boundaries measured at 3 inches (76 mm) and 72 inches (1829 mm) above the floor and 24 inches (610 mm) from the enclosing walls.~~

403.2 Outdoor air required. The minimum ~~ventilation rate of required~~ outdoor airflow rate shall be determined in accordance with Section 403.3. Ventilation supply systems shall be designed to deliver the required rate of outdoor airflow to the breathing zone within each occupiable space.

Exception: Where the registered design professional demonstrates that an engineered ventilation system design will prevent the maximum concentration of contaminants from exceeding that obtainable by the rate of outdoor air ventilation determined in accordance with Section 403.3, the minimum required rate of outdoor air shall be reduced in accordance with such engineered system design.

403.2.1 Recirculation of air. The outdoor air required by Section 403.3 shall not be recirculated. Air in excess of that required by Section 403.3 shall not be prohibited from being recirculated as a component of supply air to building spaces, except that:

1. Ventilation air shall not be recirculated from one dwelling unit to another or to dissimilar occupancies.
2. Supply air to a swimming pool and associated deck areas shall not be recirculated unless such air is dehumidified to maintain the relative humidity of the area at 60 percent or less. Air from this area shall not be recirculated to other spaces where 10 percent or more of the resulting supply airstream consists of air recirculated from these spaces.
3. Where mechanical exhaust is required by Note b in Table 403.3, recirculation of air from such spaces shall be prohibited. All air supplied to such spaces shall be exhausted, including any air in excess of that required by Table 403.3.
4. Where mechanical exhaust is required by Note h in Table 403.3, mechanical exhaust is required and recirculation is prohibited where 10% or more of the resulting supply airstream consists of air recirculated from these spaces.

403.2.2 Transfer air. Except where recirculation from such spaces is prohibited by Table 403.3, air transferred from occupiable ~~occupied~~ spaces is not prohibited from serving as makeup air for required exhaust systems in such spaces as kitchens, baths, toilet rooms, elevators and smoking lounges. The amount of transfer air and exhaust air shall be sufficient to provide the flow rates as specified in Section~~s~~ 403.3 ~~and 403.3.1~~. The required outdoor airflow rates specified in Table 403.3 shall be introduced directly into such spaces or into the occupied spaces from which air is transferred or a combination of both.

403.3 ~~Ventilation~~ Outdoor airflow rate. Ventilation systems shall be designed to have the capacity to supply the minimum outdoor airflow rate determined in accordance with this section. ~~Table 403.3 based on the occupancy of the space and the occupant load or other parameter as stated therein.~~ The occupant load utilized for design of the ventilation system shall not be less than the number determined from the estimated maximum occupant load rate indicated in Table 403.3 Ventilation rates for occupancies not represented in Table 403.3 shall be those for a listed occupancy classification that is most similar in terms of occupant density, activities and building construction; or, shall be determined by an approved engineering analysis. The ventilation system shall be designed to supply the required rate of ventilation air continuously during the period the building is occupied, except as otherwise stated in other provisions of the code.

With the exception of smoking lounges, the ventilation rates in Table 403.3 are based on the absence of smoking in occupiable spaces. When smoking is anticipated in a space other than a smoking lounge, the ventilation system serving the space shall be designed to provide ventilation over and above that required by Table 403.3 in accordance with accepted engineering practice.

Exception: The occupant load is not required to be determined, based on the estimated maximum occupant load rate indicated in Table 403.3 where approved statistical data document the accuracy of an alternate anticipated occupant density.

2. Delete and substitute as follows:

~~**403.3.1 System operation.** The minimum flow rate of outdoor air that the ventilation system must be capable of supplying during its operation shall be permitted to be based on the rate per person indicated in Table 403.3 and the actual number of occupants present.~~

403.3.1 Zone outdoor airflow. The minimum outdoor airflow required to be supplied to each zone shall be determined as function of occupancy classification and space air distribution effectiveness in accordance with Section 403.3.1.1 through 403.3.1.3

3. Add new text as follows:

403.3.1.1 Breathing zone outdoor airflow. The outdoor airflow rate required in the breathing zone (Vbz) of the occupiable space or spaces in a zone shall be determined in accordance with Equation 4-1.

Vbz = RpPz + RaAz (Equation 4-1)

Where:

Az = zone floor area: the net occupiable floor area of the space or spaces in the zone.
Pz = zone population: the number of people in the space or spaces in the zone.
Rp = people outdoor air rate: the outdoor airflow rate required per person from Table 403.3
Ra = area outdoor air rate: the outdoor airflow rate required per unit area from Table 403.3

403.3.1.2 Zone air distribution effectiveness. The *zone air distribution effectiveness* (*Ez*) shall be determined using Table 403.1.

TABLE 403.1
ZONE AIR DISTRIBUTION EFFECTIVENESS

Air Distribution Configuration	*Ez*
Ceiling or floor supply of *cool air*	1.0[f]
Ceiling or floor supply of *warm air* and floor return	1.0
Ceiling supply of *warm air* and ceiling return.	0.8[g]
Floor supply of *warm air* and ceiling return	0.7
Makeup air drawn in on the opposite side of the room from the exhaust and/or return	0.8
Makeup air drawn in near to the exhaust and/or return location	0.5

a. "*Cool air*" is air cooler than space temperature.
b. "*Warm air*" is air warmer than space temperature.
c. "Ceiling" includes any point above the *breathing zone*.
d. "Floor" includes any point below the *breathing zone*.
e.*"Makeup air"* is air supplied or transferred. to a zone to replace air removed from the zone by exhaust or return systems..
f. *Zone air distribution effectiveness* of 1.2 shall be permitted for systems with floor supply of *cool air* and ceiling return, provided low-velocity displacement ventilation achieves unidirectional flow and thermal stratification.
g. *Zone air distribution effectiveness* of 1.0 shall be permitted for systems with ceiling supply of *warm air*, provided supply air is less than 15°F (8°C) above space temperature and provided that the 150 fpm (0.8 m/s) supply air jet reaches to within 4.5 ft (1.4 m) of floor level.

403.3.1.3 Zone outdoor airflow. The *zone outdoor airflow* rate (*Voz*), shall be determined in accordance with Equation 4-2.

Voz = Vbz/Ez (Equation 4-2)

4. Delete and substitute as follows:

~~**403.3.2 Common ventilation system.** Where spaces having different ventilation rate requirements are served by a common ventilation system, the ratio of outdoor air to total supply air for the system shall be determined based on the space having the largest outdoor air requirement or shall be determined in accordance with the following formula:~~
~~*Y = X/(1 + X – Z)* (Equation 4-1)~~

~~Where~~
~~*Y = Vot/Vst* = Corrected fraction of outdoor air in system supply.~~
~~*X = Von/Vst* = Uncorrected fraction of outdoor air in system supply~~
~~*Z = Voc/Vsc* = Fraction of outdoor air in critical space. The critical space is that space with the greatest required fraction of outdoor air in the supply to this space.~~
~~*Vot*= Corrected total outdoor airflow rate.~~
~~*Vst*= Total supply flow rate, i.e., the sum of all supply for all branches of the system.~~
~~*Von*= Sum of outdoor airflow rates for all branches on system.~~
~~*Voc*= Outdoor airflow rate required in critical spaces.~~
~~*Vsc*= Supply flow rate in critical space.~~

403.3.2 System outdoor airflow. The outdoor air required to be supplied by each ventilation system shall be determined in accordance with Section 403.3.2.1 through 403.2.3 as a function of system type and zone outdoor airflow rates.

5. Add new text as follows:

403.3.2.1 Single zone systems. When one air handler supplies a mixture of outdoor air and recirculated return air to only one zone, the system *outdoor air intake flow rate* (*Vot*) shall be determined in accordance with Equation 4-3.

$$Vot = Voz \quad \text{(Equation 4-3)}$$

403.3.2.2 100% outdoor air systems. When one air handler supplies only outdoor air to one or more zones, the system *outdoor air intake flow* rate (*Vot*) shall be determined using Equation 4-4.

$$Vot = \square_{all\ zones} Voz \quad \text{(Equation 4-4)}$$

403.3.2.3 Multiple zone recirculating systems. When one air handler supplies a mixture of outdoor air and recirculated return air to more than one zone, the system *outdoor air intake flow* rate (*Vot*) shall be determined in accordance with Sections 403.3.2.3.1 through 403.3.2.3.5.

403.3.2.3.1 Primary outdoor air fraction. The *primary outdoor air fraction* (*Zp*) shall be determined for each zone in accordance with Equation 4-5.

$$Zp = Voz/Vpz \quad \text{(Equation 4-5)}$$

Where:

Vpz = primary airflow: The airflow rate supplied to the zone from the air-handling unit at which the outdoor air intake is located. It includes outdoor intake air and recirculated air from that air-handling unit but does not include air transferred or air recirculated to the zone by other means. For design purposes, *Vpz* shall be the zone design primary airflow rate, except for zones with variable air volume supply *Vpz* shall be the lowest expected primary airflow rate to the zone when it is fully occupied.

403.3.2.3.2 System ventilation efficiency. The *system ventilation efficiency* (*Ev*) shall be determined using Table 403-2 or Appendix A of ASHRAE Standard 62.1.

TABLE 403.2
SYSTEM VENTILATION EFFICIENCY

Max(Zp)	***Ev***
≤ 0.15	1.0
≤ 0.25	0.9
≤ 0.35	0.8
≤ 0.45	0.7
≤ 0.55	0.6
≤ 0.65	0.5
≤ 0.75	0.4
> 0.75	0.3

Notes for Table 8
1. *Max*(*Zp*) is the largest value of *Zp* calculated using Equation 4-5 among all the zones served by the system.
2. Interpolating between table values shall be permitted.

403.3.2.3.3 Uncorrected outdoor air intake. The *uncorrected outdoor air intake* flow rate (*Vou*) shall be determined in accordance with Equation 4-7.

$$Vou = D \square_{all\ zones} RpPz + \square_{all\ zones} RaAz \quad \text{(Equation 4-7)}$$

Where:

D = occupant diversity: the ratio of the *system population* to the sum of the *zone populations*, determined in accordance with Equation 4-8.

$$D = Ps/\square_{all\ zones} Pz \quad \text{(Equation 4-8)}$$

Where:

Ps = system population: The total number of occupants in the area served by the system. For design purposes, *Ps* shall be the maximum number of occupants expected to be concurrently in all zones served by the system.

403.3.2.3.4 Outdoor air intake flow rate. The *outdoor air intake flow rate* (*Vot*) shall be determined in accordance with Equation 4-9.

$$Vot = Vou/Ev \qquad \text{(Equation 4-9)}$$

6. Revise table as follows:

TABLE 403.3
~~REQUIRED OUTDOOR VENTILATION AIR~~
MINIMUM VENTILATION RATES

OCCUPANCY CLASSIFICATION	~~ESTIMATED MAXIMUM OCCUPANT LOAD, PERSONS PER 1,000 SQUARE FEET~~ a	~~OUTDOOR AIR (Cubic feet per Minute (cfm) Per person) UNLESS NOTED~~ e	People Outdoor Airflow Rate in Breathing Zone Rp cfm/person	Area Outdoor Airflow Rate in Breathing Zone Ra cfm/ft2[a]	Default Occupant Density #/1000 ft2[a]	Exhaust Airflow Rate cfm/ft2[a]
Correctional facilities						
Cells						
without plumbing fixtures	~~20~~	~~20~~	5	0.12	25	–
with plumbing fixtures[g,hg]	~~20~~	~~20~~	5	0.12	25	1.00
Dining halls (See Food and Beverage Service)	~~100~~	~~15~~	–	–	–	–
Guard stations	~~40~~	~~15~~	5	0.06	15	–
Day room	~~=~~	~~=~~	5	0.06	30	–
Booking/waiting	~~=~~	~~=~~	7.5	0.06	50	–
Dry Cleaners, laundries						
Coin-operated dry cleaner	~~20~~		15	–	20	–
Coin-operated laundries	~~20~~	~~15~~	7.5	0.06	20	–
Commercial dry cleaner	~~30~~	~~30~~	30	–	30	–
Commercial laundry	~~10~~	~~25~~	25	–	10	–
Storage, pick up	~~30~~	~~35~~	7.5	.12	30	–
Education						
Auditoriums	~~150~~	~~15~~	5	0.06	150	–
~~Classrooms~~	~~50~~	~~15~~	below	below	below	–
Corridors (See Public Spaces)	~~—~~	~~0.10 /ft2~~	–	–	–	–
~~Laboratories~~	~~30~~	~~20~~	below	below	below	–
~~Libraries~~ Media center	~~20~~	~~15~~	10	0.12	25	–
Sports locker rooms[hg]	~~—~~	~~0.50 /ft2~~	–	–	–	0.50
~~Music rooms~~Music/theater/dance	~~50~~	~~15~~	10	0.06	35	–
Smoking lounges[b,g]	~~70~~	~~60~~	60		70	–
~~Training shops~~	~~30~~	~~20~~				–
Daycare (through age 4)			10	0.18	25	–
Classrooms (ages 5-8)			10	0.12	25	–
Classrooms (age 9 plus)			10	0.12	35	–
Lecture classroom			7.5	0.06	65	–
Lecture hall (fixed seats)			7.5	0.06	150	–
Art classroom[hg]			10	0.18	20	0.70
Science laboratories[hg]			10	0.18	25	1.00
Wood/metal shops[hg]			10	0.18	20	0.50
Computer lab			10	0.12	25	–
Multi-use assembly			7.5	0.06	100	–
Locker/dressing rooms[hg]			–	–	–	0.25
Food and beverage service						
Bars, cocktail lounges	~~100~~	~~30~~	7.5	0.18	100	–
Cafeteria, fast food	~~100~~	~~20~~	7.5	0.18	100	–
Dining rooms	~~70~~	~~20~~	7.5	0.18	70	–
Kitchens (cooking)[f,gb]	~~20~~	~~15~~	–	–	–	0.70
Hospitals, nursing and convalescent homes						
Autopsy rooms[b]	~~—~~	~~0.50 /ft2~~		–	–	0.50
Medical procedure rooms	~~20~~	~~15~~	15	–	20	–
Operating rooms	~~20~~	~~30~~	30	–	20	–
Patient rooms	~~10~~	~~25~~	25	–	10	–
Physical therapy	~~20~~	~~15~~	15	–	20	–
Recovery and ICU	~~20~~	~~15~~	15	–	20	–
Hotels, motels, resorts and dormitories						
~~Assembly rooms~~ Multi-purpose assembly	~~120~~ ~~—~~	~~15~~ ~~35 /room~~	5 –	0.06 –	5 –	– 25/50[f]
Bathrooms/Toilet – private[g,hg]	~~—~~	~~30 /room~~	5	0.06	10	–
Bedroom/living room	~~50~~	~~20~~	5	0.06	50	–
Conference/meeting ~~rooms~~	~~20~~	~~15~~	5	0.06	20	–
Dormitory sleeping areas	~~120~~	~~30~~	7.5	0.18	120	–
Gambling casinos	~~—~~	~~30 /room~~	–	–	–	–
~~Living rooms~~	~~30~~	~~15~~	7.5	0.06	30	–
Lobbies/pre-function						

OCCUPANCY CLASSIFICATION	~~ESTIMATED MAXIMUM OCCUPANT LOAD, PERSONS PER 1,000 SQUARE FEET a~~	~~OUTDOOR AIR (Cubic feet per Minute (cfm) Per person) UNLESS NOTED c~~	People Outdoor Airflow Rate in Breathing Zone Rp cfm/person	Area Outdoor Airflow Rate in Breathing Zone Ra cfm/ft2[a]	Default Occupant Density #/1000 ft2[a]	Exhaust Airflow Rate cfm/ft2[a]
Offices						
Conference rooms	~~50~~	~~20~~	5	0.06	50	–
Office spaces	~~7~~	~~20~~	5	0.06	5	–
Reception areas	~~60~~	~~15~~	5	0.06	30	–
~~Telecommunication centers and data entry~~	~~60~~	~~20~~	–	–	–	–
Telephone/data entry	~~=~~	~~=~~	5	0.06	60	–
Main entry lobbies	~~=~~	~~=~~	5	0.06	10	–
Private dwellings, single and Multiple						
Garages, common for multiple units[b]	~~—~~	~~1.5 cfm/ft2~~	–	–	–	0.75
Garages, separate for each dwelling[b]	~~—~~	~~100 cfm per car~~	–	–	–	100 cfm per car
Kitchens[~~gb~~]	~~—~~	~~100 cfm intermit. or 25 cfm contin.~~	–	–	–	25/100[f]
Living areas[c]	~~Based upon number of bedrooms. first bedrm 2; each additional bedrm: 1~~	~~0.35 air changes per houra or 15 cfm per person, whichever is greater~~	0.35 ACH but not less than 15 cfm/p	–	Based upon number of bedrooms. first bedrm 2; each additional bedrm: 1	–
Toilet rooms and bathrooms[~~g,hg~~]	~~—~~	~~mech. exhaust capacity of 50 cfm interittent or 20 cfm contin.~~	–	–	–	20/50[f]
Public spaces						
Corridors ~~and utilities~~	~~—~~	~~0.05 /ft2~~	–	0.06	–	–
Elevator car[~~g~~]	~~—~~	~~1.00 /ft2~~	–			1.0
~~Locker rooms[hg]~~	~~—~~	~~0.5 /ft2~~	–	–	–	–
Shower room (per shower head)[~~g,hg~~]		~~50 cfm intermediate or 20 cfm contin.~~	–	–	–	50/20[f]
Smoking lounges[~~b,g~~]	~~70~~	~~60~~	60	–	70	–
Toilet rooms – public[~~g,hg~~]	~~—~~	~~75 /w.c. or urinal~~	–	–	–	50/70[e]
Places of religious worship			5	0.06	120	
Courtrooms			5	0.06	70	
Legislative chambers			5	0.06	50	
Libraries			5	0.12	10	
Museums (children's)			7.5	0.12	40	
Museums/galleries			7.5	0.06	40	
Retail stores, sales floors and Showroom floors						
~~Basement and street~~ Sales (except as below)	~~—~~	~~0.30 /ft2~~	7.5	0.12	15	–
Dressing rooms	~~—~~	~~0.20 /ft2~~	–	–	–	0.25
~~Malls and arcades~~ Mall common areas	~~—~~	~~0.20 /ft2~~	7.5	0.06	40	–
Shipping and receiving	~~70~~	~~0.15 /ft2~~	–	0.12	–	–
Smoking lounges[~~b,g~~]	~~—~~	~~60~~	60	–	70	–
Storage rooms	~~—~~	~~0.15 /ft2~~	–	0.12	–	–
~~Upper floors~~	~~—~~	~~0.20 /ft2~~				
Warehouses (See Storage)		~~0.05 /ft2~~				
Specialty shops						
Automotive motor-fuel dispensing stations[b]	~~—~~ ~~25~~	~~1.5 /ft2~~ ~~15~~	– 7.5	– 0.06	– 25	1.50 0.50

OCCUPANCY CLASSIFICATION	~~ESTIMATED MAXIMUM OCCUPANT LOAD, PERSONS PER 1,000 SQUARE FEET a~~	~~OUTDOOR AIR (Cubic feet per Minute (cfm) Per person) UNLESS NOTED e~~	People Outdoor Airflow Rate in Breathing Zone Rp cfm/person	Area Outdoor Airflow Rate in Breathing Zone Ra cfm/ft2[a]	Default Occupant Density #/1000 ft2[a]	Exhaust Airflow Rate cfm/ft2[a]
Barber	~~25~~	~~25~~	20	0.12	25	0.60
Beauty and nail salons[b, i]	~~—~~	~~0.30 /ft2~~				
~~Clothiers, furniture~~	~~—~~	~~2.0 /ft2~~				2.0
Embalming room[b]	~~8~~	~~15~~				
~~Florists~~	~~8~~	~~15~~				
~~Hardware, drugs, fabrics~~	~~—~~	~~50 cfm intermediate or 20 cfm contin. per station~~				
~~Nail salon[b,i]~~	~~—~~	~~1.0 /ft2~~				
		~~15~~				
		~~15~~	7.5	0.18	10	0.90
Pet shops (animal areas)[b]	~~20~~					
~~Reducing salons~~	~~8~~		7.5	0.06	8	–
Supermarkets						
Sports and amusement						
~~Ballrooms and discos~~Disco/dance	~~100~~	~~25~~	20	0.06	100	–
floors	~~70~~	~~25~~	10	0.12	40	–
Bowling alleys (seating areas)	~~70~~	~~25~~	7.5	0.18	20	–
Game ~~rooms~~arcades	~~—~~	~~0.50 /ft2~~	–	0.30	–	0.50
Ice arenas without combustion engines						
~~Playing floors (gymnasiums)~~ Gym,	~~30~~	~~20~~	–	0.30	–	–
stadium, arena (play area)	~~150~~	~~15~~	7.5	0.06	150	–
Spectator areas	~~—~~	~~0.50 /ft2~~	–	0.48	–	–
Swimming pools (pool and deck area)			20	0.06	40	–
Health club/aerobics room			20	0.06	10	–
Health club/weight room						
Storage						
Repair garages, enclosed parking	~~—~~	~~1.5 /ft2~~	–	–	–	0.75
garages[b,d]	~~—~~	~~0.05 /ft2~~	–	0.06	–	–
Warehouses						
Theaters						
Auditoriums (See Education)	~~150~~	~~15~~				
Lobbies	~~150~~	~~20~~	5	0.06	150	–
Stages, studios	~~70~~	~~15~~	10	0.06	70	–
Ticket booths	~~60~~	~~20~~	5	0.06	60	–
Transportation						
Platforms	~~100~~	~~15~~	7.5	0.06	100	–
~~Vehicles~~	~~150~~	~~15~~				
~~Waiting rooms~~ Transportation waiting	~~100~~	~~15~~	7.5	0.06	100	–
Workrooms						
Bank vaults/safe deposit	~~5~~	~~15~~	5	0.06	5	
Darkrooms	~~—~~	~~0.50 /ft2~~	–	–	–	1.00
~~Duplicating~~Copy, printing rooms	~~—~~	~~0.50 /ft2~~	5	0.06	4	0.50
Meat processing[c]	~~10~~	~~15~~	15	–	10	–
Pharmacy (prep. area)	~~20~~	~~15~~	5	0.18	10	–
Photo studios	~~10~~	~~15~~	5	0.12	10	–
Computer (without printing)	~~=~~	~~=~~	5	0.06	4	–

For SI: 1 cubic foot per minute = 0.0004719 m3/s, 1 ton = 908 kg,
1 cubic foot per minute per square foot = 0.00508 m3/(s □m2),
□C = [(□F) -32]/1.8, 1 square foot = 0.0929 m2.

a. Based upon net occupiable floor area
b. Mechanical exhaust required and the recirculation of air from such spaces ~~as permitted by Section 403.2.1~~ is prohibited (see Section 403.2.1, Item~~s 1 and~~ 3).
c. Spaces unheated or maintained below50□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. Where the ventilation rate is expressed in cfm/ft2, such rate is based upon cubic feet per minute per square foot of the floor area being ventilated.~~
~~f. The sum of the outdoor and transfer air from adjacent spaces shall be sufficient to provide an exhaust rate of not less than 1.5 cfm/ft2.~~
~~g. Transfer air permitted in accordance with Section 403.2.2.~~
e. Rates are per water closet or urinal. The higher rate shall be provided where periods of heavy use are expected to occur, e.g., 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.

~~h~~g. Mechanical exhaust is required 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).

i. For nail salons, ~~T~~the required exhaust shall include ventilation tables or other systems that ~~shall~~ capture the contaminants and odors at their source and are capable of exhausting a minimum of 50 cfm per station.

7. Add new text as follows:

403.4 Exhaust Ventilation. Exhaust airflow rate shall be provided in accordance with the requirements in Table 403.3. Exhaust makeup air shall be permitted to be any combination of outdoor air, recirculated air, and transfer air, except as limited in accordance with Section 403.2.

8. Revise as follows:

~~403.3.1~~ 403.5 System operation. The minimum flow rate of outdoor air that the ventilation system must be capable of supplying during its operation shall be permitted to be based on the rate per person indicated in Table 403.3 and the actual number of occupants present.

~~403.3.3~~403.6 Variable air volume system control. Variable air volume air distribution systems, other than those designed to supply only 100-percent outdoor air, shall be provided with controls to regulate the flow of outdoor air. Such control system shall be designed to maintain the flow rate of outdoor air at a rate of not less than that required by Section 403.3 over the entire range of supply air operating rates.

~~403.3.4~~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. 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.

404.2 Minimum ventilation. Automatic operation of the system shall not reduce the ventilation airflow rate below 0.05 cfm per square foot (0.00025m3/s •m2) of the floor area and the system shall be capable of producing a ventilation airflow rate of ~~1.5~~ 0.75 cfm per square foot (0.0076m3/s • m2) of floor area.

9. Add new text as follows:

SECTION 202
GENERAL DEFINITIONS

BREATHING ZONE. The region within an occupied space between planes 3 and 72 in. (75 and 1800 mm) above the floor and more than 2 ft (600 mm) from the walls of the space or from fixed air-conditioning equipment.

NET OCCUPIABLE FLOOR AREA. The floor area of an occupiable space defined by the inside surfaces of its walls but excluding shafts, column enclosures, and other permanently enclosed, inaccessible, and unoccupiable areas. Obstructions in the space such as furnishings, display or storage racks, and other obstructions, whether temporary or permanent, are not deducted from the space area.

OCCUPIABLE SPACE. An enclosed space intended for human activities, excluding those spaces intended primarily for other purposes, such as storage rooms and equipment rooms, that are only intended to be occupied occasionally and for short periods of time.

ZONE. One occupiable space or several occupiable spaces with similar occupancy classification (see Table 403.3), occupant density, zone air distribution effectiveness, and zone primary airflow rate per unit area.

Reason: To bring the IMC more in line with contemporary ventilation and air quality criteria that are based on research conducted since the ventilation provisions of the IMC were revised and the consensus achieved under the ANSI Standards process.

The current ventilation criteria in the IMC are essentially based on ASHRAE Standard 62-1989. Research has been conducted since then our knowledge of indoor air quality and ventilation has evolved. In response to these actions ASHRAE has enhanced Standard 62, upon which the IMC is based. This code change would make the IMC consistent with ventilation rate procedures defined in ANSI/ASHRAE Standard 62.1-2004 and consistent with the 2006 Uniform Mechanical Code.

ANSI/ASHRAE Standard 62.1-2004 is a consensus national standard. Standard 62.1 ventilation rate calculation procedure has been substantially updated in the 2004 version to reflect the latest research on building indoor air quality. The procedure now requires designers to account for pollutant sources other than occupants, such as building materials and furnishings, and to account for the efficiency of the ventilation system to deliver outdoor air to the breathing zone. Ventilation systems designed using the new procedures will result in slightly lower outdoor rates for most occupancies compared to the current code, reducing first costs and energy costs.

Bibliography:
ANSI/ASHRAE Standard 62.1-2004 Ventilation for Acceptable Indoor Air Quality, American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., Atlanta, GA

Cost Impact: The code change proposal will not increase the cost of construction, and in some instances will reduce the first cost of construction. Engineering design effort and jurisdictional plan review processes will not be materially affected due to the availability and greater specificity of compliance tools.

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

M45–06/07

403.1, 403.2, 403.2.1, 403.2.2, 403.3, 403.3.1, 403.3.1.1 (New), 403.3.1.2 (New), Table 403.1 (New), 403.3.1.3 (New), 403.3.2, 403.3.2.1 (New), 403.3.2.2 (New), 403.3.2.3 (New), 403.3.2.3.1 (New), 403.3.2.3.2 (New), Table 403.2, 403.3.2.3.3 (New), 403.3.2.3.4 (New), 403.3.3, Table 403.3, 403.3.4, 403.4 (New), 403.5 (New), 403.6 (New), 403.7 (New), 404.2, 202 (New)

Proponent: Steven Ferguson, ASHRAE

1. Revise as follows:

403.1 Ventilation system. Mechanical ventilation shall be provided by a method of supply air and return or exhaust air. The amount of supply air shall be approximately equal to the amount of return and exhaust air. The amount of supply air shall be approximately equal to the amount of return and exhaust air. The system shall not be prohibited from producing negative or positive pressure. The system to convey ventilation air shall be designed and installed in accordance with Chapter 6.

~~Ventilation supply systems shall be designed to deliver the required rate of supply air to the occupied zone within an occupied space. The occupied zone shall have boundaries measured at 3 inches (76 mm) and 72 inches (1829 mm) above the floor and 24 inches (610 mm) from the enclosing walls.~~

403.2 Outdoor air required. The minimum ~~ventilation rate of required~~ outdoor airflow rate shall be determined in accordance with Section 403.3. Ventilation supply systems shall be designed to deliver the required rate of outdoor airflow to the breathing zone within each occupiable space.

Exception: Where the registered design professional demonstrates that an engineered ventilation system design will prevent the maximum concentration of contaminants from exceeding that obtainable by the rate of outdoor air ventilation determined in accordance with Section 403.3, the minimum required rate of outdoor air shall be reduced in accordance with such engineered system design.

403.2.1 Recirculation of air. The outdoor air required by Section 403.3 shall not be recirculated. Air in excess of that required by Section 403.3 shall not be prohibited from being recirculated as a component of supply air to building spaces, except that:

1. Ventilation air shall not be recirculated from one dwelling unit to another or to dissimilar occupancies.
2. Supply air to a swimming pool and associated deck areas shall not be recirculated unless such air is dehumidified to maintain the relative humidity of the area at 60 percent or less. Air from this area shall not be recirculated to other spaces where 10 percent or more of the resulting supply airstream consists of air recirculated from these spaces.
3. Where mechanical exhaust is required by Note b in Table 403.3, recirculation of air from such spaces shall be prohibited. All air supplied to such spaces shall be exhausted, including any air in excess of that required by Table 403.3.
4. Where mechanical exhaust is required by Note h in Table 403.3, mechanical exhaust is required and recirculation is prohibited where 10% or more of the resulting supply airstream consists of air recirculated from these spaces.

403.2.2 Transfer air. Except where recirculation from such spaces is prohibited by Table 403.3, air transferred from occupiable ~~occupied~~ spaces is not prohibited from serving as makeup air for required exhaust systems in such spaces as kitchens, baths, toilet rooms, elevators and smoking lounges. The amount of transfer air and exhaust air shall be sufficient to provide the flow rates as specified in Section~~s~~ 403.3 ~~and 403.3.1~~. The required outdoor airflow rates specified in Table 403.3 shall be introduced directly into such spaces or into the occupied spaces from which air is transferred or a combination of both.

403.3 ~~Ventilation~~ Outdoor airflow rate. Ventilation systems shall be designed to have the capacity to supply the minimum outdoor airflow rate determined in accordance with this section. ~~Table 403.3 based on the occupancy of the~~

~~space and the occupant load or other parameter as stated therein.~~ The occupant load utilized for design of the ventilation system shall not be less than the number determined from the estimated maximum occupant load rate indicated in Table 403.3 Ventilation rates for occupancies not represented in Table 403.3 shall be those for a listed occupancy classification that is most similar in terms of occupant density, activities and building construction; or, shall be determined by an approved engineering analysis. The ventilation system shall be designed to supply the required rate of ventilation air continuously during the period the building is occupied, except as otherwise stated in other provisions of the code.

With the exception of smoking lounges, the ventilation rates in Table 403.3 are based on the absence of smoking in occupiable spaces. When smoking is anticipated in a space other than a smoking lounge, the ventilation system serving the space shall be designed to provide ventilation over and above that required by Table 403.3 in accordance with accepted engineering practice.

Exception: The occupant load is not required to be determined, based on the estimated maximum occupant load rate indicated in Table 403.3 where approved statistical data document the accuracy of an alternate anticipated occupant density.

2. Delete and substitute as follows:

~~**403.3.1 System operation.** The minimum flow rate of outdoor air that the ventilation system must be capable of supplying during its operation shall be permitted to be based on the rate per person indicated in Table 403.3 and the actual number of occupants present.~~

403.3.1 Zone outdoor airflow. The minimum outdoor airflow required to be supplied to each zone shall be determined as function of occupancy classification and space air distribution effectiveness in accordance with Section 403.3.1.1 through 403.3.1.3

3. Add new text as follows:

403.3.1.1 Breathing zone outdoor airflow. The outdoor airflow rate required in the breathing zone (Vbz) of the occupiable space or spaces in a zone shall be determined in accordance with Equation 4-1.

$$Vbz = RpPz + RaAz \qquad \text{(Equation 4-1)}$$

Where:
Az = zone floor area: the net occupiable floor area of the space or spaces in the zone.
Pz = zone population: the number of people in the space or spaces in the zone.
Rp = people outdoor air rate: the outdoor airflow rate required per person from Table 403.3
Ra = area outdoor air rate: the outdoor airflow rate required per unit area from Table 403.3

403.3.1.2 Zone air distribution effectiveness. The *zone air distribution effectiveness* (*Ez*) shall be determined using Table 403.1.

TABLE 403.1
ZONE AIR DISTRIBUTION EFFECTIVENESS

Air Distribution Configuration	E_z
Ceiling or floor supply of *cool air*	1.0[f]
Ceiling or floor supply of *warm air* and floor return	1.0
Ceiling supply of *warm air* and ceiling return.	0.8[g]
Floor supply of *warm air* and ceiling return	0.7
Makeup air drawn in on the opposite side of the room from the exhaust and/or return	0.8
Makeup air drawn in near to the exhaust and/or return location	0.5

a. "*Cool air*" is air cooler than space temperature.
b. "*Warm air*" is air warmer than space temperature.
c. "Ceiling" includes any point above the *breathing zone.*
d. "Floor" includes any point below the *breathing zone.*
e.*"Makeup air"* is air supplied or transferred. to a zone to replace air removed from the zone by exhaust or return systems..
f. *Zone air distribution effectiveness* of 1.2 shall be permitted for systems with floor supply of *cool air* and ceiling return, provided low-velocity displacement ventilation achieves unidirectional flow and thermal stratification.
g. *Zone air distribution effectiveness* of 1.0 shall be permitted for systems with ceiling supply of *warm air*, provided supply air is less than 15°F (8°C) above space temperature and provided that the 150 fpm (0.8 m/s) supply air jet reaches to within 4.5 ft (1.4 m) of floor level.

403.3.1.3 Zone outdoor airflow. The *zone outdoor airflow* rate (*Voz*), shall be determined in accordance with Equation 4-2.

$$Voz = Vbz/Ez \quad \text{(Equation 4-2)}$$

403.3.2 System outdoor airflow. The outdoor air required to be supplied by each ventilation system shall be determined in accordance with Section 403.3.2.1 through 403.2.3 as a function of system type and zone outdoor airflow rates.

403.3.2.1 Single zone systems. When one air handler supplies a mixture of outdoor air and recirculated return air to only one zone, the system *outdoor air intake flow rate* (*Vot*) shall be determined in accordance with Equation 4-3.

$$Vot = Voz \quad \text{(Equation 4-3)}$$

403.3.2.2 100% outdoor air systems. When one air handler supplies only outdoor air to one or more zones, the system *outdoor air intake flow* rate (*Vot*) shall be determined using Equation 4-4.

4. Revise as follows:

~~**403.3.2 Common ventilation system.**~~ **403.3.2.3 Multiple zone recirculating systems.** Where spaces having different ventilation rate requirements are served by a common ventilation system, the ratio of outdoor air to total supply air for the system shall be determined based on the space having the largest outdoor air requirement or shall be determined in accordance with the following formula:

$Y = X/(1 + X - Z)$ (Equation 4-~~5~~1)

Where
$Y = Vot/Vst$ = Corrected fraction of outdoor air in system supply.
$X = Von/Vst$ = Uncorrected fraction of outdoor air in system supply
$Z = Voc/Vsc$ = Fraction of outdoor air in critical zone~~space~~. The critical zone~~space~~ is that zone~~space~~ with the greatest required fraction of outdoor air in the supply to this space.
Vot= Corrected total outdoor airflow rate.
Vst= Total supply flow rate, i.e., the sum of all supply for all branches of the system.
Von= Sum of outdoor airflow rates for all branches on system.
Voc= Outdoor airflow rate (*Voz*) required in critical zone~~spaces~~.
Vsc= Supply flow rate in critical zone~~space~~.

TABLE~~e~~ 403.3
~~REQUIRED OUTDOOR VENTILATION AIR~~
MINIMUM VENTILATION RATES

OCCUPANCY CLASSIFICATION	~~ESTIMATED MAXIMUM OCCUPANT LOAD, PERSONS PER 1,000 SQUARE FEET a~~	~~OUTDOOR AIR (Cubic feet per Minute (cfm) Per person) UNLESS NOTED c~~	People Outdoor Airflow Rate in Breathing Zone Rp cfm/person	Area Outdoor Airflow Rate in Breathing Zone Ra cfm/ft2[a]	Default Occupant Density #/1000 ft2[a]	Exhaust Airflow Rate cfm/ft2[a]
Correctional facilities						
Cells						
without plumbing fixtures	~~20~~	~~20~~	5	0.12	25	–
with plumbing fixtures[g,hg]	~~20~~	~~20~~	5	0.12	25	1.00
Dining halls (See Food and Beverage Service)	~~100~~	~~15~~	–	–	–	–
Guard stations	~~40~~	~~15~~	5	0.06	15	–
Day room	~~–~~	~~–~~	5	0.06	30	–
Booking/waiting	~~–~~	~~–~~	7.5	0.06	50	–
Dry Cleaners, laundries						
Coin-operated dry cleaner	~~20~~		15	–	20	–
Coin-operated laundries	~~20~~	~~15~~	7.5	0.06	20	–
Commercial dry cleaner	~~30~~	~~30~~	30	–	30	–
Commercial laundry	~~10~~	~~25~~	25	–	10	–
Storage, pick up	~~30~~	~~35~~	7.5	.12	30	–
Education						
Auditoriums	~~150~~	~~15~~	5	0.06	150	–
~~Classrooms~~	~~50~~	~~15~~	below	below	below	–
Corridors (See Public Spaces)	~~—~~	~~0.10 /ft2~~	–	–	–	–
~~Laboratories~~	~~30~~	~~20~~	below	below	below	–
~~Libraries~~ Media center	~~20~~	~~15~~	10	0.12	25	–
Sports locker rooms[hg]	~~—~~	~~0.50 /ft2~~	–	–	–	0.50

OCCUPANCY CLASSIFICATION	~~ESTIMATED MAXIMUM OCCUPANT LOAD, PERSONS PER 1,000 SQUARE FEET a~~	~~OUTDOOR AIR (Cubic feet per Minute (cfm) Per person) UNLESS NOTED c~~	People Outdoor Airflow Rate in Breathing Zone Rp cfm/person	Area Outdoor Airflow Rate in Breathing Zone Ra cfm/ft2[a]	Default Occupant Density #/1000 ft2[a]	Exhaust Airflow Rate cfm/ft2[a]
~~Music rooms~~Music/theater/dance	~~50~~	~~15~~	10	0.06	35	–
Smoking lounges[b,g]	~~70~~	~~60~~	60		70	–
~~Training shops~~	~~30~~	~~20~~				–
Daycare (through age 4)			10	0.18	25	–
Classrooms (ages 5-8)			10	0.12	25	–
Classrooms (age 9 plus)			10	0.12	35	–
Lecture classroom			7.5	0.06	65	–
Lecture hall (fixed seats)			7.5	0.06	150	–
Art classroom[hg]			10	0.18	20	0.70
Science laboratories[hg]			10	0.18	25	1.00
Wood/metal shops[hg]			10	0.18	20	0.50
Computer lab			10	0.12	25	–
Multi-use assembly			7.5	0.06	100	–
Locker/dressing rooms[hg]			–	–	–	0.25
Food and beverage service						
Bars, cocktail lounges	~~100~~	~~30~~	7.5	0.18	100	–
Cafeteria, fast food	~~100~~	~~20~~	7.5	0.18	100	–
Dining rooms	~~70~~	~~20~~	7.5	0.18	70	–
Kitchens (cooking)[f,gb]	~~20~~	~~15~~	–	–	–	0.70
Hospitals, nursing and convalescent homes						
Autopsy rooms[b]	~~—~~	~~0.50 /ft2~~		–	–	0.50
Medical procedure rooms	~~20~~	~~15~~	15	–	20	–
Operating rooms	~~20~~	~~30~~	30	–	20	–
Patient rooms	~~10~~	~~25~~	25	–	10	–
Physical therapy	~~20~~	~~15~~	15	–	20	–
Recovery and ICU	~~20~~	~~15~~	15	–	20	–
Hotels, motels, resorts and dormitories						
~~Assembly rooms~~ Multi-purpose assembly	~~120~~	~~15~~	5	0.06	5	–
Bathrooms/Toilet – private[g,hg]	~~—~~	~~35 /room~~	–	–	–	25/50[f]
Bedroom/living room	~~—~~	~~30 /room~~	5	0.06	10	–
Conference/meeting ~~rooms~~	~~50~~	~~20~~	5	0.06	50	–
Dormitory sleeping areas	~~20~~	~~15~~	5	0.06	20	–
Gambling casinos	~~120~~	~~30~~	7.5	0.18	120	–
~~Living rooms~~	~~—~~	~~30 /room~~	–	–	–	–
Lobbies/pre-function	~~30~~	~~15~~	7.5	0.06	30	–
Offices						
Conference rooms	~~50~~	~~20~~	5	0.06	50	–
Office spaces	~~7~~	~~20~~	5	0.06	5	–
Reception areas	~~60~~	~~15~~	5	0.06	30	–
~~Telecommunication centers and data entry~~	~~60~~	~~20~~	–	–	–	–
Telephone/data entry	~~=~~	~~=~~	5	0.06	60	–
Main entry lobbies	~~=~~	~~=~~	5	0.06	10	–
Private dwellings, single and Multiple						
Garages, common for multiple units[b]	~~—~~	~~1.5 cfm/ft2~~	–	–	–	0.75
Garages, separate for each dwelling[b]	~~—~~	~~100 cfm per car~~	–	–	–	100 cfm per car
Kitchens[gb]	~~—~~	~~100 cfm intermit. or 25 cfm contin.~~	–	–	–	25/100[f]
Living areas[c]	~~Based upon number of bedrooms. first bedrm 2; each additional bedrm: 1~~	~~0.35 air changes per houra or 15 cfm per person, whichever is greater~~	0.35 ACH but not less than 15 cfm/p	–	Based upon number of bedrooms. first bedrm 2; each additional bedrm: 1	–
Toilet rooms and bathrooms[g,hg]	~~—~~	~~mech. exhaust capacity of 50 cfm interittent or 20 cfm~~	–	–	–	20/50[f]

OCCUPANCY CLASSIFICATION	~~ESTIMATED MAXIMUM OCCUPANT LOAD, PERSONS PER 1,000 SQUARE FEET a~~	~~OUTDOOR AIR (Cubic feet per Minute (cfm) Per person) UNLESS NOTED c~~	People Outdoor Airflow Rate in Breathing Zone Rp cfm/person	Area Outdoor Airflow Rate in Breathing Zone Ra cfm/ft2[a]	Default Occupant Density #/1000 ft2[a]	Exhaust Airflow Rate cfm/ft2[a]
		~~contin.~~				
Public spaces						
Corridors ~~and utilities~~	~~—~~	~~0.05 /ft2~~	~~–~~	0.06	~~–~~	~~–~~
Elevator car[g]	~~—~~	~~1.00 /ft2~~	~~–~~			1.0
~~Locker rooms~~[hg]	~~—~~	~~0.5 /ft2~~	~~–~~	~~–~~	~~–~~	~~–~~
Shower room (per shower head)[g,hg]		~~50 cfm intermediate or 20 cfm contin.~~ ~~60~~	~~–~~	~~–~~	~~–~~	50/20[f]
Smoking lounges[b,g]	~~70~~		60	~~–~~	70	~~–~~
Toilet rooms – public[g,hg]	~~—~~	~~75 /w.c. or urinal~~	~~–~~	~~–~~	~~–~~	50/70[e]
Places of religious worship			5	0.06	120	
Courtrooms			5	0.06	70	
Legislative chambers			5	0.06	50	
Libraries			5	0.12	10	
Museums (children's)			7.5	0.12	40	
Museums/galleries			7.5	0.06	40	
Retail stores, sales floors and Showroom floors						
~~Basement and street~~ Sales (except as	~~—~~	~~0.30 /ft2~~	7.5	0.12	15	~~–~~
below)	~~—~~	~~0.20 /ft2~~	~~–~~	~~–~~	~~–~~	0.25
Dressing rooms	~~—~~	~~0.20 /ft2~~	7.5	0.06	40	~~–~~
~~Malls and arcades~~ Mall common areas	~~—~~	~~0.15 /ft2~~	~~–~~	0.12	~~–~~	~~–~~
Shipping and receiving	~~70~~	~~60~~	60	~~–~~	70	~~–~~
Smoking lounges[b,g]	~~—~~	~~0.15 /ft2~~	~~–~~	0.12	~~–~~	~~–~~
Storage rooms	~~—~~	~~0.20 /ft2~~				
~~Upper floors~~	~~—~~	~~0.05 /ft2~~				
Warehouses (See Storage)						
Specialty shops						
Automotive motor-fuel dispensing	~~—~~	~~1.5 /ft2~~	~~–~~	~~–~~	~~–~~	1.50
stations[b]	~~25~~	~~15~~	7.5	0.06	25	0.50
Barber	~~25~~	~~25~~	20	0.12	25	0.60
Beauty and nail salons[b, i]	~~—~~	~~0.30 /ft2~~				
~~Clothiers, furniture~~	~~—~~	~~2.0 /ft2~~				2.0
Embalming room[b]	~~8~~	~~15~~				
~~Florists~~	~~8~~	~~15~~				
~~Hardware, drugs, fabrics~~	~~—~~	~~50 cfm intermediate or 20 cfm contin. per station~~				
~~Nail salon~~[b,i]	~~—~~	~~1.0 /ft2~~				
		~~15~~				
		~~15~~	7.5	0.18	10	0.90
Pet shops (animal areas)[b]	~~20~~					
~~Reducing salons~~	~~8~~		7.5	0.06	8	~~–~~
Supermarkets						
Sports and amusement						
~~Ballrooms and discos~~Disco/dance floors	~~100~~	~~25~~	20	0.06	100	~~–~~
Bowling alleys (seating areas)	~~70~~	~~25~~	10	0.12	40	~~–~~
Game ~~rooms~~arcades	~~70~~	~~25~~	7.5	0.18	20	~~–~~
Ice arenas without combustion engines	~~—~~	~~0.50 /ft2~~	~~–~~	0.30	~~–~~	0.50
~~Playing floors (gymnasiums)~~ Gym, stadium, arena (play area)	~~30~~	~~20~~	~~–~~	0.30	~~–~~	~~–~~
Spectator areas	~~150~~	~~15~~	7.5	0.06	150	~~–~~
Swimming pools (pool and deck area)	~~—~~	~~0.50 /ft2~~	~~–~~	0.48	~~–~~	~~–~~
Health club/aerobics room			20	0.06	40	~~–~~
Health club/weight room			20	0.06	10	~~–~~
Storage						
Repair garages, enclosed parking	~~—~~	~~1.5 /ft2~~	~~–~~	~~–~~	~~–~~	0.75
garages[b,d]	~~—~~	~~0.05 /ft2~~	~~–~~	0.06	~~–~~	~~–~~
Warehouses						
Theaters						
Auditoriums (See Education)	~~150~~	~~15~~				
Lobbies	~~150~~	~~20~~	5	0.06	150	~~–~~

OCCUPANCY CLASSIFICATION	~~ESTIMATED MAXIMUM OCCUPANT LOAD, PERSONS PER 1,000 SQUARE FEET a~~	~~OUTDOOR AIR (Cubic feet per Minute (cfm) Per person) UNLESS NOTED e~~	People Outdoor Airflow Rate in Breathing Zone Rp cfm/person	Area Outdoor Airflow Rate in Breathing Zone Ra cfm/ft2[a]	Default Occupant Density #/1000 ft2[a]	Exhaust Airflow Rate cfm/ft2[a]
Stages, studios	~~70~~	~~15~~	10	0.06	70	–
Ticket booths	~~60~~	~~20~~	5	0.06	60	–
Transportation						
Platforms	~~100~~	~~15~~	7.5	0.06	100	–
~~Vehicles~~	~~150~~	~~15~~				
~~Waiting rooms~~ Transportation waiting	~~100~~	~~15~~	7.5	0.06	100	–
Workrooms						
Bank vaults/safe deposit	~~5~~	~~15~~	5	0.06	5	
Darkrooms	~~—~~	~~0.50 /ft2~~	–	–	–	1.00
~~Duplicating~~Copy, printing rooms	~~—~~	~~0.50 /ft2~~	5	0.06	4	0.50
Meat processing[c]	~~10~~	~~15~~	15	–	10	–
Pharmacy (prep. area)	~~20~~	~~15~~	5	0.18	10	–
Photo studios	~~10~~	~~15~~	5	0.12	10	–
Computer (without printing)	~~–~~	~~–~~	5	0.06	4	–

For SI: 1 cubic foot per minute = 0.0004719 m3/s, 1 ton = 908 kg,
1 cubic foot per minute per square foot = 0.00508 m3/(s □m2),
□C = [(□F) -32]/1.8, 1 square foot = 0.0929 m2.

a. Based upon net occupiable floor area
b. Mechanical exhaust required and the recirculation of air from such spaces ~~as permitted by Section 403.2.1~~ is prohibited (see Section 403.2.1, Item~~s 1 and~~ 3).
c. Spaces unheated or maintained below50□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. Where the ventilation rate is expressed in cfm/ft2, such rate is based upon cubic feet per minute per square foot of the floor area being ventilated.~~
~~f. The sum of the outdoor and transfer air from adjacent spaces shall be sufficient to provide an exhaust rate of not less than 1.5 cfm/ft2.~~
~~g. Transfer air permitted in accordance with Section 403.2.2.~~
e. Rates are per water closet or urinal. The higher rate shall be provided where periods of heavy use are expected to occur, e.g., 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.
~~h~~g. Mechanical exhaust is required 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).
i. For nail salons, ~~T~~the required exhaust shall include ventilation tables or other systems that ~~shall~~ capture the contaminants and odors at their source and are capable of exhausting a minimum of 50 cfm per station.

5. Add new text as follows:

403.4 Exhaust Ventilation. Exhaust airflow rate shall be provided in accordance with the requirements in Table 403.3. Exhaust makeup air shall be permitted to be any combination of outdoor air, recirculated air, and transfer air, except as limited in accordance with Section 403.2.

6. Revise as follows:

~~403.3.1~~ 403.5 System operation. The minimum flow rate of outdoor air that the ventilation system must be capable of supplying during its operation shall be permitted to be based on the rate per person indicated in Table 403.3 and the actual number of occupants present.

~~403.3.3~~403.6 Variable air volume system control. Variable air volume air distribution systems, other than those designed to supply only 100-percent outdoor air, shall be provided with controls to regulate the flow of outdoor air. Such control system shall be designed to maintain the flow rate of outdoor air at a rate of not less than that required by Section 403.3 over the entire range of supply air operating rates.

~~403.3.4~~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. 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.

404.2 Minimum ventilation. Automatic operation of the system shall not reduce the ventilation airflow rate below 0.05 cfm per square foot (0.00025m3/s •m2) of the floor area and the system shall be capable of producing a ventilation airflow rate of ~~1.5~~ 0.75 cfm per square foot (0.0076m3/s • m2) of floor area.

7. Add new definitions as follows:

SECTION 202
GENERAL DEFINITIONS

BREATHING ZONE. The region within an occupied space between planes 3 and 72 in. (75 and 1800 mm) above the floor and more than 2 ft (600 mm) from the walls of the space or from fixed air-conditioning equipment.

NET OCCUPIABLE FLOOR AREA. The floor area of an occupiable space defined by the inside surfaces of its walls but excluding shafts, column enclosures, and other permanently enclosed, inaccessible, and unoccupiable areas. Obstructions in the space such as furnishings, display or storage racks, and other obstructions, whether temporary or permanent, shall not be deducted from the space area.

OCCUPIABLE SPACE. An enclosed space intended for human activities, excluding those spaces intended primarily for other purposes, such as storage rooms and equipment rooms, that are only intended to be occupied occasionally and for short periods of time.

ZONE. One occupiable space or several occupiable spaces with similar occupancy classification (see Table 403.3), occupant density, zone air distribution effectiveness, and zone primary airflow rate per unit area.

Reason: To bring the IMC more in line with contemporary ventilation and air quality criteria that are based on research conducted since the ventilation provisions of the IMC were revised and the consensus achieved under the ANSI Standards process.

The current ventilation criteria in the IMC are essentially based on ASHRAE Standard 62-1989. Research has been conducted since then our knowledge of indoor air quality and ventilation has evolved. In response to these actions ASHRAE has enhanced Standard 62, upon which the IMC is based. This code change would make the IMC consistent with ventilation rate procedures defined in ANSI/ASHRAE Standard 62.1-2004 and consistent with the 2006 Uniform Mechanical Code.

ANSI/ASHRAE Standard 62.1-2004 is a consensus national standard. Standard 62.1 ventilation rate calculation procedure has been substantially updated in the 2004 version to reflect the latest research on building indoor air quality. The procedure now requires designers to account for pollutant sources other than occupants, such as building materials and furnishings, and to account for the efficiency of the ventilation system to deliver outdoor air to the breathing zone. Ventilation systems designed using the new procedures will result in slightly lower outdoor rates for most occupancies compared to the current code, reducing first costs and energy costs.

This proposal differs from ASHRAE Code Change Proposal 1 in the way Multiple Zone Recirculating Systems are addressed in section 403.3.2.3. In this proposal, the existing UMC equation is retained while in Code Change Proposal 1 the Standard 62.1 approach is used. They are technically nearly equivalent. The approach in Code Change Proposal 1 is arguably simpler to apply since it uses easier to use tables and equations, but engineers may find the existing equation simpler because it is more familiar.

Bibliography:
ANSI/ASHRAE Standard 62.1-2004 Ventilation for Acceptable Indoor Air Quality, American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., Atlanta, GA

Cost Impact: The code change proposal will not increase the cost of construction, and in some instances will reduce the first cost of construction. Engineering design effort and jurisdictional plan review processes will not be materially affected due to the availability and greater specificity of compliance tools.

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

M46–06/07
403.2, Chapter 15

Proponent: Michael Burnetter, P.E., New York State Department of State Codes Division, representing himself

1. Revise as follows:

403.2 Outdoor air required. The minimum ventilation rate of outdoor air shall be determined in accordance with Section 403.3.

Exceptions:

1. Where the registered design professional demonstrates that an engineered ventilation system design will prevent the maximum concentration of contaminants from exceeding that obtainable by the rate of outdoor air ventilation determined in accordance with Section 403.3, the minimum required rate of outdoor air shall be reduced in accordance with such engineered system design.

2. Where the ventilation system is designed in accordance with ANSI/ASHRAE 62.1

2. Add standard to Chapter 15 as follows:

ASHRAE
Standard 62.1-2004 Ventilation for Acceptable Air Quality

Reason: The purpose of this proposal is to allow the use of ANSI/ASHRAE 62.1 as an acceptable alternative to section 403.2. The ANSI/ASHRAE 62.1-2004 is a reference standard already found in the IEBC. Adding this reference standard to the IMC will create a set of uniform codes. Currently, the exception allows for an engineered system but provides no further guidance. Should a code official or design engineer be looking for a detailed standard which may be relied upon as an acceptable compliance path for ventilation rates in addition to the prescriptive tables of the IMC or the broad brush "engineered system" exception, then incorporating this reference standard into the IMC would provide for that flexibility while having a detailed standard as a point of reference. As ASHRAE is the expert organization in the filed of HVAC design, this standard can be viewed as a fully vetted and debated standard, the purpose of which is to guide the design and control of ventilation systems.

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

Analysis: Results of review of the proposed standard will be posted on the ICC website by August 20, 2006.

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

M47–06/07
403.3, Chapter 15

Proponent: Steven Ferguson, ASHRAE

1. Revise as follows:

403.3 Ventilation rate. Ventilation systems shall be designed to have the capacity to supply the minimum outdoor airflow rate determined in accordance with Table 403.3 based on the occupancy of the space and the occupant load or other parameter as stated therein. The occupant load utilized for design of the ventilation system shall not be less than the number determined from the estimated maximum occupant load rate indicated in Table 403.3. Ventilation rates for occupancies not represented in Table 403.3 shall be determined by an approved engineering analysis. The ventilation system shall be designed to supply the required rate of ventilation air continuously during the period the building is occupied, except as otherwise stated in other provisions of the code.

Exceptions:

1. The occupant load is not required to be determined, based on the estimated maximum occupant load rate indicated in Table 403.3 where approved statistical data document the accuracy of an alternate anticipated occupant density.
2. Outdoor air rates calculated by a registered design professional in accordance with Sections 6.2.2 through 6.2.5 and 6.2.8 of ASHRAE 62.1.

2. Add standard to Chapter 15 as follows:

ASHRAE

Standard 62.1-2004 Ventilation for Acceptable Air Quality

Reason: This change will allow designers the option of using the contemporary ventilation and air quality criteria in ASHRAE Standard 62.1-2004.

The current ventilation criteria in the IMC are essentially based on ASHRAE Standard 62-1989. Research has been conducted since then our knowledge of indoor air quality and ventilation has evolved. In response to these actions ASHRAE has enhanced Standard 62, upon which the IMC is based. This code change would allow designers the option of using ASHRAE 62.1-2004. This option is limited to design calculations performed by registered design professionals to give the code official confidence that the calculation procedures in Standard 62.1 are properly implemented.

ANSI/ASHRAE Standard 62.1-2004 is a consensus national standard. Standard 62.1 ventilation rate calculation procedure has been substantially updated in the 2004 version to reflect the latest research on building indoor air quality. The procedure now requires designers to account for pollutant sources other than occupants, such as building materials and furnishings, and to account for the efficiency of the ventilation system to deliver outdoor air to the breathing zone. Ventilation systems designed using the new procedures will result in slightly lower outdoor rates for most occupancies compared to the current code, reducing first costs and energy costs.

This proposal is an alternative to ASHRAE Code Change Proposal 1, which proposes a complete replacement of the ventilation requirements in the existing IMC with a procedure consistent with ASHRAE Standard 62.1. In this alternative proposal, the Standard 62.1 rates are referenced as an alterative calculation procedure but the existing IMC approach remains.

Bibliography:
ANSI/ASHRAE Standard 62.1-2004 Ventilation for Acceptable Indoor Air Quality, American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., Atlanta, GA

Cost Impact: The code change proposal will not increase the cost of construction, and in some instances will reduce the first cost of construction.

Analysis: Results of review of the proposed standard will be posted on the ICC website by August 20, 2006.

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

M48–06/07
Table 403.3

Proponent: Robert Adkins, Prince William County, VA, representing the Virginia Plumbing and Mechanical Inspectors Association/Virginia Building and Code Officials Association

Revise table as follows:

TABLE 403.3
REQUIRED OUTDOOR VENTILATION AIR

OCCUPANCY CLASSIFICATION	ESTIMATED MAXIMUM OCCUPANT LOAD, PERSONS PER 1,000 SQUARE FEET[a]	OUTDOOR AIR [Cubic feet per minute (cfm) per person] UNLESS NOTED[e]
Storage		
Repair garages [b], enclosed parking garages[d]	—	1.5 cfm/ft2
Warehouses	—	0.05 cfm/ft

For SI: 1 cubic foot per minute = 0.0004719m3/s, 1 ton = 908 kg,
1 cubic foot per minute per square foot = 0.00508m3/(s • m2),
ºC = [(ºF) -32]/1.8, 1 square foot = 0.0929m2.
a. (No change to current text))
b. Mechanical exhaust required and the recirculation of air from such spaces as permitted by Section 403.2.1 is prohibited (see Section 403.2.1, Items 1 and 3).
c through l (No change to current text))

(Portions of table and footnotes not shown do not change)

Reason: It is not recommended to permit recirculated air from a repair garage. Many dangerous contaminants exist in a repair garage atmosphere that are unwanted anywhere else in a structure. Many repair garages are located next to showrooms, offices or convenience stores.

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

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

M49–06/07
403.3.4

Proponent: Cecil F. Hardee, Jr., County of Fairfax, VA, representing the Virginia Plumbing and Mechanical Inspectors Association/Virginia Building and Code Officials Association

Delete without substitution:

~~**403.3.4 Balancing.** Ventilation systems shall be balanced by an approved method. Such balancing shall verify that the ventilation system is capable of supplying the airflow rate required by Section 403.~~

Reason: The purpose is to delete current requirements of this section. This section gives no guidance or reference as to a standard to follow when balancing a duct system. The code never describes what is an “approved” method. Therefore any unqualified company or individual could be verifying these systems. Most states do not even have a license requirement for the “air balance” type tradesperson.

Some localities will not perform a final inspection or allow occupancy unless the report is completed. Even after the report is submitted the rates change. There are many factors that affect the outcome of air balancing; some include the condition of the duct system, the static pressure, the condition of the equipment and the general maintenance of the system. When occupant comfort levels vary dampers are closed and the system becomes unbalanced from the original balancing process. To require balancing of systems there needs to be more criteria to follow for the air flow balance within the duct system and not focus on the outlet where air flow rates are typically measured. What if the building is a “shell” only with no occupancy? Is a balance report required to gain the final mechanical inspection and then perform another balance again when the space actually becomes occupied for the intended use? The code official won’t even see the second report and that’s the one that counts! Isn’t the initial balance to gain inspection useless? It has to be preformed again under the actual occupant circumstances. This is an unnecessary duplication of efforts and more importantly a huge waste of time and money. On a new building with multiple tenants, do you require a balance report initially and then each time a tenant moves in require a balance report again and again? What if the scope of work is to relocate some ductwork? Is a balance report required for this type of activity? While the balance report is an extremely important issue it is not the code official who needs this information, it is the building owner, the designer, the occupants, or building management. Why is there no such verification for a naturally ventilated structure? Why make the code more difficult to comply with because a designer chooses to provide a more adequate ventilation system?

Lastly this section requires that the system be “capable” of supplying airflow rates required by Section 403. This can easily be achieved by doing the outdoor air calculation of the space, verifying the units specifications, and then assuring the proper equipment is installed that supplies the outdoor air.

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

Analysis: The definition of "APPROVED" in Section 202 makes the code official responsible for approving the balancing method.

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

M50–06/07
403.3.4, Chapter 15

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

1. Revise as follows:

403.3.4 Balancing. Ventilation systems shall be balanced as specified in the SMACNA *HVAC Systems Testing, Adjusting & Balancing Manual* ~~by an approved method~~. Such balancing shall verify that the ventilation system is capable of supplying the airflow rates required by Section 403.

2. Add standard to Chapter 15 as follows:

SMACNA
HVAC Systems Testing, Adjusting & Balancing Manual -Third Edition – August, 2002

Reason: The proposed change will remove the ambiguity of "by an approved method" and include reference to a long-standing industry standard from an ANSI Accredited Standards Developer.

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.

The SMACNA *HVAC Systems Testing, Adjusting & Balancing* manual was developed for use by technicians, contractors, designers, and code officials to ensure that all HVAC systems have been balanced for optimum performance. By including the manual, by reference, the IMC will ensure that a uniform, verifiable process is established for code compliance.

Bibliography: *HVAC Systems Testing, Adjusting & Balancing* Third Edition – August, 2002, Sheet Metal and Air Conditioning Contractors' National Association, Inc., 4201 Lafayette Center Drive, Chantilly, VA 20151

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

Analysis: Results of review of the proposed standard will be posted on the ICC website by August 20, 2006.

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

M51–06/07
406.1

Proponent: Tom Rubottom, City of Lakewood, CO, representing the Colorado Chapter of ICC

Revise as follows:

406.1 General. Uninhabited spaces, such as crawl spaces and attics, shall be provided with natural ventilation openings as required by the *International Building Code* or shall be provided with a mechanical exhaust and supply air system. The mechanical exhaust rate shall be not less than 0.02 cfm per square foot (0.00001 m3/s • m2) of horizontal area and the system shall ~~be automatically controlled to operate when the relative humidity in the space served exceeds 60 percent~~ operate continuously.

Reason: Currently IMC Section 406.1 does not correlate with Section 1203.3.2, Item 3 of the IBC. IMC Section 406.1 permits an automatically controlled ventilation system by means of a humidistat. Section 1203.3.2, Item 3 of the IBC requires that if a mechanical ventilation system is to be utilized in lieu of natural openings, the system is to be continuous.

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

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

M52–06/07
501.2

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

Revise as follows:

501.2 Exhaust discharge. The air removed by every mechanical exhaust system shall be discharged outdoors at a point where it will not cause a nuisance and not less than the distances specified in Section 501.2.1. The air shall be discharged to a location from which it cannot again be readily drawn in by a ventilating system. Air shall not be exhausted into a soffit, attic, or crawl space and shall not discharge at a point beneath an overhang where within 2 feet of such overhang.

Reason: Current text fails to address these two prohibited locations for exhaust discharge. Air being drawn right back in must be a consideration and making sure the air is directed away from the structure will prevent moisture or other harmful products from accumulating

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

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

M53–06/07
501.2.1

Proponent: Mark Riley, City of Troy, MI, representing himself

Revise as follows:

501.2.1 Location of exhaust outlets. The termination point of exhaust outlets and ducts discharging to the outdoors shall be located with the following minimum distances:

1. For ducts conveying explosive or flammable vapors, fumes or dusts: 30 feet (9144 mm) from property lines; 10 feet (3048 mm) from operable openings into buildings; 6 feet (1829 mm) from exterior walls and roofs; 30 feet (9144 mm) from combustible walls and operable openings into buildings which are in the direction of the exhaust discharge; 10 feet (3048 mm) above adjoining grade.
2. For other product-conveying outlets: 10 feet (3048 mm) from the property lines; 3 feet (914 mm) from exterior walls and roofs; 10 feet (3048 mm) from operable openings into buildings; 10 feet (3048 mm) above adjoining grade.
3. For environmental air duct exhaust: 3 feet (914 mm) from property lines; 3 feet (914 mm) from operable openings into buildings for all occupancies other than Group U, and 10 feet (3048 mm) from mechanical air intakes.

   Exception: Exhaust from bathrooms and kitchens in residential dwellings complying with Section 401.4.1.

4. For specific systems: For clothes dryer exhaust, see Section 504.4; for kitchen hoods, see Section 506.3; for dust, stock and refuse conveying systems, see Section 511.2; and for subslab soil exhaust systems, see Section 512.4.

Reason: This code change proposal will eliminate a code conflict with Sections 401.4.1 and 501.2.1 Item #3.

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

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

M54–06/07
501.3

Proponent: Ron Nickson, National Multi Housing Council/National Apartment Association

Revise as follows:

501.3 Pressure equalization. Mechanical exhaust systems shall be sized to remove the quantity of air required by this chapter to be exhausted. The system shall operate when air is required to be exhausted. Where mechanical exhaust is required in a room or space in other than occupancies in R-3 and dwelling units in R-2, such space shall be

maintained with a neutral or negative pressure. If a greater quantity of air is supplied by a mechanical ventilating supply system than is removed by a mechanical exhaust for a room, adequate means shall be provided for the natural or mechanical exhaust of the excess air supplied. If only a mechanical exhaust system is installed for a room or if a greater quantity of air is removed by a mechanical exhaust system than is supplied by a mechanical ventilating supply system for a room, adequate make-up air consisting of supply air, transfer air or outdoor air shall be provided to satisfy the deficiency. The calculated building infiltration rate shall not be utilized to satisfy the requirements of this section.

Reason: To expand the exception for not requiring mechanical ventilation currently allowed for R-3 to also be applicable to the dwelling unit portions of R-2. The mechanical systems in the R-2 individual dwellings are basically the same as those for R-3 and the systems are not designed for, nor does the code require that they introduce outside air into the structure.

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

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

M55–06/07
502.1, Chapter 15

Proponent: Tim Manz, University of Minnesota Building Code Division

1. Revise as follows:

502.1 General. An exhaust system shall be provided, maintained and operated as specifically required by this section and for all occupied areas where machines, vats, tanks, furnaces, forges, salamanders and other appliances, equipment and processes in such areas produce or throw off dust or particles sufficiently light to float in the air, or which emit heat, odors, fumes, spray, gas or smoke, in such quantities so as to be irritating or injurious to health or safety. Exhaust systems shall be designed in accordance with Chapter 5 of the ACGIH *Industrial Ventilation, Manual of Recommended Practice*, or other approved methods. Exhaust hoods shall be designed in accordance with Chapter 3 of the ACGIH *Industrial Ventilation, Manual of Recommended Practice,* or other approved methods.

2. Add standard to Chapter 15 as follows:

ACGIH-04 Industrial Ventilation, Manual of Recommended Practice

Reason: The purpose of the new text is to provide detailed guidance for the design and construction of exhaust hoods and exhaust systems. The language throughout section 502 often specifies minimum exhaust rates and velocities, but it does not contain adequate information to ensure that an appropriate exhaust hood or exhaust system is installed. The reference to ACGIH *Industrial Ventilation* ensures that a properly designed system is required by the IMC and also allows flexibility for other approved methods to be accepted by the code official.

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

Analysis: Results of review of the proposed standard will be posted on the ICC website by August 20, 2006.

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

M56–06/07
502.4 through 502.5.2, 407 (New)

Proponent: Ronald Marts, Telcordia, representing AT&T, SBC, Ameritech, PacBell, Cincinnati Bell, BellSouth, Qwest and Southern New England Tele

Delete and relocate as follows:

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

~~**Exception:** Lithiumion batteries shall not require ventilation.~~

~~**[F] 502.4.1 Hydrogen limit in rooms.** For flooded lead acid, flooded nickel cadmium and VRLA batteries, the ventilation system shall be designed to limit the maximum concentration of hydrogen to 1.0 percent of the total volume of the room.~~

~~**[F] 502.4.2 Ventilation rate in rooms.** Continuous ventilation shall be provided at a rate of not less than 1 cubic foot per minute per square foot (cfm/ft2) [0.00508 m3/(s •m2)] of floor area of the room.~~

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

~~**[F] 502.5.1 Hydrogen limit in cabinets.** The cabinet ventilation system shall be designed to limit the maximum concentration of hydrogen to 1.0 percent of the total volume of the cabinet during the worst-case event of simultaneous boost charging of all batteries in the cabinet.~~

~~**[F] 502.5.2 Ventilation rate in cabinets.** Continuous cabinet ventilation shall be provided at a rate of not less than 1 cubic foot per minute per square foot (cfm/ft.2) [0.00508 m3/(s • m2)] of the floor area covered by the cabinet. The room in which the cabinet is installed shall also be ventilated as required by Section 502.4.1 or 502.4.2.~~

SECTION 407
VENTILATION OF STATIONARY STORAGE BATTERY SYSTEMS

[F] 407.1 Stationary storage battery systems. Stationary storage battery systems, as regulated by Section 608 of the *International Fire Code*, shall be provided with ventilation in accordance with this chapter and Section 502.4.1 or 502.4.2.

Exception: Lithiumion batteries shall not require ventilation.

[F] 407.1.1 Hydrogen limit in rooms. For flooded lead acid, flooded nickel cadmium and VRLA batteries, the ventilation system shall be designed to limit the maximum concentration of hydrogen to 1.0 percent of the total volume of the room.

[F] 407.1.2 Ventilation rate in rooms. Continuous ventilation shall be provided at a rate of not less than 1 cubic foot per minute per square foot (cfm/ft2) [0.00508 m3/(s •m2)] of floor area of the room.

[F] 407.2 Valve-regulated lead-acid batteries in cabinets. Valve-regulated lead-acid (VRLA) batteries installed in cabinets, as regulated by Section 608.6.2 of the *International Fire Code*, shall be provided with ventilation in accordance with Section 502.5.1 or 502.5.2.

[F] 407.2.1 Hydrogen limit in cabinets. The cabinet ventilation system shall be designed to limit the maximum concentration of hydrogen to 1.0 percent of the total volume of the cabinet during the worst-case event of simultaneous boost charging of all batteries in the cabinet.

[F] 407.2.2 Ventilation rate in cabinets. Continuous cabinet ventilation shall be provided at a rate of not less than 1 cubic foot per minute per square foot (cfm/ft.2) [0.00508 m3/(s • m2)] of the floor area covered by the cabinet. The room in which the cabinet is installed shall also be ventilated as required by Section 502.4.1 or 502.4.2.

Reason: The ventilation requirement for stationary storage battery systems was inadvertently put in the "exhaust" chapter of the IMC instead of the ventilation chapter. Section 608 of the IFC was recently renamed from "Lead Acid Battery Systems" to "Stationary Storage Battery Systems." The section has always required ventilation, but never exhaust. Battery requirements were originally developed in the UFC as Article 64, which also required ventilation, but not exhaust. The earlier BOCA and Standard Codes also required ventilation, but not exhaust.

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

Analysis: It is not clear why the proponent did not propose to relocate other sections of 502 that also address ventilation rather than exhaust. The code does not distinguish between ventilation by means of exhaust systems or by means of supply air systems.

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

M57–06/07
504.2

Proponent: Julius Ballanco, P.E., JB Engineering and Code Consulting, P.C., representing In-O-Vate Technology, Inc.

Revise as follows:

504.2 Exhaust penetrations. Where a clothes dryer exhaust duct penetrates a wall or ceiling membrane, the annular space shall be sealed with noncombustible material, approved fire caulking, or a noncombustible dryer exhaust duct wall receptacle. Ducts that exhaust clothes dryers shall not penetrate or be located within any fireblocking, drafstopping or any wall, floor/ceiling or other assembly required by the International Building Code to be fire-

resistance rated, unless such duct is constructed of galvanized steel or aluminum of the thickness specified in Section 603.4 and the fire-resistance rating is maintained in accordance with the International Building Code. Fire dampers, combination fire/smoke dampers and any similar devices that will obstruct the exhaust flow, shall be prohibited in clothes dryer exhaust ducts.

Reason: This modification merely clarifies that the penetration of a dryer exhaust duct must be protected. While this is the intent of the section, it is never clearly stated. The protection of the annular space can be by a noncombustible seal, fire caulking or a metal dryer receptacle. These penetrations must be properly protected since they are located near a fuel fire appliance or electric heating appliance.

The CPSC identified 15,600 fires associated with dryers in a single year. Studies have shown that metal ducts protect the structure from the spread of fire. Additionally, noncombustible material or fire caulk around the annular space prevents the fire from spreading into the wall or ceiling cavity. The same can be accomplished with manufactured noncombustible receptacles. The noncombustible receptacles also allow for the proper storage and recoil of the transition flexible duct to a metal duct.

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

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

M58–06/07
504.5

Proponent: James Ranfone, American Gas Association

Revise as follows:

504.5 Makeup air. Installations exhausting more than 200 cfm (0.09 m3/s) shall be provided with makeup air. Where a closet is designed for the installation of a clothes dryer, an opening having an area of not less than 100 square inches (645 mm2) for makeup air shall be provided in the closet enclosure, or makeup air shall be provided by other approved means.

Reason: The addition of "or makeup air shall be provided by other approved means" will coincide with the exact wording from the IFGC to ensure continuity of both codes

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

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

M59–06/07
504.6.1 (IFGC [M] 614.6.1), Table 504.6.1 (New) [IFGC Table 614.6.1 (New)]; IRC M1502.6, Table M1502.6 (New)

Proponent: Julius Ballanco, P.E., JB Engineering and Code Consulting, P.C., representing In-O-Vate Technology

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

1. Revise as follows:

504.6.1 (IFGC [M] 614.6.1) Maximum length. The maximum length of a clothes dryer exhaust duct shall not exceed ~~25 ft (7620 mm)~~ 45 feet (13,716 mm) from the dryer location to the outlet terminal. The maximum length of duct shall be reduced ~~2-1/2 feet for each 45-degree (0.79 rad) bend and 5 feet (1524 mm) for each 90-degree (1.6 rad) bend~~ for each fitting used in accordance with the equivalent pipe lengths shown in Table 504.6.1. The maximum length of the exhaust duct does not include the transition duct.

Exception: Where the make and model of the clothes dryer to be installed is known and the manufacturer's installation instructions for such dryer are provided to the code official, the maximum length of the exhaust duct, including any transition duct, shall be permitted to be in accordance with the dryer manufacturer's installation instructions.

2. Add new table as follows:

TABLE 504.6.1 (IFGC TABLE 614.6.1)
EQUIVALENT LENGTH FOR FITTINGS

DRYER EXHAUST DUCT FITTING	EQUIVALENT LENGTH	
	feet	mm
45 degree, 4 sectioned bend, 4 inch radius	7-1/2	2286
90 degree, 4 sectioned bend, 4 inch radius	15	4572
45 degree, smooth bend, 10 inch radius	1-1/4	381
90 degree, smooth bend, 10 inch radius	2-1/2	762

PART II – IRC

1. Revise as follows:

M1502.6 Maximum length. The maximum length of a clothes dryer exhaust duct shall not exceed ~~25 ft (7620 mm)~~ 45 feet (13,716 mm) from the dryer location to the wall or roof termination. The maximum length of the duct shall be reduced ~~2 1/2 feet for each 45 degree (0.79 rad) bend and 5 feet (1524 mm) for each 90 degree (1.6 rad) bend~~ for each fitting used in accordance with the equivalent pipe lengths shown in Table M1502.6. The maximum length of the exhaust duct does not include the transition duct.

Exceptions:

1. Where the make and model of the clothes dryer to be installed is known and the manufacturer's installation instructions for the dryer are provided to the building official, the maximum length of the exhaust duct, including any transition duct, shall be permitted to be in accordance with the dryer manufacturer's installation instructions.
2. Where large-radius 45-degree (0.8 rad) and 90-degree (1.6 rad) bends are installed, determination of the equivalent length of clothes dryer exhaust duct for each bend by engineering calculation in accordance with the ASHRAE Fundamentals Handbook shall be permitted.

2. Add new table as follows:

TABLE M1502.6
EQUIVALENT LENGTH FOR FITTINGS

DRYER EXHAUST DUCT FITTING	EQUIVALENT LENGTH	
	feet	mm
45 degree, 4 sectioned bend, 4 inch radius	7-1/2	2286
90 degree, 4 sectioned bend, 4 inch radius	15	4572
45 degree, smooth bend, 10 inch radius	1-1/4	381
90 degree, smooth bend, 10 inch radius	2-1/2	762

Reason: Based on a comment by the Committee at last year's hearing, testing on the impact of elbows in a dryer exhaust system was conducted at UL. The testing was sponsored by JB Engineering and Code Consulting, P.C., with financing from In-O-Vate Technologies. A copy of the results from this study have been submitted to the Mechanical Code Change Committee. I have asked In-O-Vate Technologies to make the report available to everyone on their website, www.dryerbox.com . Anyone interested in reviewing the UL test results should download the report.

The testing had interesting results that showed the impact of a standard 4 section 4 inch radius elbow was more severe than the code specifies. Placing a 4 section 4 inch radius elbow in the exhaust pipe results in an equivalent pipe length of 15 feet, not 5 feet. When a smooth 10 inch radius elbow was installed, the equivalent length of the elbow was only 2-1/2 feet. The smooth radius was 6 times more efficient than the 4 section 4 inch radius elbow in flow movement through the fitting.

As code change M46-04/05 identified, all dryers are rated for a dryer length of at least 45 feet. What was not known at the time was the impact that an elbow would have on the overall dryer length.

While the code has always limited the dryer length to 25 feet with elbows accounting for 5 feet of equivalent length, both numbers have been wrong. The overall dryer length was too short, and the dryer elbow equivalent length was too low. These two errors resulted in proper dryer vent lengths being used. A system with one elbow would be able to include 20 feet of straight dryer vent pipe. For two elbows, the length would be shortened to 15 feet. When you increase the length to 45 feet, adding one elbow reduces the allowed straight dryer vent pipe length to 30 feet. Add a second elbow and it reduces to 15 feet.

With the advent of smooth, larger radius dryer elbows and 45 degree elbows, it is appropriate for the code to add the correct values for dryer vent length. This would mean an increase to 45 feet of straight dryer vent pipe with proper values for the equivalent lengths of elbows. By adding this new table, the code provides a means for other types of elbows and 45s to be tested with the values of equivalent lengths added to the code.

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

Analysis: Does the term "smooth bend" imply a single piece fitting? Does the addition of Table M1502.6 make Exception #2 unnecessary?

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

M60–06/07

504.6.1 (IFGC [M] 614.6.1), Table 504.6.1 (New) [IFGC Table 614.6.1 (New)]; IRC M1502.6, Table M1502.6 (New)

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Julius Ballanco, P.E., JB Engineering and Code Consulting, P.C., representing In-O-Vate Technoloty

PART I – IMC

1. Revise as follows:

504.6.1 (IFGC 614.6.1) ~~Maximum~~ Dryer exhaust duct length. The ~~maximum~~ equivalent length of a clothes dryer exhaust duct ~~shall not exceed 25 ft (7620 mm)~~ from the dryer location to the outlet terminal shall be posted by the exhaust duct connection to the dryer. The ~~maximum~~ equivalent length of duct shall ~~be reduced 2-1/2 feet for each 45-degree (0.79 rad) bend and 5 feet (1524 mm) for each 90-degree (1.6 rad) bend~~ include the equivalent length of each fitting used in accordance with the equivalent pipe lengths shown in Table 504.6.1. ~~The maximum length of the exhaust duct does not include the transition duct.~~ The maximum allowable exhaust duct length stated in the clothes dryer's installation instructions shall be equal to or greater than the posted equivalent length.

> ~~**Exception:** Where the make and model of the clothes dryer to be installed is known and the manufacturer's installation instructions for such dryer are provided to the code official, the maximum length of the exhaust duct, including any transition duct, shall be permitted to be in accordance with the dryer manufacturer's installation instructions.~~

2. Add new table as follows:

TABLE 504.6.1 (IFGC TABLE 614.6.1
EQUIVALENT LENGTH FOR FITTINGS

DRYER EXHAUST DUCT FITTING	EQUIVALENT LENGTH	
	feet	mm
45 degree, 4 sectioned bend, 4 inch radius	7-1/2	2286
90 degree, 4 sectioned bend, 4 inch radius	15	4572
45 degree, smooth bend, 10 inch radius	1-1/4	381
90 degree, smooth bend, 10 inch radius	2-1/2	762

PART II – IRC

1. Revise as follows:

M1502.6 ~~Maximum~~ Dryer exhaust duct length. The ~~maximum~~ equivalent length of a clothes dryer exhaust duct ~~shall not exceed 25 ft (7620 mm)~~ from the dryer location to the wall or roof termination shall be posted by the exhaust duct

connection to the dryer. The ~~maximum~~ equivalent length of duct shall ~~be reduced 2-1/2 feet for each 45-degree (0.79 rad) bend and 5 feet (1524 mm) for each 90-degree (1.6 rad) bend~~ include the equivalent length of each fitting used in accordance with the equivalent pipe lengths shown in Table M1502.6. ~~The maximum length of the exhaust duct does not include the transition duct.~~ The maximum allowable exhaust duct length stated in the clothes dryer's installation instructions shall be equal to or greater than the posted equivalent length.

~~**Exceptions:**~~

1. ~~Where the make and model of the clothes dryer to be installed is known and the manufacturer's installation instructions for the dryer are provided to the building official, the maximum length of the exhaust duct, including any transition duct, shall be permitted to be in accordance with the dryer manufacturer's installation instructions.~~
2. ~~Where large-radius 45-degree (0.8 rad) and 90-degree (1.6 rad) bends are installed, determination of the equivalent length of clothes dryer exhaust duct for each bend by engineering calculation in accordance with the ASHRAE Fundamentals Handbook shall be permitted.~~

2. Add new table as follows:

TABLE M1502.6
EQUIVALENT LENGTH FOR FITTINGS

DRYER EXHAUST DUCT FITTING	EQUIVALENT LENGTH	
	feet	mm
45 degree, 4 sectioned bend, 4 inch radius	7-1/2	2286
90 degree, 4 sectioned bend, 4 inch radius	15	4572
45 degree, smooth bend, 10 inch radius	1-1/4	381
90 degree, smooth bend, 10 inch radius	2-1/2	762

Reason: Testing on the impact of elbows in a dryer exhaust system was conducted at UL. The testing was sponsored by JB Engineering and Code Consulting, P.C., with financing from In-O-Vate Technologies. A copy of the results from this study have been submitted to the Mechanical Code Change Committee. I have asked In-O-Vate Technologies to make the report available to everyone on their website, www.dryerbox.com. Anyone interested in reviewing the UL report should download the report.

The testing had interesting results that showed the impact of a standard 4 section 4 inch radius elbow was more severe than the code specifies. Placing a 4 section 4 radius inch elbow in the exhaust pipe results in an equivalent pipe length of 15 feet, not 5 feet. When a smooth 10 inch radius elbow was installed, the equivalent length of the elbow was only 2-1/2 feet. The smooth radius was 6 times more efficient than the 4 section 4 inch radius elbow in flow movement through the fitting.

Rather than specify a maximum length, this change would require the equivalent length of the dryer vent to be posted. The dryer vent length would be based on the length of the straight vent pipes and the fittings used in the dryer vent. Since each dryer has a slightly different requirement for vent length, the dryer would have to match up with the posted equivalent dryer length.

When connecting the dryer to the vent, the manufacturer's installation instructions would have to be followed for the dryer vent length.

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

Analysis: What is meant by the term "smooth bend"?

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

M61–06/07

504.6.1 (IFGC [M] 614.6.1); IRC M1502.6

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

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

PART I – IMC

Revise as follows:

504.6.1 (IFGC [M] 614.6.1) Maximum length. The maximum length of a clothes dryer exhaust duct shall not exceed ~~25 feet (7620 mm)~~ 35 feet (10668 mm) from the dryer location to the outlet terminal. The maximum length of the duct shall be reduced 21/2 feet (762 mm) for each 45 degree (0.79 rad) bend and 5 feet (1524 mm) for each 90 degree (1.6 rad) bend. The maximum length of the exhaust duct does not include the transition duct.

Exception: Where the make and model of the clothes dryer to be installed is known and the manufacturer's installation instructions for such dryer are provided to the code official, the maximum length of the exhaust duct, including any transition duct, shall be permitted to be in accordance with the dryer manufacturer's installation instructions.

PART II – IRC

Revise as follows:

M1502.6 Duct length. The maximum length of a clothes dryer exhaust duct shall not exceed ~~25 feet (7620 mm)~~ 35 feet (10668 mm) from the dryer location to the wall or roof termination. The maximum length of the duct shall be reduced 2.5 feet (762 mm) for each 45-degree (0.8 rad) bend and 5 feet (1524 mm) for each 90-degree (1.6 rad) bend. The maximum length of the exhaust duct does not include the transition duct.

Exceptions:

1. Where the make and model of the clothes dryer to be installed is known and the manufacturer's installation instructions for the dryer are provided to the building official, the maximum length of the exhaust duct, including any transition duct, shall be permitted to be in accordance with the dryer manufacturer's installation instructions.
2. Where large-radius 45-degree (0.8 rad) and 90-degree (1.6 rad) bends are installed, determination of the equivalent length of clothes dryer exhaust duct for each bend by engineering calculation in accordance with the ASHRAE Fundamentals Handbook shall be permitted.

Reason: The distances permitted by the manufacturers far exceed the distances permitted by the code. By permitting the longer lengths, greater flexibility is achieved in laundry room placement within the building. This will also help in eliminating the use of booster fans which could affect drying cycles. Following are some examples of allowable dryer lengths by various manufacturers extracted from their instructions. Also included are some older unit lengths, all of which are at least 15 years old. The committee passed this last cycle overwhelmingly but was narrowly defeated by the membership for the fear that there may be a machine that would not comply with the longer length. These machines are being removed from service as time goes on in favor of more efficient machines. The analogy of (If keeping this dimension artificially low would save the life of just one dryer, wouldn't it be worth it?) The answer would be NO.

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Maytag dryers:
65 feet with 0 elbows
54 feet with 1 elbow
44 feet with 2 elbows
36 feet with 3 elbows
28 feet with 4 elbows

Whirlpool dryers
64 feet with 0 elbows
54 feet with 1 elbow
44 feet with 2 elbows
34 feet with 3 elbows
27 feet with 4 elbows

Kenmore dryers
64 feet with 0 elbows
54 feet with 1 elbow
44 feet with 2 elbows
34 feet with 3 elbows
27 feet with 4 elbows

General Electric dryers:
90 feet with 0 elbows
60 feet with 1 elbow
45 feet with 2 elbows
35 feet with 3 elbows

Amana/ Speed Queen dryers
44 feet with 0 elbows
34 feet with 1 elbows
26 feet with 2 elbows
20 feet with 3 elbows

Fridgidare / Westinghouse / Tappen / Gibson
60 feet with 0 elbows
52 feet with 1 elbow
44 feet with 2 elbows
32 feet with 3 elbows

Magic Chef/Admiral/Norge
45 feet with 0 elbows
35 with 1 elbows
25 with 2 elbows

Camco/Moffat/McClary
45 feet with 0 elbows
35 feet with 1 elbow
25 feet with 2 elbows

OLDER MODELS:
Maytag, 1990
50 feet with 0 elbows
42 feet with 1 elbow
34 feet with 2 elbows
26 feet with 3 elbows

Whirlpool, 1991
58 feet with 0 elbows
48 feet with 1 elbow
38 feet with 2 elbows
29 feet with 3 elbows
21 feet with 4 elbows

Kenmore, 1988
22 feet with 3 elbows

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

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

M62–06/07
504.6.1 (IFGC [M] 614.6.1); IRC M1502.6

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

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Revise as follows:

504.6.1 (IFGC [M] 614.6.1) Maximum length. The maximum length of a clothes dryer exhaust duct shall not exceed 25 feet (7620 mm) from the dryer location to the outlet terminal. The maximum length of the duct shall be reduced 21/2 feet (762 mm) for each 45 degree (0.79 rad) bend and 5 feet (1524 mm) for each 90 degree (1.6 rad) bend. The maximum length of the exhaust duct does not include the transition duct.

Exception: Where the make and model of the clothes dryer to be installed is known and the manufacturer's installation instructions for such dryer are provided to the code official, the maximum length of the exhaust duct, including any transition duct, shall be permitted to be in accordance with the dryer manufacturer's installation instructions. Where exhaust ducts are installed in concealed locations, the developed length of the exhaust duct system shall be indicated by permanent labels or tags installed in an observable location.

PART II – IRC

Revise as follows:

M1502.6 Duct length. The maximum length of a clothes dryer exhaust duct shall not exceed 25 feet (7620 mm) from the dryer location to the wall or roof termination. The maximum length of the duct shall be reduced 2.5 feet (762 mm) for each 45-degree (0.8 rad) bend and 5 feet (1524 mm) for each 90-degree (1.6 rad) bend. The maximum length of the exhaust duct does not include the transition duct.

Exceptions:

1. Where the make and model of the clothes dryer to be installed is known and the manufacturer's installation instructions for the dryer are provided to the building official, the maximum length of the exhaust duct, including any transition duct, shall be permitted to be in accordance with the dryer manufacturer's installation instructions. Where exhaust ducts are installed in concealed locations, the developed length of the exhaust duct system shall be indicated by permanent labels or tags installed in an observable location.
2. Where large-radius 45-degree (0.8 rad) and 90-degree (1.6 rad) bends are installed, determination of the equivalent length of clothes dryer exhaust duct for each bend by engineering calculation in accordance with the ASHRAE Fundamentals Handbook shall be permitted.

Reason: This exception creates a problem when dryers are moved from one location to another. The length of concealed ductwork cannot be verified. Without knowing the developed length of the exhaust duct, a different dryer installed may not work properly and as a result, may possibly cause a fire. If the system is properly identified, the right dryer can be matched to the correct exhaust 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

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

M63–06/07
504.6.3 (New) [IFGC [M] 614.6.3 (New)]; IRC M1502.7 (New)

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

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

1. Add new text as follows:

504.6.3 (IFGC [M] 614.6.3) Insulation required. In climate zones 4A, B, C, zones 5 through 8 and in locations where evidence of condensation has demonstrated the need, dryer exhaust ducts located in unconditioned spaces shall be insulated as required for supply ducts in accordance with the provisions of the *International Energy Conservation Code.*

PART II – IRC

2. Add new text as follows:

M1502.7 Insulation required. In climate zones 4A, B, C, zones 5 through 8 and in locations where evidence of condensation has demonstrated the need, dryer exhaust ducts located in unconditioned spaces shall be insulated as required for supply ducts in accordance with the provisions of the *International Energy Conservation Code*.

Reason: Many manufacturers including General Electric suggest that exhaust ducts be insulated in order to avoid the development of condensation inside the duct. This condition contributes to lint build-up on the inner walls of the pipe and after time will have the potential for blockage possibly causing a fire. There are over 15,000 dryer related fires in this country each year as a result, much damage has occurred. Assuming a 200-cfm dryer discharging at 150 degrees and passing through an attic with a temperature of 20 degrees or less and considering the moisture content in the duct will most likely condense. The temperature difference between the inside of the duct and outside can be more than 100 degrees. This situation is a contributing factor in dryer fires. The committees concern about the IECC not having exhaust duct insulation requirements is unfounded as any insulation at all would most likely appease the situation. Using the minimum insulation requirements for supply ducts will solve the likelihood of condensation. Also, this change provides relief for warmer climates thus addressing the committees concerns and also provides a choice for officials when warmer climates still experience difficulties with condensation. There was also some concern about extra inspections. This will not be a concern as the insulation can be applied at rough inspection but the joints left exposed, then simply slid over the joint after inspection.

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

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

M64–06/07
505.1; IRC M1503.2

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

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. 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 backdraft 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 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 greater than 1 inch (25 mm) above the indoor concrete floor surface.
   2.4. The PVC duct shall extend not greater than 1 inch (25 mm) above grade outside of the building.
   2.5. The PVC ducts shall be solvent cemented.
   2.6. The PVC ducts and fittings comply with Section 603.8.3.

PART II – IRC

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 and fittings provided that the installation complies with all of the following:

1. The duct shall be installed under a concrete slab poured on grade; and
2. The underfloor trench in which the duct is installed shall be completely backfilled with sand or gravel; and
3. The PVC duct shall extend not more than 1 inch (25mm) above the indoor concrete floor surface; and
4. The PVC duct shall extend not more than 1 inch (25mm) above grade outside of the building; and
5. The PVC ducts shall be solvent cemented.
6. The PVC ducts and fittings comply with Section M1601.1.2.

Reason: Current text is lacking the appropriate standards PVC duct must conform with. Currently the only standard criterion the IMC provides is the external loading requirements of ASTM D 2412. This application is just as important as plumbing piping if not more so. It is not permissible to mix and match pipe and fittings without the appropriate transition fittings. The IMC currently contains no such criteria.

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

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

M65–06/07

505.2 (New); IRC M1503.4 (New)

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

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Add new text as follows:

505.2 Makeup air required. Exhaust hood systems capable of exhausting in excess of 400 cfm shall be provided with makeup air at a rate approximately equal to the exhaust air rate. Such make-up air systems shall be equipped with a means of closure and shall be automatically controlled to start and operate simultaneously with the exhaust system

PART II – IRC

Add new text as follows:

M1503.4 Makeup air required. Exhaust hood systems capable of exhausting in excess of 400 cfm shall be provided with makeup air at a rate approximately equal to the exhaust air rate. Such make-up air systems shall be equipped with a means of closure and shall be automatically controlled to start and operate simultaneously with the exhaust system.

Reason: Kitchens in homes are becoming larger and larger, resembling commercial kitchen environments with heavy-duty ranges and so forth. Currently there are no specific requirements for make-up air in a residence except for that in Section G2407. That section states in general that exhaust systems must be taken into account but provides no guidelines in doing so. Some hood systems exhaust 1800 cfm and more. That much air being removed can adversely affect the operation of other appliances in the residence. This language would require the installation of a motorized damper in the duct to prevent air from entering the building when the hood is not in operation. There are many hood systems with high velocity fans. For example; Sirius- 350 –600 cfm; Braun-340-1300 cfm; Allure, 300-1300 cfm, Range Master, 600-1500; Imperial, 660-1330 and so on. The 400-cfm figure is a reasonable threshold to start at. There are many hoods on the market that would fit under this benchmark and would allow for many installations that would NOT require additional makeup air. This proposal would not apply to whole-house fans, the theory being that someone will open windows and doors in order to evacuate the entire building. Although this proposal does not require tempered air, the cooking operations would offset the makeup air temperature especially when the outlet is located behind the range or cooktop. It will be up to the designer to require tempered air. Considering the tightness of the thermal envelope, and the effects of negative pressure on other systems, make-up air should be provided in these higher cfm exhaust systems.

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

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

M66–06/07
506.3.1.1, 506.3.6

Proponent: Bob Eugene, Underwriters Laboratories, Inc.

Revise as follows:

506.3.1.1 Grease duct materials. Grease ducts serving Type I hoods shall be constructed of steel not less than 0.055 inch (1.4 mm) (No. 16 Gage) in thickness or stainless steel not less than 0.044 inch (1.1 mm) (No. 18 Gage) in thickness.

> **Exception:** ~~Listed and labeled~~ Factory-built commercial kitchen grease ducts listed and labeled in accordance with UL1978 ~~shall be~~ and installed in accordance with Section 304.1.

506.3.6 Grease duct clearances. Grease duct systems and exhaust equipment serving a Type I hood shall have a clearance to combustible construction of not less than 18 inches (457 mm), and shall have a clearance to noncombustible construction and gypsum wall board attached to noncombustible structures of not less than 3 inches (76 mm).

> **Exceptions**: ~~Listed and labeled~~ Factory-built commercial kitchen grease ducts listed and labeled in accordance with UL 1978 and listed and labeled exhaust equipment installed in accordance with Section 304.1.

Reason: Add a direct reference to the standard for factory-built grease ducts. The code change will provide a clear direction for the code official for what standard applies to the factory-built grease ducts.
UL 1978 is an ANSI approved standard. UL 1978 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 International Mechanical Code.

Bibliography: UL 1978

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

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

M67–06/07
506.3.2

Proponent: Vickie Lovell, representing 3M Company

Revise as follows:

506.3.2 Joints, seams and penetrations of grease ducts. Joints, seams and penetrations of grease ducts shall be made with a continuous liquid-tight weld or braze made on the external surface of the duct system.

Exceptions:

1. Penetrations shall not be required to be welded or brazed where sealed by devices that are listed for the application.
2. Internal welding or brazing shall not be prohibited provided that the joint is formed or ground smooth and is provided with ready access for inspection.
3. ~~Factory built~~ Prefabricated commercial kitchen grease ducts listed and labeled in accordance with ~~UL 1978~~ UL2221 and installed in accordance with Section 304.1

Reason: To be consistent with last year's action in Section 506.3.10. UL 2221 is the industry consensus developed standard for prefabricated grease ducts.

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

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

M68–06/07
506.3.2.5

Proponent: Maureen Traxler, City of Seattle, WA, representing the Washington Association of Building Officials Technical Code Development Committee

Revise as follows:

506.3.2.5 Grease duct test. Prior to the use or concealment of any portion of a grease duct system, a leakage test shall be performed ~~in the presence of the code official~~. Ducts shall be considered to be concealed where installed in shafts or covered by coatings or wraps that prevent the ductwork from being visually inspected on all sides. The permit holder shall be responsible to provide the necessary equipment and perform the grease duct leakage test. A light test or an approved equivalent test method shall be performed to determine that all welded and brazed joints are liquid tight.

A light test shall be performed by passing a lamp having a power rating of not less than 100 watts through the entire section of duct work to be tested. The lamp shall be open so as to emit light equally in all directions perpendicular to the duct walls. A test shall be performed for the entire duct system, including the hood-to-duct connection. The ductwork shall be permitted to be tested in sections, provided that every joint is tested.

Reason: The purpose of this proposed code change is to delete a burdensome and unnecessary requirement.

Code officials should be given the discretion to determine whether to be present during grease duct tests. The current language does not regulate installers of grease ducts; it regulates code officials. It mandates that code officials perform a task that many believe is not necessary. Some code officials feel strongly that they want to witness each grease duct test, and the proposed modification allows them to do that. Code officials in other jurisdictions also feel strongly that witnessing each test is not an efficient use of resources, but this code section prohibits them from that making that choice. It is possible to ensure that adequate testing is done by establishing test protocols and requiring test reports. The city of Seattle does not witness grease duct tests, with no apparent negative consequences. The IMC allows other potentially dangerous systems to be installed without the building official witnessing a test, for example hazardous exhaust systems (section 510) and dust collecting systems (section 511).

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

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

M69–06/07
506.3.8

Proponent: John T.E. Walters, Prince William County, VA, representing the Virginia Plumbing and Mechanical Inspectors Association/Virginia Building and Code Officials Association

Revise 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. ~~Doors shall be designed so that they are operable without the use of a tool~~. 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.

Reason: There is no reason a cleanout door should not be able to be bolted to a grease duct and require a wrench to remove such doors. The problem with the current text is when these doors are installed they typically use wing nuts. If the cleaning contactor does not tighten these wing nuts, a vulnerable spot is created in the system. These openings do not need quick access; in fact quite the opposite. A trained professional should be the one removing and replacing these doors and allowing the use of a tool is not an unreasonable allowance

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

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

M70–06/07
506.3.10, 506.3.10.1 (New), 506.3.10.2 (New), 506.3.10.3 (New), 506.3.10.4 (New)

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

1. Delete and substitute as follows:

~~**506.3.10 Grease duct enclosure.** A grease duct serving a Type I hood that penetrates a ceiling, wall or floor 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*. Ducts shall be enclosed in accordance with the *International Building Code* requirements for shaft construction. The duct enclosure shall be sealed around the duct at the point of penetration and vented to the outside of the building through the use of weather-protected openings. Clearance from the duct to the interior surface of enclosures of combustible construction shall be not less than 18 inches (457 mm). Clearance from the duct to the interior surface of enclosures of noncombustible construction or gypsum wall board attached to noncombustible structures shall be not less than 6 inches (152 mm). The duct enclosure shall serve a single grease exhaust duct system and shall not contain any other ducts, piping, wiring or systems.~~

~~**Exceptions:**~~

1. ~~The shaft enclosure provisions of this section shall not be required where a duct penetration is protected with a through-penetration firestop system classified in accordance with ASTM E 814 and having an "F" and "T" rating equal to the fire-resistance rating of the assembly being penetrated and where the surface of the duct is continuously covered on all sides from the point at which the duct penetrates a ceiling, wall or floor to the outlet terminal with a classified and labeled material, system, method of construction or product specifically evaluated for such purpose, in accordance with ASTM E 2336. Exposed ductwrap systems shall be protected where subject to physical damage.~~
2. ~~The shaft enclosure provisions of this section shall not be required where a duct penetration is protected with a through-penetration firestop system classified in accordance with ASTM E 814 and having an "F" and "T" rating equal to the fire resistance rating of the assembly being penetrated and where a prefabricated grease duct enclosure assembly is protected on all sides from the point at which the duct penetrates a ceiling, wall or floor to the outlet terminal with a classified and labeled prefabricated system specifically evaluated for such purposes in accordance with UL 2221.~~
3. ~~A duct enclosure shall not be required for a grease duct that penetrates only a nonfire-resistance-rated roof/ceiling assembly.~~

506.3.10 Grease duct enclosure. A grease duct serving a Type I hood that penetrates a ceiling, wall or floor 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 exhaust duct system and shall not contain any other ducts, piping, wiring or systems.

2. Add new text as follows:

506.3.10.1 Grease Duct Protection. Where the surface of the duct is continuously covered on all sides with a grease duct protection system from the point at which the duct penetrates a ceiling, wall or floor to the outlet terminal, such grease duct protection systems shall be a classified and labeled material, system, method of construction, or product specifically evaluated in accordance with ASTM E2336 for such purpose.

Exceptions:

1. Prefabricated grease duct enclosure assemblies, which incorporate protection on all sides from the point at which the duct penetrates a ceiling, wall or floor to the outlet terminal with a classified and labeled prefabricated system specifically evaluated for such purposes in accordance with UL 2221.
2. Ducts enclosed in accordance with the *International Building Code* requirements for shaft construction, provided such duct enclosures are sealed around the duct at the point of penetration and vented to the outside of the building through the use of weather-protected openings. Clearance from the duct to the interior surface of enclosures of combustible construction shall be not less than 18 inches (457 mm). Clearance from the duct to the interior surface of enclosures of noncombustible construction or gypsum wallboard attached to noncombustible structures shall be not less than 6 inches (152 mm).

506.3.10.2 Grease duct penetrations. Duct penetrations shall be protected with a through-penetration firestop system classified in accordance with ASTM E 814 and having an "F" and "T" rating equal to the fire-resistance rating of the assembly being penetrated.

506.3.10.3 Protection of duct wrap systems. Exposed duct wrap systems shall be protected where subject to physical damage.

506.3.10.4. Penetrations of non fire-resistance-rated assemblies. A duct enclosure shall not be required for a grease duct that penetrates only a non fire-resistance-rated roof/ceiling assembly.

Reason: The purpose of the proposed code change is to re-organize Section 506.3.10 to reflect changes made in the 2006 IMC cycle, and new test methods available. This change is not intended to make any technical changes to the existing Code requirements.

During the last cycle, there was a great deal of discussion regarding the appropriate reference to test methods for fire resistive grease duct enclosure systems. Both ASTM E 2336 and UL 2221 were added to the exceptions to Section 506.3.10. In reality, the existing base requirement to use the shaft enclosure provisions in this section should be treated as the Exception, rather than the requirement, given that test methods now exist for testing fire-resistive grease duct enclosure systems specifically. ASTM E2336 is currently an ANSI approved Standard for testing these systems, and is based on the methodology that has been widely used throughout the United States for more than 10 years with thousands of successful in-service installations.

In May 2004 ASTM published a new Standard E2336 entitled "Standard Test Methods For Fire Resistive Grease Duct Enclosure Systems". This Standard closely parallels the requirements of the AC 101 Acceptance Criteria for Grease Duct Enclosure Materials that have been in effect since April 1994 under the auspices of ICBO-ES, and more recently ICC-ES. ASTM E2336 is a performance based test method which evaluates the enclosure materials and the grease duct enclosure systems using the non-combustibility, fire resistance, durability, an internal fire, and fire-engulfment test with a through-penetration fire stop. The test method also prescribes a standardized fire exposure based on ASTM E119. As part of the engulfment test, the grease duct and its' protection system are evaluated in the configuration in which they are used and installed in the field.

Conversely, the existing shaft provision use test results from a wall assembly tested in accordance with ASTM E119 to simulate a four sided or round protected grease duct assembly. While this may be an acceptable solution based on historical information, the Code should utilize test methods that are specifically designed for the application in question as preferred methods to the historical "best-available-fit" approach to testing.

The ASTM Standard has widespread support from the manufacturers of field-applied duct enclosure systems. The majority of the ASTM E2336 standard is based on the Model Building Code Evaluation Service Acceptance Criteria titled AC 101, Acceptance Criteria for Grease Duct Enclosure Materials. In fact, the AC 101 Standard has been the most "nationally recognized standard" for the evaluation of such enclosure materials since its inception. UL 2221 has also been accepted as an alternate test method for prefabricated grease duct enclosure assemblies protected on all sides.

ASTM E2336 is the only ANSI approved, nationally recognized standard for grease duct fire resistive enclosures, and is supported by a decade of testing and product certification from manufacturers of grease duct protection materials and systems.

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

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

M71–06/07
506.3.10

Proponent: Bob Eugene, Underwriters Laboratories, Inc.

Revise as follows:

506.3.10 Grease duct enclosure. A grease duct serving a Type I hood that penetrates a ceiling, wall or floor shall be enclosed from the point of penetration to the out let terminal. A duct shall penetrate exterior walls only at locations where un protected openings are permitted by the *International Building Code*. Ducts shall be enclosed in accordance

with the *International Building Code* requirements for shaft construction. The duct enclosure shall be sealed around the duct at the point of penetration and vented to the out side of the building through the use of weather-protected openings. Clearance from the duct to the interior surface of enclosures of combustible construction shall be not less than 18 inches (457 mm). Clearance from the duct to the interior surface of enclosures of noncombustible construction or gypsum wall board attached to noncombustible structures shall be not less than 6 inches (152 mm). The duct enclosure shall serve a single grease exhaust duct system and shall not contain any other ducts, piping, wiring or systems.

Exceptions:

1. The shaft enclosure provisions of this section shall not be required where a duct penetration is protected with a through-penetration firestop system ~~classified~~ listed in accordance with ASTM E 814 and having an "F" and "T" rating equal to the fire-resistance rating of the assembly being penetrated and where the surface of the duct is continuously covered on all sides from the point at which the duct penetrates a ceiling, wall or floor to the outlet terminal with a ~~classified~~ listed and labeled material, system, product, or method of construction ~~or product~~ specifically evaluated for such purpose, in accordance with ASTM E2336. Such system shall be installed in accordance with the listing and the manufacturer's installation instructions. Exposed ductwrap systems shall be protected where subject to physical damage.
2. The shaft enclosure provisions of this section shall not be required where a ~~duct penetration is protected with a through-penetration firestop system classified in accordance with ASTM E814 and having an "F" and "T" rating equal to the fire resistance rating of the assembly being penetrated and where a prefabricated grease duct enclosure assembly is protected on all sides from the point at which the duct penetrates a ceiling, wall or floor to the outlet terminal with a classified~~ listed and labeled prefabricated duct system, specifically evaluated for such purposes in accordance with UL 2221, is utilized. The "F" and "T" rating of the system shall be at least equal to the fire resistance rating of the assembly being penetrated. Such system shall be installed in accordance with the listing and manufacturer's installation instructions.
3. A duct enclosure shall not be required for a grease duct that penetrates only a nonfire-resistance-rated roof/ceiling assembly.

Reason: Delete unnecessary language in Exception 2

These technical provisions for prefabricated duct systems are already covered by the UL 2221 standard and have already been addressed at the factory. Wrapping material requires field installation, and additional consideration of the F and T ratings must be considered.

UL 2221 tests are intended to determine the fire resistance of grease duct enclosure assemblies. These requirements limit the combustibility, the surface flammability, and the smoke generation potential of the coverings used to enclose the grease duct. In addition, these requirements evaluate the effectiveness of the combination of the grease duct and the enclosure as a fire rated enclosure system and through penetration firestop system, as well as the enclosure's effect on the grease duct.

Bibliography: UL 2221

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

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

M72–06/07
506.3.10

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

Revise as follows:

506.3.10 Grease duct enclosure. A grease duct serving a Type I hood that penetrates a ceiling, wall or floor 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*. Ducts shall be enclosed in accordance with the *International Building Code* requirements for shaft construction. The duct enclosure shall be sealed around the duct at the point of penetration and vented to the outside of the building through the use of weather-protected openings. Clearance from the duct to the interior surface of enclosures of combustible construction shall be not less than 18 inches (457 mm). Clearance from the duct to the interior surface of enclosures of noncombustible construction or gypsum wall board attached to noncombustible structures shall be not less than ~~6~~ 3 inches ~~(152 mm)~~ (76 mm). The duct enclosure shall serve a single grease exhaust duct system and shall not contain any other ducts, piping, wiring or systems.

Exceptions:

1. The shaft enclosure provisions of this section shall not be required where a duct penetration is protected with a through-penetration firestop system classified in accordance with ASTM E 814 and having an "F" and "T" rating equal to the fire-resistance rating of the assembly being penetrated and where the surface of the

duct is continuously covered on all sides from the point at which the duct penetrates a ceiling, wall or floor to the outlet terminal with a classified and labeled material, system, method of construction or product specifically evaluated for such purpose, in accordance with ASTM E 2336. Exposed ductwrap systems shall be protected where subject to physical damage.

2. The shaft enclosure provisions of this section shall not be required where a duct penetration is protected with a through-penetration firestop system classified in accordance with ASTM E 814 and having an "F" and "T" rating equal to the fire resistance rating of the assembly being penetrated and where a prefabricated grease duct enclosure assembly is protected on all sides from the point at which the duct penetrates a ceiling, wall or floor to the outlet terminal with a classified and labeled prefabricated system specifically evaluated for such purposes in accordance with UL 2221.
3. A duct enclosure shall not be required for a grease duct that penetrates only a nonfire-resistance-rated roof/ceiling assembly.

Reason: There is no technical justification for the 6-inch dimension. Section 506.3.6 spells out that a 3-inch dimension is acceptable when gypsum is placed over noncombustible structures i.e. metal studs. This 3-inch dimension has been in the various legacy codes for years and has a proven track record of being effective. This will aid in shafts not having to be as large, which is an advantage in tight places. These two sections need to 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

M73–06/07
506.3.10

Proponent: Michael Perrino, Code Consultants, Inc.

Revise as follows:

506.3.10 Grease duct enclosure. A grease duct serving a Type I hood that penetrates a ceiling, wall or floor 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. Ducts shall be enclosed in accordance with the International Building Code requirements for shaft construction. The duct enclosure shall be sealed around the duct at the point of penetration and vented to the outside of the building through the use of weather-protected openings. Clearance from the duct to the interior surface of enclosures of combustible construction shall be not less than 18 inches (457 mm). Clearance from the duct to the interior surface of enclosures of noncombustible construction or gypsum wall board attached to noncombustible structures shall be not less than 6 inches (152 mm). The duct enclosure shall serve a single grease exhaust duct system and shall not contain any other ducts, piping, wiring, ~~or systems.~~ fire dampers, combination fire/smoke dampers and any similar devices that will obstruct the exhaust flow.

Exceptions:

1. The shaft enclosure provisions of this section shall not be required where a duct penetration is protected with a through-penetration firestop system classified in accordance with ASTM E 814 and having an "F" and "T" rating equal to the fire-resistance rating of the assembly being penetrated and where the surface of the duct is continuously covered on all sides from the point at which the duct penetrates a ceiling, wall or floor to the outlet terminal with a classified and labeled material, system, method of construction or product specifically evaluated for such purpose, in accordance with ASTM E 2336. Exposed ductwrap systems shall be protected where subject to physical damage.
2. The shaft enclosure provisions of this section shall not be required where a duct penetration is protected with a through-penetration firestop system classified in accordance with ASTM E 814 and having an "F" and "T" rating equal to the fire resistance rating of the assembly being penetrated and where a prefabricated grease duct enclosure assembly is protected on all sides from the point at which the duct penetrates a ceiling, wall or floor to the outlet terminal with a classified and labeled prefabricated system specifically evaluated for such purposes in accordance with UL 2221.
3. A duct enclosure shall not be required for a grease duct that penetrates only a nonfire-resistance-rated roof/ceiling assembly.

Reason: To eliminate systems and devices that will collect grease. The operation of fire dampers, fire/smoke dampers and similar devices cannot be relied upon when located within systems providing exhaust of grease-laden vapors.

The operation of fire dampers, fire/smoke dampers and similar devices cannot be expected to provide 100% reliability when installed within systems exhausting grease laden vapors. The malfunction of any such device located in a kitchen exhaust system can prove to be a hazard.

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

Analysis: Section 506.3.10 addresses duct enclosures (shafts) which are not themselves fitted with dampers. A prohibition on dampers in grease ducts would be more appropriately located in an independent section of 506.

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

M74–06/07
506.3.10

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

Revise as follows:

506.3.10 Grease duct enclosure. A grease duct serving a Type I hood that penetrates a ceiling, wall or floor shall be enclosed from the point of penetration to the out let terminal. A duct shall penetrate exterior walls only at locations where unprotected openings are permitted by the *International Building Code*. Ducts shall be enclosed in accordance with the *International Building Code* requirements for shaft construction. The duct enclosure shall be sealed around the duct at the point of penetration and vented to the out side of the building through the use of weather-protected openings. Clearance from the duct to the interior surface of enclosures of combustible construction shall be not less than 18 inches (457 mm). Clearance from the duct to the interior surface of enclosures of noncombustible construction or gypsum wall board attached to noncombustible structures shall be not less than 6 inches (152 mm). The duct enclosure shall serve a single grease exhaust duct system and shall not contain any other ducts, piping, wiring or systems.

Exceptions:

1. The shaft enclosure provisions of this section shall not be required where a duct penetration is protected with a through-penetration firestop system ~~classified~~ tested and listed in accordance with ASTM E 814 and having an "F" and "T" rating equal to the fire-resistance rating of the assembly being penetrated. ~~and where~~ ~~t~~The surface of the duct ~~is~~ shall be continuously covered on all sides from the point at which the duct originates ~~penetrates a ceiling, wall or floor~~ to the outlet terminal. The duct shall be covered with a ~~classified~~ listed and labeled material, system, product, or method of construction ~~or product~~ specifically evaluated for such purpose, in accordance with ASTM E2336. Such system shall be installed in accordance with the listing and the manufacturer's installation instructions. Exposed ductwrap systems shall be protected where subject to physical damage.
2. ~~The shaft enclosure provisions of this section shall not be required where a duct penetration is protected with a through-penetration firestop system classified in accordance with ASTM E814 and having an "F" and "T" rating equal to the fire resistance rating of the assembly being penetrated and where a prefabricated grease duct enclosure assembly is protected on all sides from the point at which the duct penetrates a ceiling, wall or floor to the outlet terminal with a classified~~ The shaft enclosure provisions of this section shall not be required where a listed and labeled prefabricated duct system, specifically evaluated for such purposes in accordance with UL 2221, is utilized. Such system shall be installed in accordance with the listing and the manufacturer's installation instructions.
3. A duct enclosure shall not be required for a grease duct that penetrates only a nonfire-resistance-rated roof/ceiling assembly.

Reason: Current text is confusing and may be misinterpreted to allow products that are unlisted or not listed for the intended application to be used for this purpose. The proposed revisions clarify the intent of the existing requirements for the user. The one difference is that the current requirements for a shaft shall be provided for duct systems where they originate not where they penetrate. This new language will require that ductwrap systems be installed to the same requirements as a shaft since this is an alternative to a shaft.

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

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

M75–06/07
506.3.12.3

Proponent: Cecil F. Hardee, Jr., County of Fairfax, VA, representing the Virginia Plumbing and Mechanical Inspectors Association/Virginia Building and Code Officials Association

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 air intake openings into any building~~ and shall be located not less than10 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 2 feet (607 mm) above air intake openings into any building. Exhaust outlet terminations shall not be directed towards nor impinge on any structure.

Reason: The purpose of this change is to clarify the code for the termination of exhaust systems to contiguous or adjacent buildings. By adding a clearance requirement for contiguous or adjacent buildings it will ensure that adequate clearance above buildings is maintained and is consistent with other sections. Adequate air flow is needed to have an exhaust system operate properly. Not having a requirement only allows for problems. This section's provisions fail to allow the long time proven acceptable arrangement to be 2 feet above intake openings.

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

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

M76–06/07
506.4.3 (New)

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

Add new text as follows:

506.4.3 Type II terminations. Exhaust outlets serving Type II hoods shall terminate in accordance with the hood manufacturer's installation instructions and shall comply with all of the following;

1. Exhaust outlets shall terminate not less than 3 feet in any direction from openings into the building.
2. Exhaust outlets shall terminate not less than 10 feet from property lines.
3. Exhaust outlets shall terminate not less than10 feet above grade.
4. Exhaust outlets shall terminate not less than 30 inches above the roof surface.
5. Exhaust outlets shall terminate not less than 30 inches from exterior vertical walls

Reason: Currently there are no termination requirements for type II hoods except for IMC section 401.5.2 which states that outlets shall be located so as not to cause a nuisance, which is subjective in nature and unenforceable. Installers need clear direction when terminating the exhaust from a type II hood. The 30-inch dimension will decrease the likelihood of any discoloration or impingement of exterior surfaces due to heat or smoke. The intent is to allow a manufactured hood to be installed according to it's listing, but some hoods are shop fabricated with no listing. That's when these minimum requirements would be effective.

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

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

M77–06/07
507.2.2

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

Revise as follows:

507.2.2. Type II hoods. Type II hoods shall be installed where cooking or dishwashing appliances produce heat, steam, or products of combustion and do not produce grease or smoke, such as steamers, kettles, pasta cookers and dishwashing machines.

Exceptions:

1. Under-counter-type commercial dishwashing machines.
2. A Type II hood is not required for dishwashers and potwashers that are provided with heat and water vapor exhaust systems that are supplied by the appliance manufacturer and are installed in accordance with the manufacturer's instructions.
3. A single light-duty electric convection, bread, retherm or microwave oven. The additional heat and moisture loads generated by such appliances shall be accounted for in the design of the HVAC system.

4. A Type II hood is not required for the following electrically heated appliances: toasters, steam tables, popcorn poppers, hot dog cookers, coffee makers, rice cookers, egg cookers, holding/warming ovens. The additional heat and moisture loads generated by such appliances shall be accounted for in the design of the HVAC system.
5. Any appliance having an engineered exhaust system incorporated as part of the appliance's design.

Reason: There are several restaurants that have bread ovens, pizza ovens, and similar appliances that have engineered exhaust fans and associated ductwork pre-designed for use with that specific appliance. As currently written, there is no exception in the code for the exclusion of a type II hood over such appliances. Without inclusion of the proposed code change, there will be duplicated exhaust efforts on some appliances, which is neither energy efficient nor cost effective to the building owner.

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

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

M78–06/07
507.2.2

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

Revise as follows:

507.2.2. Type II hoods. Type II hoods shall be installed where cooking or dishwashing appliances produce heat, steam, or products of combustion and do not produce grease or smoke, such as steamers, kettles, pasta cookers and dishwashing machines.

Exceptions:

1. Under-counter-type commercial dishwashing machines.
2. A Type II hood is not required for dishwashers and potwashers that are provided with heat and water vapor exhaust systems that are supplied by the appliance manufacturer and are installed in accordance with the manufacturer's instructions.
3. A single light-duty electric convection, bread, retherm or microwave oven designed for counter top Installation. The additional heat and moisture loads generated by such appliances shall be accounted for in the design of the HVAC system.
4. A Type II hood is not required for the following electrically heated appliances: toasters, steam tables, popcorn poppers, hot dog cookers, coffee makers, rice cookers, egg cookers, holding/warming/retherm ovens. The additional heat and moisture loads generated by such appliances shall be accounted for in the design of the HVAC system.

Reason: This is a cleanup because items 3 and 4 are similar in nature. This change removes bread ovens from the list of exceptions to type II hood requirements. The existing item number 3 was added a few years back with the intent to only cover counter mounted equipment. However the committee deleted the language "counter mounted" because of the lack of a clear definition as to what exactly is counter mounted. Designers and installers are abusing this section to promote the installation of large cabinet floor mounted bread ovens without a type II hood. That was never the intent of item number three. The intent is exactly what the new number 4 reflects. You will notice all of the items listed are typically small in size and low heat producing equipment. A five feet tall bread oven is not anywhere near the same application as a toaster or a hot dog cooker.

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

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

M79–06/07
507.9

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

Revise as follows:

507.9 Clearances for Type I hood. A Type I hood shall be installed with a clearance to combustibles of not less than 18 inches (457 mm).

Exception: Clearance shall not be required from gypsum wallboard or 1/2-inch or thicker cementitious wallboard attached to noncombustible structures provided that a smooth, cleanable, nonabsorbent and noncombustible material is installed between the hood and the gypsum wallboard over an area extending not less than 18 inches (457 mm) in all directions from the hood.

Reason: As written, this exception does not allow cementitious type wallboard (Durorock) to be utilized in reducing clearances for the hood. Why not? It's a great material for the application and will probably hold up to prolonged heat exposure better than gypsum. This will also provide a little flexibility in the choice of materials.

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

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

M80–06/07
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 UL1046 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 standard to Chapter 15 as follows:

UL

1046-00 Grease Filters for Exhaust Ducts

Reason: Add a direct reference to the grease filter standard. The IMC currently gives no guidance on a test standard for grease filters.
The test methods described in this Standard pertain to grease filters used primarily in exhaust systems with restaurant-type cooking equipment and intended for the removal of flammable grease droplets in air streams.

Bibliography: UL 1046

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

Analysis: Results of review of the proposed standard will be posted on the ICC website by August 20, 2006.

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

M81–06/07
508.1

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

Revise as follows:

508.1 Makeup air. Make up air shall be supplied during the operation of commercial kitchen exhaust systems that are provided for commercial cooking appliances. The amount of make-up air supplied shall be approximately equal to the amount of exhaust air. The make-up air shall not reduce the effectiveness of the exhaust system. Makeup air shall be provided by gravity or mechanical means or both. For mechanical makeup air systems, the ~~exhaust and~~ makeup air system~~s~~ shall be ~~electrically interlocked to ensure that makeup air is provided whenever the exhaust system is in operation~~. automatically controlled to start and operate simultaneously with the exhaust system. Makeup air intake openings shall comply with Sections 401.4 and 401.4.1.

Reason: The term "interlock" is used many times in the IMC and IFGC. For example, IMC sections 502.7.3, 507.2.1.1,706.1 and709.1 and IFGC sections 304.9.2, 304.10, 505.1.1, and 611.7. The point is that an "interlock" is a control arrangement that supervises the operation of one or more components in a system and provides feedback (verification) to one or more of such components for the purpose of proving that conditions are safe for starting and continuing an operation. For example, a power exhauster used to vent a boiler is provided with controls that verify the proper operation of the exhauster and, in turn, these "proving" controls allow the boiler to fire or prevent it from firing. This is a true interlock. Kitchen hood exhaust and makeup air systems are required by Section 508.1 to be interlocked, however, is it the intent to require supervisory controls on the

makeup air fan to prove that the fan is running before allowing the exhaust fan to run? Traditionally, these fans have simply been wired for parallel starting and operation, without supervisory controls. What does the code intend for makeup air fans? To eliminate any confusion, it would be best to simply state that the system needs to operate simultaneously.

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

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

M82–06/07
508.1.2 (New)

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

Add new text as follows:

508.1.2 Makeup air activation. Provisions shall be incorporated into each dedicated kitchen makeup air system design to prevent makeup air from being heated when the kitchen HVAC system is operating in the cooling mode and vise-versa.

Reason: This improper application is becoming more prevalent. It is an excessive waste of energy. The downside is that this causes hood systems to not operate effectively or efficiently.

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

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

M83–06/07
508.2

Proponent: Bob Eugene, Underwriters Laboratories, Inc.

Revise as follows:

508.2 Compensating hoods. Manufacturers of compensating hoods shall provide a label indicating minimum exhaust flow and/or maximum makeup airflow that provides capture and containment of the exhaust effluent.

Exception: Compensating hoods with makeup air supplied only from front face discharge and side face discharge openings shall not be required to be labeled with the maximum makeup airflow.

Reason: To correlate with the requirements in UL 710 and allow flexibility in design. UL 710 does not require the evaluation and marking of the maximum makeup air for front face and/or side face discharge openings. Excess flow in these areas would not adversely impact the capture and containment of cooking product effluent. The flows for the 'short circuit' hoods are critical to capture and containment of cooking product effluent Front face and/or side face discharge compensating hoods when combined with room supply air effectively provide for the capture of cooking product effluent, allowing greater flexibility in design.

The IMC definition of compensating hood includes short circuit as well as hoods with makeup air supply openings on the front face and side face. UL 710 does not require evaluations and marking of maximum makeup air for front face and/or side face discharge openings.

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

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

M84–06/07
510.4

Proponent: Robert Adkins, Prince William County, VA, representing the Virginia Plumbing and Mechanical Inspectors Association/Virginia Building and Code Officials Association

Revise as follows:

510.4 Independent system. Hazardous exhaust systems shall be independent of other types of exhaust systems. Incompatible materials, as defined in the *International Fire Code*, shall not be exhausted through the same hazardous exhaust system. Hazardous exhaust systems shall not share common shafts with other duct systems, except where such systems are hazardous exhaust systems originating in the same fire area.

Exception: The provision of this section shall not apply to laboratory exhaust systems where all of the following conditions apply:

1. All of the hazardous exhaust ductwork and other laboratory exhaust within both the occupied space and the shafts is under negative pressure while in operation.
2. The hazardous exhaust ductwork manifolded together within the occupied space must originate within the same fire area.
3. Each control branch has a flow regulating device.
4. Perchloric acid hoods and connected exhaust shall be prohibited from manifolding.
5. Radioisotope hoods are equipped with filtration and/or carbon beds where required by the registered design professional.
6. Biological safety cabinets are filtered.
7. Provision is made for continuous maintenance of negative static pressure in the ductwork.

Contaminated air shall not be recirculated to occupied~~ed~~able areas. ~~unless the contaminants have been removed.~~ Air ~~contaminated~~ containing ~~with~~ explosive or flammable vapors, fumes or dusts; flammable, highly toxic or toxic gases; or radioactive material shall be considered to be contaminated ~~.not be recirculated.~~

Reason: If the contaminates in an air stream have been removed, then the air stream is not contaminated. The text makes no sense.

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

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

M85–06/07
510.8, Chapter 15

Proponent: Bob Eugene, Underwriters Laboratories, Inc.

1. Revise as follows:

510.8 Duct construction. Ducts utilized to convey hazardous exhaust shall be constructed of approved G90 galvanized sheet steel, with a minimum nominal thickness as specified in Table 510.8.

Nonmetallic ducts utilized in systems exhausting nonflammable corrosive fumes or vapors shall be listed and labeled. Nonmetallic duct shall have a flame spread index of 25 or less and a smoke-developed index of 50 or less, when tested in accordance with ASTM E 84 or UL 723. Ducts shall be approved for installation in such an exhaust system.

Where the products being exhausted are detrimental to the duct material, the ducts shall be constructed of alternative materials that are compatible with the exhaust.

2. Add standard to Chapter 15 as follows:

UL

723-03 Standard for Test for Surface Burning Characteristics of Building Materials, with Revisions through May 2005

Reason: Add a direct reference to UL 723 where ASTM E84 is referenced throughout the family of I-codes. The purpose of this code change is to include reference to UL 723 as an alternate to ASTM E 84 throughout the family of I-codes. These two Standards describe the same test method. The specifications for the test apparatus and test procedure are identical between the two standards. As such, identical test results would be obtained from tests conducted using each of these methods. UL 723 is an ANSI approved standard.

The inclusion of this alternate test method would provide the authority having jurisdiction with the flexibility to accept listed and labeled products evaluated in accordance with ASTM E 84 or UL 723.

The purpose of the test is to determine the comparative burning characteristics of the material under test by evaluating the spread of flame over its surface and the density of the smoke developed when exposed to a test fire, and thus to establish a basis on which surface burning characteristics of different materials are compared.

Bibliography: UL 723

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

Analysis: Results of review of the proposed standard will be posted on the ICC website by August 20, 2006.

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

M86–06/07
511.1.1

Proponent: John C. Harrington, FM Global

Revise as follows:

511.1.1 Collectors and separators. Collectors and separators involving such systems as centrifugal separators, bag filter systems and similar devices, and associated supports shall be constructed of noncombustible materials and shall be located on the exterior of the building or structure. A collector or separator shall not be located nearer than 10 feet (3048 mm) to combustible construction or to an unprotected wall or floor opening, unless the collector is provided with a metal vent pipe that extends above the highest part of any roof with a distance of 30 feet (9144 mm).

Exceptions:

1. Collectors such as "Point of Use" collectors, close extraction weld fume collectors, spray finishing booths, stationary grinding tables, sanding booths, and integrated or machine-mounted collectors shall be permitted to be installed indoors provided the installation is in accordance with the *International Fire Code* and the ICC *Electrical Code*.
2. Collectors in independent exhaust systems handling combustible dusts shall be permitted to be installed indoors provided that such collectors are installed in compliance with the *International Fire Code* and the ICC *Electrical Code*.

Reason: This exception had never been permitted in Section 511.1.1 of the IMC and was added during the last code cycle. It is poor practice to allow combustible dust collectors in a building due to the potential of fire and/or explosion.

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

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

M87–06/07
602.1

Proponent: Richard Grace, Fairfax County Government, VA, representing the Virginia Plumbing and Mechanical Inspectors Association

Revise as follows:

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

Reason: This change will clarify that spaces such as a penthouse, where other non-related equipment and materials may be stored, cannot be utilized as a plenum simply because the penthouse has mechanical equipment installed in the room.

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

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

M88–06/07
602.2

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

Revise as follows:

602.2 Construction. Plenum enclosures shall be constructed of materials permitted for the type of construction classification of the building.

The use of gypsum boards to form plenums shall be limited to return air systems where the air temperatures do not exceed 125°F (52°C) and the building and the mechanical system design conditions are such that the gypsum board temperature will be maintained above the airstream dew-point temperature. Air plenums formed by gypsum boards shall not be incorporated in air-handling systems utilizing evaporative coolers.

Reason: There is currently a conflict between two sections of the IMC—Section 602.2 and Section 603.5.1. The proposed wording change would align the intent of both code sections and ensure that gypsum is not inadvertently used within supply plenums formed of otherwise approved materials.

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

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

M89–06/07
602.2.1

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

Revise as follows:

602.2.1 Materials exposed within plenums. Except as required by Sections 602.2.1.1 through 602.2.1.5, 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.

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 ~~in~~ within continuous noncombustible raceways or enclosures, approved gypsum board assemblies or ~~enclosed~~ within ~~in~~ materials listed and labeled for such application.

Reason: This change is intended to ensure that wiring fully enclosed in the raceways that the National Electrical Code (and the ICC Electrical Code) allows in plenums can continue to be used while preventing misuse. It is important that THHN and other similar combustible wiring be permitted for use in plenums but it is also important that no open or semi-open "enclosures" are used. There is wording in section 909.12.1 of the IFC that discusses wiring and states: "shall be fully enclosed within continuous raceways" and that wording was used as a model for this proposal. The word "enclosed" is used in the IMC as a contrast to the word "open" but does not necessarily imply that there are no openings in the enclosure, as when the IMC talks about "enclosed parking garages". Proposals and comments to the last edition of the IMC made it clear that there is interest in permitting multi component systems that are not completely sealed and include combustible parts; such systems should not be allowed.

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

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

M90–06/07
603.2 (New)

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

Add new text as follows:

603.2 Air duct enclosures. Where ducts are required to be enclosed by the *International Building Code*, such enclosures shall be constructed in accordance with the *International Building Code* for shaft construction.

Exception: The shaft enclosure provisions of the *International Building Code* shall not be required where a duct penetration is protected with a through-penetration fire stop system classified in accordance with ASTM E 814 and having an "F" and "T" rating equal to the fire-resistance rating of the assembly being penetrated and where the surface of the duct is continuously covered on all sides from a point at which the duct penetrates a ceiling, wall or floor to the outlet terminal with a classified, listed and labeled material, system, method of construction or product specifically evaluated for such purpose, in accordance with nationally recognized standards for such enclosure materials.

(Renumber subsequent sections)

Reason: The purpose of this Code change proposal is to introduce provisional language into the IMC to address systems used for covering and protection of HVAC air ducts.

The covering of duct systems for fire protection is becoming more and more popular. The current code text fails to address this application for HVAC air ducts.

This text is similar to the language which had previously been used for grease duct enclosures assemblies in Section 506.3.10. At that time, the most widely used alternative to the general shaft enclosures provisions was ICBO-ES AC 101 Acceptance Criteria for Grease Duct Enclosure Materials. Similarly, in November of 2005, ICC-ES approved the publication of AC 179, Acceptance Criteria for Metallic HVAC Duct Enclosure Assemblies, which can be used to evaluate products used for these applications. The purpose of the acceptance criteria is to establish requirements for fire protection enclosure systems applied to metallic HVAC ducts, as alternatives to shaft enclosures for vertical ducts with required fire-resistance-rated shafts under specified conditions, with limitations on their application. The criteria also provides an alternate to fire dampers in horizontal ducts (penetrating fire barriers, fire partitions, and or smoke barriers) and vertical ducts connecting not more than two stories.

AC 179 evaluates the enclosure materials and the HVAC duct enclosure systems using the following test methods: Flame spread, smolder resistance, a fire engulfment test based on ISO 6944 with a through-penetration fire stop, durability tests, and thermal conductivity.

Work is currently underway on the development of an ASTM Consensus Standard for this application, but until such time as that process is complete, the proposed language incorporated here will provide a means of evaluating the performance of these products and systems, which are becoming more widespread in their use, while not restricting the choice of acceptable solutions available to designers.

Bibliography: ICC-ES AC179, Acceptance Criteria for Metallic HVAC Duct Enclosure Assemblies.

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

Analysis: Is the proposed exception for the IMC affecting a requirement in the IBC?

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

M91–06/07
603.4.1 (New); IRC M1601.3.1

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

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Add new text as follows:

603.4.1 Minimum fasteners. Round metallic ducts shall be mechanically fastened by means of at least three sheet metal screws or rivets spaced in approximately uniform intervals along the circumference of the duct.

PART II – IRC

Revise as follows:

M1601.3.1 Joints and seams. Joints of duct systems shall be made substantially airtight by means of tapes, mastics, gasketing or other approved closure systems. Closure systems used with rigid fibrous glass ducts shall comply with UL 181A and shall be marked "181A-P" for pressure-sensitive tape, "181 A-M" for mastic or "181 A-H" for heat-sensitive tape. 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" formastic. 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 11/2 inches (38 mm) and shall be mechanically fastened by means of at least three sheet-metal screws or rivets ~~equally spaced around the joint~~ spaced in approximately uniform intervals along the circumference of the duct.

Reason: (IMC) The code needs to make it clear that 2 fasteners are insufficient when fastening ducts together. The 1995 edition of SMACNA makes it clear in figure 3-2 that a minimum of three screws are required. Also, three screws located in close proximity are non-compliant. They must be approximately equally spaced around the pipe to make a strong joint. A general rule of thumb would be the number of screws required to make a strong joint is equal to half the diameter of the duct. For instance, a sixteen-inch duct would only need eight screws to make a strong joint.

(IRC-M) The text "equally spaced around the duct" is impossible to achieve in the real word. This language allows for a little deviation, if the screws are not exactly spaced, the installation will be compliant. As it stands, the strict letter of the code cannot be practically met.

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

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

M92–06/07
603.8.1

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

Revise as follows:

603.8.1 Slope. Ducts shall have a minimum slope of 1/8" per foot to allow drainage to a point provided with access.

Reason: The IMC already adopts SMACNA HVAC Duct Construction Standard-Metal and Flexible under IMC 603.4. Review of that standard requires that underground ducts have a minimum slope of 1/8" per foot to a sump or place of drainage. Since the current code text already indicates the need for slope, and the minimum slope is already defined by an adopted standard, it would seem only reasonable to define that drainage for code enforcement purposes.

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

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

M93–06/07
603.8.3

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

Revise as follows:

603.8.3 Plastic ducts and fittings. Plastic ducts shall be constructed of PVC ~~having a minimum pipe stiffness of 8 psi (55 kPa) at 5-percent deflection when~~ tested in accordance with ASTMD2412 and conforming to ASTM D2665, ASTM 2949, or CSA B181.2. Plastic duct fittings shall be constructed of ~~either~~ PVC and shall conform to ASTM 2665, ASTM D 3311, or ASTM F 1866.~~or high-density polyethylene~~. Plastic duct and fittings shall be utilized in underground installations only. The maximum design temperature for systems utilizing plastic duct and fittings shall be 150°F (66°C).

Reason: Current text is lacking the appropriate standards PVC duct must conform with. Currently the only standard criterion the IMC provides is the external loading requirements of ASTM D 2412. This application is just as important as plumbing piping if not more so. It is not permissible to mix and match pipe and fittings without the appropriate transition fittings. The IMC currently contains no such criteria.

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

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

M94–06/07
603.8.3.1 (New), 603.8.3.1.1 (New), 603.8.3.1.2 (New); IRC M1601.1.2, M1601.1.2.1 (New), M1601.1.2.2 (New), M1601.1.2.3 (New), M1601.1.2.4

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

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I - IMC

Add new text as follows:

603.8.3.1 PVC ducts. Joints for PVC plastic duct and fittings shall comply with Sections 603.8.1.1 and 603.8.1.2.

603.8.3.1.1 Solvent cementing. Joint surfaces shall be clean and free from moisture prior to solvent cementing. A purple primer that conforms to ASTM F 656 shall be applied. Solvent cement not purple in color and conforming to ASTMD2564, CSA B137.3, CSA B181.2 or CSA B182.1 shall be applied to all joint surfaces. The joint shall be made while the cement is wet and shall be in accordance with ASTM D 2855.

PART II – IRC

1. 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.

2. Add new text as follows:

M1601.1.2.1 PVC Duct systems. PVC plastic pipe materials shall be tested in accordance with ASTM D 2412 and conform to ASTM D2665, ASTM 2949, or CSA B181.2. Plastic duct fittings shall be constructed of PVC and shall conform to ASTM 2665, ASTM D 3311, or ASTM F 1866.

M1601.1.2.2 PVC ducts. Joints for PVC plastic duct and fittings shall comply with Sections 1601.1.3.2 and 1601.1.3.3.

M1601.1.2.3 Solvent cementing. Joint surfaces shall be clean and free from moisture. A purple primer that conforms to ASTM F 656 shall be applied. Solvent cement not purple in color and conforming to ASTMD2564, CSA B137.3, CSA B181.2 or CSA B182.1 shall be applied to all joint surfaces. The joint shall be made while the cement is wet and shall be in accordance with ASTM D 2855.

Reason: Current text is lacking the appropriate standards for PVC joints and connections. Currently the only standard criterion the IMC provides is the external loading requirements of ASTM D 2412 for the pipe. This application is just as important as plumbing piping if not more so. It is not permissible to mix and match pipe and fittings without the appropriate transition fittings. The IMC currently contains no such guidance for this approved duct material.

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

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

M95–06/07
603.9; IRC M1601.3.1

Proponent: John R. Addario, P.E., New York State Department of State Codes Division

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I - IMC

Revise as follows:

603.9 Joints, seams and connections. All longitudal and transverse joints, seams and connections in metallic and nonmetallic ducts shall be constructed as specified in SMACNA HVAC *Duct Construction Standards- Metal and Flexible* and NAIMA *Fibrous Glass Duct Construction Standards.* All joints, longitudinal and transverse seams, and connections in ductwork shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems, liquid sealants, or tapes. Tapes and mastics used to seal 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. Tapes and mastics 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 UL181B and shall be marked 181B-C. Unlisted duct tape is not permitted as a sealant on any metal ducts.

PART II – IRC

Revise as follows:

M1601.3.1 Joints and seams. Joints of duct systems shall be made substantially airtight by means of tapes, mastics, liquid sealants, or gasketing. Closure systems used with rigid fibrous glass ducts shall comply with UL 181A 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. Crimp joints for round ducts shall have a contact lap of at least 1.5 inches (38 mm) and shall be mechanically fastened by means of at least three sheet metal screws or rivets equally spaced around the joint.

Reason: The purpose of this proposal is to clarify the use of the materials that can be used for sealing ducts, specifically metal ducts. UL181 only applies to factory made rigid fibrous ducts and flexible air ducts and connectors. UL181A and B only applies to these types of ducts and does not apply to metal ducts, therefore tapes and mastics meeting these listings are not tested on metal ducts.

The SMACNA HVAC *Duct Construction Standards- Metal and Flexible (referenced in IMC section 603.4)* standard specifically distinguishes between a liquid sealant and mastic. The SMACNA standard also recognizes the use of a liquid sealant as an adequate product for sealing ducts. Liquid sealants are widely available from several different manufactures and used with some two part systems. Pliable "duct sealants" would be considered either a "Liquid Sealant" or a "Mastic".

SMACNA DCS distinguishes and describes a liquid sealant and mastic as follows:

> "**1.7.2 Liquids.** Many manufactures produce liquid sealants specifically for ducts. They have the consistency of heavy syrup and can be applied either by brush or with a cartridge gun or powered pump. . . "
> "**1.7.3 Mastics**. Heavy mastic sealants are more suitable as fillets, in grooves or between flanges. . . "

Several different manufacturer's installation instructions for fire dampers and fire and smoke dampers specifically list approved sealants to be used to seal the duct connection to the fire damper. Most of these installation manuals list up to three different manufactures of sealants; in some cases all or at least two of the three are considered a "liquid sealant." These types of sealants are used on breakaway joints.

Some duct connections (mostly to serviceable equipment, filter racks, coils, etc.) are preferred to be sealed with RTV type sealant, which provides excellent durability, remains flexible and can be separated in the future if service needs require the removal of the duct or for clearances. Several installation manuals, in fact, recommend this type of duct connection.

The code allows 'gypsum ducts' (on return air) and requires all ducts to be "sealed", but you would be more apt to use what is considered a liquid sealant in this particular application than a mastic.

This proposal would clarify the use of liquid sealants, which would also include aerosol systems, provided they are listed and labeled for the intended application. Specifically adding the text "liquid sealant" and not relying on "Alternate Materials and Methods" will provide uniform enforcement of the code.

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

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

M96–06/07
603.12

Proponent: Cecil F. Hardee, Jr., Fairfax County, VA, representing the Virginia Plumbing and Mechanical Inspectors Association/Virginia Building and Code Officials Association

Revise as follows:

603.12 Condensation. Provisions shall be made to prevent the formation of condensation on the interior and exterior of any duct.

Reason: Condensation is as detrimental to the inside of ductwork if not more so than on the exterior. Provisions to prevent mold and bacteria from being distributed from any air system through the ductwork are is basic fundamental design criteria. The IECC and Section 604 contain provisions for insulation. This wording helps to connect the user to 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

M97–06/07
603.17

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

Revise as follows:

603.17 Registers, grilles and diffusers. Air distribution systems shall have d~~D~~uct registers, grilles and diffusers installed for supplying and returning air. Such devices shall be installed in accordance with the manufacturer's installation instructions. Volume dampers or other means of supply air adjustment shall be provided in the branch ducts or at each individual duct register, grille or diffuser. Each volume damper or other means of supply air adjustment used in balancing shall be provided with access.

Reason: As currently written, a user of the code could read this opening statement as stating "IF a duct register, grille or diffuser is installed, THEN the duct register, grille or diffuser shall be installed in accordance with the manufacturer." Based on the rest of this code section, a duct register, grille or diffuser would not be mandated by the IMC. The proposed wording clarifies the need that a duct register, grille or diffuser shall be installed at the end of all air distribution system, and that such devices be installed per their listing when used. These devices provide for even heat distribution as required per IMC 309. Failure to have a register, grille, or diffuser could be hazardous in some circumstances involving in-floor, wall and ceiling distribution/return systems.

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

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

M98–06/07
202 (New), 603.17.3 (New), Chapter 15

Proponent: Kevin Gebke, DuctSox Corporation

1. Add new text as follows:

SECTION 202
GENERAL DEFINITIONS

AIR DISPERSION SYSTEM. Any diffuser system designed to, both, convey air within a room, space or area and diffuse air into that space while operating under positive pressure. Systems are commonly constructed of, but not limited to, fabric or plastic film.

603.17.3 Air dispersion systems. Air dispersion systems shall be located in the space that is being conditioned by the system and shall be operated under positive pressure. Air dispersion systems shall not pass through fire-resistance-rated assemblies. Air dispersion systems shall be listed and labeled in accordance with UL 2518.

2. Add new standard to Chapter 15 as follows:

UL
2518-05 Air Dispersion System Materials

Reason: Recognize and provide requirements for new technology. Current Code provisions do not address this technology. This Code addition would ensure that systems installed and used would meet requirements that set a level of safety. These requirements include testing for surface burning characteristics (flame spread and smoke developed), mold growth, humidity, temperature, and pressure.

These systems in the United States can be traced back to greenhouses where a plastic tube with holes in it was connected to a wall panel fan. This tube with holes helped establish a uniform environment within the greenhouse as compared to the wall fan blowing the air wildly into the building. The concept was simple; use the physical size of the component along with diffusion air velocity to create a uniform room environment.

Most connections, where the Air Dispersion System connects to the supplying air duct, are made at a sidewall. The supplying air duct has done its job; it has conveyed air from the air handling unit to the destination room, space, or area. At this point a sidewall grille or other type of diffuser could be used to diffuse the air into the space. This diffuser would rely on the velocity of the exiting air and its direction to meet requirements of the space. An Air Dispersion System uses a physical and a velocity means to meet room requirements. The Air Dispersion System would be mounted in place of, for this example, the sidewall grille. The System, by physically being longer, the velocity exiting the system is more uniformly distributed throughout the space.

This technology has been used for over fifty years in the United States, and longer in Europe. The concept, here in the US, originated in the agricultural industry, and through innovative fabric technology and proven performance, has evolved into an attractive means to diffuse air within open ceiling spaces. These applications include food processing (refrigeration), industrial, warehousing, retail, convention centers, offices, athletic, and laboratory environments. Initially, these systems were subjected to ASTM E84. Subsequently, it was recognized that additional requirements were necessary to determine the suitability of the systems in these applications. These requirements were developed through ICBO ES into an acceptance criteria (AC 167), and those requirements have been incorporated into UL 2518.

Bibliography:
UL 2518
ICC ES AC167

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

Analysis: Results of review of the proposed standard will be posted on the ICC website by August 20, 2006.

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

M99–06/07
603.18 (New), Chapter 15

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

1. Add new text as follows:

603.18 Balancing. Duct systems shall be balanced as specified in the SMACNA *HVAC Systems Testing, Adjusting & Balancing Manual*. Such balancing shall verify that the duct system and its branches are capable of supplying the airflow rates required by Section 603.2.

2. Add standard to Chapter 15 as follows:

SMACNA HVAC Systems Testing, Adjusting & Balancing Manual Third Edition – August, 2002

Reason: The proposed change will include reference to a long-standing industry standard from an ANSI Accredited Standards Developer.
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.
The SMACNA *HVAC Systems Testing, Adjusting & Balancing* manual was developed for use by technicians, contractors, designers, and code officials to ensure that all HVAC systems have been balanced for optimum performance. By including the manual, by reference, the IMC will ensure that a uniform, verifiable process is established for code compliance.

Bibliography: *HVAC Systems Testing, Adjusting & Balancing* Third Edition – August, 2002, Sheet Metal and Air Conditioning Contractors' National Association, Inc., 4201 Lafayette Center Drive, Chantilly, VA 20151

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

Analysis: Results of review of the proposed standard will be posted on the ICC website by August 20, 2006.

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

M100–06/07
604.4, [EC] 604.7, 604.11; IRC M1601.2.1, M1601.3.1, M1601.3.4

Proponent: Robert Braun, The Dow Chemical Company, representing the Spray Polyurethane Foam Alliance

THIS PROPOSAL IS ON THE AGENDA OF THE IMC, THE IECC, AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Revise as follows:

604.4 Foam plastic insulation. Foam plastic used as duct coverings and linings shall conform to the requirements of Section 604.

Exception: Spray polyurethane foam shall be permitted to be spray-applied to the exterior of ducts in attics and crawl spaces 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 Section 2603.4.1.6 of the *International Building Code*.

604.11 Vapor retarders. Where Ducts used for cooling are externally insulated, the insulation shall be covered with a vapor retarder having a maximum permeance of 0.05 perm [(2.87 ng/(s · m2 · Pa)] or aluminum foil having a minimum

thickness of 2 mils (0.051) mm). Insulations having a permenace of 0.05 perm [(2.87 ng/(s · m2 · Pa)] or less shall not be required to be covered. Spray polyurethane foam with a maximum permeance of 3 perm [(1722 ng/(s · m2 Pa)] at the installed thickness shall not be required to be covered. All joints and seams shall be sealed to maintain the continuity of the vapor retarder except where the insulation is spray polyurethane foam or other insulation with joint sealing capability.

PART II – IECC

Revise IMC as follows:

[EC] 604.7 Identification. External duct insulation, except spray polyurethane foam, and factory-insulated flexible duct shall be legibly printed or identified at intervals not greater than 36 inches (914 mm) with the name of the manufacturer, the thermal resistance R-value at the specified installed thickness and the flame spread and smoke-developed indexes of the composite materials. All duct insulation, except spray polyurethane foam, 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-values shall be determined as follows:

1. For duct board, duct liner and factory-made rigid ducts not normally subjected to compression, the nominal insulation thickness shall be used.
2. For duct wrap, the installed thickness shall be assumed to be 75 percent (25-percent compression) of nominal thickness.
3. For factory-made flexible air ducts, the installed thickness shall be determined by dividing the difference between the actual outside diameter and nominal inside diameter by two.
4. For spray polyurethane foam the aged R-value per inch, measured in accordance with recognized industry standards, shall be provided to the customer in writing at the time of foam application.

PART III – IRC

Revise as follows:

M1601.2.1 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 ASTME 84, using the specimen preparation and mounting procedures of ASTME 2231.

   Exception: Spray polyurethane foam shall be permitted to be spray-applied to the exterior of ducts in attics and crawl spaces 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 R314.5.3 and R314.5.4.

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).
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.

M1601.3.1 Joints and seams. Joints of duct systems shall be made substantially airtight by means of tapes, mastics, gasketing or other approved closure systems. Closure systems used with rigid fibrous glass ducts shall comply with UL 181A and shall be marked "181A-P" for pressure-sensitive tape, "181 A-M" for mastic or "181 A-H" for heat-sensitive tape. Closure systems used with flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked "11B-FX" for pressure-sensitive tape or "181B-M" formastic. 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 11/2 inches (38 mm) and shall be mechanically fastened by means of at least three sheet-metal screws or rivets equally spaced around the joint.

Exception: Spray polyurethane foam shall be permitted to be applied without additional joint seals.

M1601.3.4 Duct insulation. Duct insulation shall be installed in accordance with the following requirements:

1. A vapor retarder having a maximum permeance of 0.05 perm [(2.87 ng/(s m2 Pa)] in accordance with ASTM E 96, or aluminum foil with a minimum thickness of 2 mils (0.05 mm), shall be installed on the exterior of insulation on cooling supply ducts that pass through nonconditioned spaces conducive to condensation except where the insulation is spray polyurethane foam with a maximum water vapor permeance of 3 perm [(1722 ng/(s ▪ m^2 ▪ Pa)] at the installed thickness.
2. Exterior duct systems shall be protected against the elements.
3. Duct coverings shall not penetrate a fireblocked wall or floor.

Reason: Add new material for current provision of the Code. Spray Polyurethane foam is currently not Code recognized for HVAC duct insulation but is currently recognized for attic floor insulation application when protected by an ignition barrier.

Spraying over the attic or crawl space ducts is an addition that will simultaneously produce continuous insulation, improve energy efficiency, and provide air leakage control to the duct system from the duct exterior. Section 719.7 of the 2006 IBC has permitted the use of exposed insulation and covering on pipe and tubing when the flame spread index is not more than 25 and the smoke developed index is not more than 450. The vapor permeability of Spray Polyurethane foam has proven sufficient in numerous applications where it has been successfully sprayed within cavity walls onto exterior wall sheathing and over hidden cavity wall ducts without vapor retarders. The application of Spray Polyurethane foam on ducts will improve energy efficiency and reduce duct air leakage.

Bibliography: IRC Section R314.5.11 permits Spray Polyurethane Foam plastic to be applied to the sill plate and header in crawl spaces and basements. Section 9.25.6.3 of the 1990 National Building Code of Canada and Section A-9.25.4.2.(2) of the 1995 Code recognizes low permeance foam plastic insulation without vapor barrier protection (see attachments)

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 – IECC

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

PART III – IRC

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

M101–06/07
604.7, Chapter 15

Proponent: Monty Millspaugh, Reflectix Inc., representing Reflective Insulation Manufacturers Association

1. Revise as follows:

604.7 Identification. External duct insulation and factory-insulated flexible duct shall be legibly printed or identified at intervals not greater than 36 inches (914 mm) with the name of the manufacturer, the thermal resistance R-value at the specified installed thickness or installation and the flame spread and smoke-developed indexes of the composite materials. All duct insulation product R-values shall be based on tested U-values at 75º F (24º C) mean temperature when tested in accordance with ASTM C 335 ~~insulation only, excluding air films, vapor retarders or other duct components,~~ and shall be based on tested C-values at 75º F (24º C) mean temperature at the installed thickness, when tested in accordance with ASTM 518 ~~in accordance~~ and with recognized industry procedures. The installed ~~thickness of duct insulation used to determine its~~ R-values shall be determined as follows:

1. For duct board, duct liner and factory-made rigid ducts no normally subjected to compression, the nominal insulation thickness shall be used.
2. For duct wrap, tested to ASTM C 518, the installed R-values ~~thickness~~ shall be based on insulation installed according to the manufacturer's specifications for installed ~~assumed to be 75 percent (25-percent compression) of nominal~~ thickness. For duct wrap, tested to ASTM C 335, the installed R-values shall be based on assemblies installed according to the manufacturer's specifications.
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.

2. Add standard to Chapter 15 as follows:

ASTM

C 335 Standard Test Method for Steady-State Heat Transfer Properties of Pipe InsulationASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus

Reason: To allow for labeling duct wraps and duct wrap assemblies**.** The effect of this change will be the removal of the assumption that compressible duct insulations are compressed 25% and the recognition of the fact that low-emittance facers contribute in a positive way to the total thermal resistance of the system. The appropriate test method is ASTM C 335. ASTM C 335 can be used to evaluate a duct insulation of any type installed as the manufacturer specifies. The assumption about compression is removed and replaced by the manufacturer's specification.

Substantiation: IECC-ES AC02, ASTM C 335

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

Analysis: Results of review of the proposed standard will be posted on the ICC website by August 20, 2006.

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

M102–06/07
701.4; IRC M1703.2

Proponent: Tony Longino, County of Greenville, SC, representing himself

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Revise as follows:

701.4 Crawl space and attic space. For the purposes of this chapter, an opening to a naturally ventilated crawl space or attic space shall be considered equivalent to an opening to the outdoors. In buildings located in High Radon Potential (Zone1) counties, combustion air shall not be obtained from crawl spaces for appliances installed inside the living space.

PART II – IRC

Revise as follows:

M1703.2 Two openings or ducts. Outside combustion air shall be supplied through openings or ducts, as illustrated in Figures M1703.2(1), M1703.2(2), M1703.2(3) and M1703.2(4). One opening shall be within 12 inches (305 mm) of the top of the enclosure, and one within 12 inches (305 mm) of the bottom of the enclosure. Openings are permitted to connect to spaces directly communicating with the outdoors, such as ventilated crawl spaces or ventilated attic spaces. The same duct or opening shall not serve both combustion air openings. The duct serving the upper opening shall be level or extend upward from the appliance space. In buildings located in High Radon Potential (Zone1) counties, combustion air shall not be obtained from crawl spaces for appliances installed inside the living space.

Reason: Allowing an opening from the crawl space into the living space conflicts with IRC Appendix F 103.4.1. This section requires all floor openings to be sealed around all pipes, wires, and penetrations. It would make no sense to have a permanent opening that will allow the free flow of radon gas from the crawl space into the living space.

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

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

M103–06/07
702.3.1; IRC M1702.2, Figure M1702.2

Proponent: Julius Ballanco, P.E., JB Engineering and Code Consulting, P.C., representing himself

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

1. Delete without substitution:

~~**702.3.1 Number and location of openings.** Two openings shall be provided, one within 1 foot (305 mm) of the ceiling of the room and one within 1 foot (305 mm) of the floor.~~

2. Revise as follows:

702.3.~~2~~ 1 Size of openings~~.~~ The net free area of ~~each~~ the opening, calculated in accordance with section 708, shall be a minimum of 1 square inch per 1,000 Btu/h (2201 mm^2/kW) of input rating of the fuel-burning appliances drawing combustion and dilution air from the communicating spaces and shall be not less than 100 square inches (64516 mm^2).

PART II – IRC

Revise as follows:

M1702.2 Confined space. Where the space in which the appliance is located does not meet the criterion specified in Section M1702.1, ~~two~~ one permanent openings to adjacent spaces shall be provided so that the combined volume of all spaces meets the criterion~~. One opening shall be within 12 inches (305 mm) of the top and one within 12 inches (305 mm) of the bottom of the space~~, as illustrated in Figure M1702.2. ~~Each~~ The opening shall have a free area equal to a minimum of 1 square inch per 1,000 Btu/h (2201 mm2/kW) input rating of all appliances installed within the space, but not less than 100 square inches (64 415 mm2).

FIGURE M1702.2
APPLIANCES LOCATED IN CONFINED SPACES—ALL AIR TAKEN FROM ADJACENT SPACES WITHIN THE BUILDING
(Revise to show a single opening)

Reason: The requirement for two openings for combustion air is left over from when the Mechanical Code also regulated gas appliances. With the separation of the code requirements, the combustion air should have been modified to require a single opening of the specified size. Only a single opening is required for combustion air for oil fired or solid fuel burning appliances. This code change will correct that error.

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

Note: If the proposed change is successful, staff will revise the IRC figure to reflect a single opening.

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

M104–06/07
703.1.1 (New), 703.1.2

Proponent: Nirmal Jain, State of Minnesota Department of Labor and Industry

Add new text as follows:

703.1.1 One permanent opening method. One permanent opening, commencing within 12 inches (305 mm) of the top of the enclosure, shall be provided. The appliance shall have clearances of at least 1 inch (25 mm) from the sides and back and 6 inches (152 mm) from the front of the appliance. The opening shall directly communicate with the outdoors or through a vertical or horizontal duct to the outdoors, or spaces that freely communicate with the outdoors, and shall have a minimum free area of 1 square inch per 3,000 Btu/h (734mm2/kW) of the total input rating of all appliances located in the enclosure and not less than the sum of the areas of all vent connectors in the space.

Revise as follows:

703.1.~~1~~2 ~~Number and location of openings~~Two permanent openings method. Two openings shall be provided, one within 1 foot (305 mm) of the ceiling of the room and one within 1 foot (305 mm) of the floor.

(Renumber subsequent sections)

Reason: The purpose of this change is to allow a single opening to be used to provide combustion air for oil appliances in the IMC. The practice of using a single opening for oil appliances has been used in northern climates for many, many years and has NOT had adverse effects. This provision to provide a single opening has been included in previous legacy codes and was not allowed in the 2000, 2003 or 2006 editions of the IMC, however it is allowed in the IFGC. In fact, the proposed code language was taken directly from Section 304.6.2 of the 2006 IFGC. When sized at 1 square inch per 3,000 Btu/hr input, a single opening provides much more than the stoichiometric quantity of air required for the combustion process, and also includes an adequate amount of excess air for draft hood dilution and ventilation of the space.

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

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

M105–06/07
703.1.1, 703.1.2, 703.1.3, 703.1.4; IRC M1703.2, M1703.2.1, Figure M1702.2

Proponent: Julius Ballanco, P.E., JB Engineering and Code Consulting, P.C., representing himself

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I - IMC

1. Delete without substitution:

~~**703.1.1 Number and location of openings.** Two openings shall be provided, one within 1 foot (305 mm) of the ceiling of the room and one within 1 foot (305 mm) of the floor.~~

2. Revise as follows:

703.1.~~2~~1 Size of direct openings~~.~~. The net free area of ~~each~~ the direct opening to the outdoors, calculated in accordance with section 709, shall be a minimum of 1 square inch per 4,000 Btu/h (550 mm^2/kW) of combined input rating of the fuel-burning appliances drawing combustion and dilution air from the room.

703.1.~~3~~2 Size of horizontal openings~~.~~. The net free area of ~~each~~ the opening, calculated in accordance with section 709 and connected to the outdoors through a horizontal duct, shall be a minimum of 1 square inch per 2,000 Btu/h (1100 mm^2/kW) of combined input rating of the fuel-burning appliances drawing combustion and dilution air from the room. The cross-section area of the duct shall be equal to or greater than the required size of the opening.

703.1.~~4~~3 Size of vertical openings~~.~~. The net free area of ~~each~~ the opening, calculated in accordance with section 709 and connected to the outdoors through a vertical duct, shall be a minimum of 1 square inch per 4,000 Btu/h (550 mm^2/kW) of combined input rating of the fuel-burning appliances drawing combustion and dilution air from the room. The cross-section area of the duct shall be equal to or greater than the required size of the opening.

PART II – IRC

Revise as follows:

M1703.2 ~~Two~~ Oopenings or ducts. Outside combustion air shall be supplied through an opening or duct, as illustrated in Figures M1703.2(1), M1703.2(2), M1703.2(3) and M1703.2(4). ~~One opening shall be within 12 inches (305 mm) of the top of the enclosure, and one within 12 inches (305 mm) of the bottom of the enclosure.~~ The ~~O~~openings ~~are~~ is permitted to connect to spaces directly communicating with the outdoors, such as ventilated crawl spaces or ventilated attic spaces. ~~The same duct or opening shall not serve both combustion air openings. The duct serving the upper opening shall be level or extend upward from the appliance space.~~

M1703.2.1 Size of openings. Where directly communicating with the outdoors, or where communicating with the outdoors by means of vertical ducts, ~~each~~ the opening shall have a free area of at least 1 square inch per 4,000 Btu/per hour (550 mm2/kW) of total input rating of all appliances in the space. Where horizontal ducts are used, ~~each~~ the opening shall have a free area of at least 1 square inch per 2,000 Btu/per hour (1100mm2/kW) of total input of all appliances in the space. Ducts shall be of the same minimum cross-sectional area as the required free area of the openings to which they connect. The minimum cross-sectional dimension of rectangular air ducts shall be 3 inches (76 mm).

Figures M1703.2(1), M1703.2(2), M1703.2(3) and M1703.2(4)
(Revise figures to show single opening or duct)

Reason: The requirement for two openings for combustion air is left over from when the Mechanical Code also regulated gas appliances. With the separation of the code requirements, the combustion air should have been modified to require a single opening of the specified size. Only a single opening is required for combustion air for oil fired or solid fuel burning appliances. This code change will correct that error.

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

Note: If the proposed change is successful, staff will revise the IRC figure to reflect a single opening.

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

M106–06/07
703.1.5 (New)

Proponent: Lawrence Suggars, Salt Lake City, Utah, representing Utah Chapter of ICC

Add new text as follows:

703.1.5 One-permanent-opening method. One permanent opening, commencing within 12 inches (305 mm) of the top of the enclosure, shall be provided. The equipment shall have clearances of at least 1 inch (25 mm) from the sides and back and 6 inches (152 mm) from the front of the appliance. The opening shall directly communicate with the outdoors or through a vertical or horizontal duct to the outdoors or spaces that freely communicate with the outdoors and shall have a minimum free area of 1 square inch per 3,000 Btu/h (734 mm2 /kW) of the total input rating of all equipment located in the enclosure, and not less than the sum of the areas of all vent connectors in the space.

Reason: The IFGC (*International Fuel Gas Code*) is currently the only code which allows for one opening for combustion air as noted in the proposal above. In our area most mechanical contractors prefer this method to bring combustion air in to the mechanical room. For uniformity, all applicable codes should have the same requirement unless there is a specific reason for deleting the language from a particular code.

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

Analysis: The one opening method in the IFGC was based on research conducted on gas-fired appliances.

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

M107–06/07
704.1.1, 704.1.2, 704.1.3

Proponent: Julius Ballanco, P.E., JB Engineering and Code Consulting, P.C., representing himself

1. Delete without substitution:

~~**704.1.1 Number and location of openings.** Two openings shall be provided, one within 1 foot (305 mm) of the ceiling of the room and one within 1 foot (305 mm) of the floor.~~

2. Revise as follows:

704.1.2~~1~~1 Ratio of direct openings~~.~~. Where a direct opening~~s~~ to the outdoors ~~are~~ is provided in accordance with Section 703.1, the ratio of direct opening~~s~~ shall be the sum of the net free area~~s~~ of ~~both~~ the direct opening~~s~~ to the outdoors, divided by the sum of the required area~~s~~ for ~~both~~ such opening~~s~~ as determined in accordance with Section 703.1.2.

704.1.3~~2~~2 Ratio of horizontal openings~~.~~. Where an opening~~s~~ connected to the outdoors through a horizontal duct~~s~~ ~~are~~ is provided in accordance with Section 703.1, the ratio of horizontal opening~~s~~ shall be the sum of the net free area~~s~~ of ~~both~~ such opening~~s~~, divided by the sum of the required area~~s~~ for ~~both~~ such opening~~s~~ as determined in accordance with Section 703.1.3.

704.1.4~~3~~3 Ratio of vertical openings~~.~~. Where an opening~~s~~ connected to the outdoors through a vertical duct~~s~~ ~~are~~ is provided in accordance with Section 703.1, the ratio of vertical opening~~s~~ shall be the sum of the net free area~~s~~ of ~~both~~ such opening~~s~~, divided by the sum of the required area~~s~~ for ~~both~~ such opening~~s~~ as determined in accordance with Section 703.1.4.

Reason: The requirement for two openings for combustion air is left over from when the Mechanical Code also regulated gas appliances. With the separation of the code requirements, the combustion air should have been modified to require a single opening of the specified size. Only a single opening is required for combustion air for oil fired or solid fuel burning appliances. This code change will correct that error.

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

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

M108–06/07
202, 701.1; IRC R202, M1701.1

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

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

1. Delete without substitution:

SECTION 202
GENERAL DEFINITIONS

~~**CONFINED SPACES.** A space having a volume less than 50 cubic feet per 1,000 British thermal units per hour (Btu/h) (4.8m3/kW) of the aggregate input rating of all appliances installed in that space.~~

~~**UNCONFINED SPACE.** A space having a volume not less than 50 cubic feet per 1,000 Btu/h (4.8m3/kW) of the aggregate input rating of all appliances installed in that space. Rooms communicating directly with the space in which the appliances are installed, through openings not furnished with doors, are considered a part of the unconfined space.~~

~~**UNUSUALLY TIGHT CONSTRUCTION.** Construction meeting the following requirements:~~

1. ~~Walls exposed to the outdoor atmosphere having a continuous water vapor retarder with a rating of 1 perm [57 ng/ (s • m2 • Pa)] or less with openings gasketed or sealed;~~
2. ~~Openable windows and doors meeting the air leakage requirements of the *International Energy Conservation Code*, Section 402.4.2; and~~
3. ~~Caulking or sealants are applied to areas, such as joints around window and door frames, between sole plates and floors, between wall-ceiling joints, between wall panels, at penetrations for plumbing, electrical and gas lines and at other openings.~~

2. Revise as follows:

701.1 Scope. ~~The provisions of this chapter shall govern the requirements for combustion and dilution air for fuel-burning appliances other than gas-fired appliances. The requirements for combustion and dilution air for gas-fired appliances shall be in accordance with the *International Fuel Gas Code*.~~
Solid-fuel-burning appliances shall be provided with combustion air, in accordance with the appliance manufacturer's installation instructions. Oil-fired appliances shall be provided with combustion air in accordance with NFPA 31. The methods of providing combustion air in this chapter do not apply to fireplaces, fireplace stoves and direct-vent appliances. The requirements for combustion and dilution air for gas-fired appliances shall be in accordance with the *International Fuel Gas Code*.

(Delete without substitution remaining text in Chapter 7)

PART II – IRC

1. Delete without substitution:

SECTION R202
GENERAL DEFINITIONS

~~**CONFINED SPACES.** A space having a volume less than 50 cubic feet per 1,000 British thermal units per hour (Btu/h) (4.8 m3/kW) of the aggregate input rating of all appliances installed in that space.~~

~~**UNCONFINED SPACE.** A space having a volume not less than 50 cubic feet per 1,000 Btu/h (4.8m3/kW) of the aggregate input rating of all appliances installed in that space. Rooms communicating directly with the space in which the appliances are installed, through openings not furnished with doors, are considered a part of the unconfined space.~~

~~**UNUSUALLY TIGHT CONSTRUCTION.** Construction meeting the following requirements:~~

1. ~~Walls exposed to the outdoor atmosphere having a continuous water vapor retarder with a rating of 1 perm [57 ng/ (s • m2 • Pa)] or less with openings gasketed or sealed;~~
2. ~~Openable windows and doors meeting the air leakage requirements of the *International Energy Conservation Code*, Section 402.4.2; and~~
3. ~~Caulking or sealants are applied to areas, such as joints around window and door frames, between sole plates and floors, between wall ceiling joints, between wall panels, at penetrations for plumbing, electrical and gas lines and at other openings.~~

2. Revise as follows:

M1701.1 ~~Air supply~~ Scope. ~~Liquid and~~ Solid-fuel-burning appliances shall be provided with combustion air, in accordance with the appliance manufacturer's installation instructions. Oil-fired appliances shall be provided with combustion air in accordance with NFPA 31. ~~Section M1702 or Section M1703.~~ The methods of providing combustion air in this chapter do not apply to fireplaces, fireplace stoves and direct-vent appliances. The requirements for combustion and dilution air for gas-fired appliances shall be in accordance with *Chapter 24*.

(Delete without substitution remaining text in Chapter 17)

Reason: Current text is based on Natural Gas provisions. This is an incorrect application of code requirements, solid and liquid burning appliances do not have all the exact same characteristics as fuel gas burning appliances. These definitions have been deleted from Chapter 24 by way of the IFGC. They were used to determine if a structure needed the addition of outdoor air for combustion air.
Testing from the fuel gas industry has determined that "unusually tight", "unconfined space", and "confined space", are not factors of any relevance when determining if combustion air needs to be obtained from outdoors.

The provisions found in Chapter 7 of the IMC and 17 of the IRC are based on fuel gas provisions which are not germane to liquid and solid fuel burning appliances. NFPA 31 is already a referenced document in the IRC so there is not an increased cost to construction. NFPA 31 is a maintained document that contains the relevant information for liquid fuel burning appliances. As always the manufacturer's installation instructions are part of code requirements.

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

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

M109–06/07
801.18.4, 801.18.4.1 (New)

Proponent: Bob Eugene, Underwriters Laboratories Inc.

1. Revise as follows:

801.18.4 Clearances. Chimneys and vents shall have air-space clearance to combustibles in accordance with the International Building Code and the chimney or vent manufacturer's installation instructions.

Exception: Masonry chimneys equipped with a chimney lining system tested and listed ~~for installation in chimneys in contact with combustibles~~ in accordance with UL1777~~, and installed in accordance with the manufacturer's instructions, shall not be required to have clearance between combustible materials and exterior surfaces of the masonry chimney.~~

2. Add new text as follows:

801.18.4.1 Fireblocking. Noncombustible fireblocking shall be provided in accordance with the *International Building Code*.

Reason: Re-formatting this section allows deletion of duplicative words that are included only because 801.18.4 covers both clearances and firestopping. By dividing this into two sections, clarity is added.

Bibliography: IFGC 501.15.4

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

Analysis: Are all UL 1777 listed chimney lining systems tested for use in chimneys that are in contact with combustibles?

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

M110–06/07
801.20

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

Revise as follows:

801.20 Plastic vent joints. Plastic pipe and fittings used to vent appliances shall be installed in accordance with ~~the pipe manufacturer's installation instructions and~~ the appliance manufacturer's installation instructions. ~~Solvent cement joints between ABS pipe and fittings shall be cleaned. Solvent cement joints between CPVC and PVC pipe and fittings shall be primed The primer shall be a contrasting color.~~

~~**Exception:** Where compliance with this section would conflict with the appliance manufacturer's installation instructions.~~

Reason: These are not generic requirements; "cleaned" and "primed" have specific provisions associated with them in the manufacturer's installation instructions. The deletion of language of this section is because some manufacturers do not require the primers to be "contrasting in color" therefore, it is a conflict between the code and the manufacturer's installation instructions. It is not clear which is the less stringent as Section 304.2 would be required to resolve this conflict. The last sentence was added a couple of code cycles back solely for the purpose to allow the code official the benefit of visual verification that primer (or something) was used. The same sentence was submitted to the IFGC at the same time but was disapproved. Unfortunately, this is somewhat different than plumbing joint and connection requirements because the appliance manufactures get their appliances listed including the venting system specified in the installation instructions.

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

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

M111–06/07
802.7.1 (New)

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

Add new text as follows:

802.7.1 Horizontal support of vents. Vent systems passing through roofs having a pitch greater than 12 units vertical in 12 units horizontal shall be provided with a minimum of 3 guy wires or other approved fastening devices, spaced in approximately even intervals around the vent and securely attached to the structure. Vent systems in excess of 5 feet of free standing height, measured from the top of the flashing, and passing through flat roofs shall be secured in place with a minimum of 3 guy wires or other approved fastening devices, spaced in approximately even intervals around the vent and securely attached to the structure. All horizontal supports shall be in accordance with the manufacturer's installation instructions where applicable.

Reason: Venting systems, whether gas or other types of exhaust terminals, are susceptible to wind damage when the vents become too tall through the roof. At a point over 5-feet there will be an exposed joint and unless the vent is secured in place to prevent horizontal movement, the joint could become weakened to the point of failure, causing the pipe to become dislodged or loosened. Many locations are in high wind areas and type B-vent joints will not hold up to the punishment from high or severe winds. Manufacturers such as Metalbestos use the 5-foot free standing height as the point where horizontal supports are required. In the case of a flat roof, a B-vent could quite possibly have to be installed higher than 5-feet to clear an intake, parapet, or other obstruction. In this case, 3 wires or other approved means of bracing would be appropriate. Section 802.7 addresses the hangers for weight, and is generic in nature. This proposal is specifically addressing horizontal movement. It is important that venting systems stay in place during periods of high or severe winds. Instructions are rarely left for inspectors and a code reference would be most helpful in this situation.

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

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

M112–06/07
804.3.8; IEBC 508.2 (New)

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

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IEBC CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Delete without substitution:

~~**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 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.~~

PART II – IEBC

Add new text as follows:

508.2 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 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.

Reason: These provisions do not belong in the IMC. The IMC is a new construction code and provides specific guidance how to construct a chimney and install manually fired appliances. What this text permits is a chimney to be improperly installed and then in order to fix it, install a forced draft system. This proposal was disapproved by the IRC committee and upheld by the membership. It is much more logical to insert these provisions into the IEBC. The intent as stated by the original proponent was to allow these systems for use on older applications where the liner is still in usable condition and the chimney just happened to be built in such a configuration that will not permit proper draft.

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 – IEBC

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

M113–06/07
914.2, Chapter 15

Proponent: Bob Eugene, Underwriters Laboratories, Inc.

1. Revise as follows:

914.2 Installation. Sauna heaters shall be listed and labeled <u>in accordance with UL 875</u> and shall be installed in accordance with their listing and the manufacturer's installation instructions.

2. Add new standard to Chapter 15 as follows:

UL

<u>875-</u>04 Electric <u>Dry Bath Heater</u>

Reason: UL 875 is the ANSI standard used for listing and labeling sauna heaters.

These requirements cover electric dry-bath heating equipment and other equipment rated 600 volts or less that is intended to produce a dry-heat environment to be installed in accordance with the National Electrical Code, ANSI/NFPA 70. The relative humidity in the heated environment is in the region of 10 - 25 percent and the purpose of the heated environment is to promote perspiration in a short time by means of a relatively warm and dry atmosphere. The completed equipment is to be provided with an automatic temperature-regulating control that may be integral with the heater or wall-mounted, with an integral manual-reset limit control, a timer, and any other necessary associated equipment.

Bibliography: UL 875

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

Analysis: Results of review of the proposed standard will be posted on the ICC website by August 20, 2006.

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

M114–06/07
915.1, Chapter 15

Proponent: Bob Eugene, Underwriters Laboratories, Inc.

1. Revise as follows:

915.1 General. The installation of liquid-fueled stationary internal combustion engines and gas turbines, including <u>exhaust,</u> fuel storage and piping, shall meet the requirements of NFPA 37. <u>Stationary engine generator assemblies shall meet the requirements of UL 2200.</u>

2. Add standard to Chapter 15 as follows:

UL

<u>2200-04 Stationary Engine Generator Assemblies</u>

Reason: Add requirements for installation of stationary engine generator assemblies.

The exhaust provisions of NFPA 37 should also be applied. UL 2200 is the ANSI standard used to evaluate stationary engine generator assemblies for this application.

UL 2200 is currently referenced in the IFC. UL 2200 requirements cover stationary engine generator assemblies rated 600 volts or less that are intended for installation and use in ordinary locations in accordance with the National Electrical Code NFPA-70; the Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines, NFPA-37, the Standard for Health Care Facilities, NFPA-99, and the Standard for Emergency and Standby Power Systems, NFPA-110.

Bibliography: IFC Section 604.1.1.

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

Analysis: Results of review of the proposed standard will be posted on the ICC website by August 20, 2006.

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

M115–06/07
917.1, Chapter 15

Proponent: Bob Eugene, Underwriters Laboratories, Inc.

1. Revise as follows:

917.1 Cooking appliances. Cooking appliances that are designed for permanent installation, including ranges, ovens, stoves, broilers, grills, fryers, griddles and barbecues, shall be listed, labeled and installed in accordance with the manufacturer's installation instructions. Commercial electric ~~stoves~~ cooking appliances shall be listed and labeled in accordance with UL 197. Household electric ranges shall be listed and labeled in accordance with UL 858. ~~or~~ Microwave cooking appliances shall be listed and labeled in accordance with UL 923. Oil-burning stoves shall be ~~tested~~ listed and labeled in accordance with UL 896. Solid fuel-fired ovens shall be ~~tested~~ listed and labeled in accordance with UL 2162.

2. Add standards Chapter 15 as follows:

UL

858-05 Household Electric Ranges
923-02 Microwave Cooking Appliances, with Revisions through February 2006

Reason: Clarify code by adding references to specific standards pertaining to listing and labeling.
Providing information regarding the specific standards that apply to various products help the users. UL 197 is currently referenced in Section 507.1. UL 923 is currently referenced in the IRC Section M1503.1.
All three standards added to this section are ANSI approved standards.

Bibliography: IMC Section 507.1; IRC Section M1503.1

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

Analysis: Results of review of the proposed standard will be posted on the ICC website by August 20, 2006.

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

M116–06/07
1007.1

Proponent: David C. Bixby, Gas Appliance Manufacturers Association

Revise as follows:

1007.1 General. All steam and hot water boilers installed above radiation level shall be protected with ~~a~~ an automatic low-water fuel cutoff control. A watertube boiler requiring forced circulation to prevent overheating of the tubes shall have a flow-sensing device installed in lieu of the low-water fuel cutoff control.

Exception: Gas-fired hot water boilers that are listed to ANSI Z21.13 and installed below radiation level shall not be required to have a low-water fuel cutoff or flow-sensing control.

1007.2 Operation. The low-water cutoff shall automatically stop the combustion operation of the ~~appliance~~ boiler when the water level drops below the lowest safe water level as established by the manufacturer. The flow-sensing device, where used in lieu of a low-water cutoff, shall automatically stop the combustion operation of the boiler when the circulating flow is interrupted.

Reason: The purpose for requiring a low water cutoff control or flow sensing device in a hot water boiler is to cut off the fuel supply to the boiler where there is a possibility that a leak in the radiation/piping system could result in a low water situation in the boiler. Where the boiler is installed below the radiation/piping level, the possibility that the boiler would be drained due to a radiation distribution system leak is greatly reduced.

The proposed exception eliminates the need for a low water cutoff control or flow-sensing device on a listed hot water boiler when the boiler is installed below radiation level. ANSI Z21.13 is the standard for gas fired low-pressure steam and hot water boilers and it does not require hot water boilers to be equipped with such a control. Moreover, paragraph 10.3.5 in the 2006 Edition of the National Fuel Gas Code, ANSI Z223.1/NFPA 54, permits hot water boilers to be installed without low water cutoff controls when the boiler is installed below radiation level and therefore is consistent with the above proposed exception. The addition of requiring a flow-sensing device in lieu of a low-water cutoff control is consistent with the ASME Boiler and Pressure Vessel Code, Section IV, *Rules for Construction of Heating Boilers*.

It should be noted that the International Fuel Gas Code refers to the IMC for coverage regarding low-water fuel cutoff devices.

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

Analysis: What is required where radiation elements exist both above and below the boiler?

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

M117–06/07
1007.1

Proponent: James Ranfone, American Gas Association

Revise as follows:

1007.1 General. All steam and hot water boilers shall be protected with a low-water cutoff control.

Exception. Fuel gas-fired hot water boilers listed to ANSI Z21.13 and installed below the radiation level shall not be required to have low water cutoff controls.

Reason: The proposed revision eliminates the need for a low water cutoff control on a fuel gas fired hot water boiler listed to ANSI Z21.13 when the boiler is installed below the radiation level. ANSI Z21.13 is the standard for gas fired low-pressure steam and hot water boilers and it does not require hot water boilers to be equipped with low-water cutoff controls. Boilers listed to this standard are residential type boilers. The 2006 National Fuel Gas Code, ANSI Z223.1/NFPA 54, in section 10.3.5 permits hot water boilers to be installed without low water cutoff controls when the boiler is installed below the radiation level and therefore is consistent with the above revision.

The purpose for requiring a low water cutoff control in a hot water boiler is to shut down the boiler where there is a possibility that a leak in the radiation/piping system could result in a low water situation in the boiler. Where the boiler is installed below the radiation/piping level the possibility that the boiler would be drained due to a radiation distribution system leak is greatly reduced. Should a leak occur near or at the boiler level, other boiler safety controls required by ANSI Z21.13, such as the high temperature safety shutoff control would be activated to shut down the boiler. ANSI Z21.13 hot water boilers do not operate at elevated pressures.

The IFGC in section 631 requires fuel gas boilers meet the installation requirements in the IMC. Since the IFGC does not cover low water cutoff controls our proposed IMC revision that for fuel gas hot water boilers is appropriate for the IMC committee to consider.

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

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

M118–06/07
Table 1103.1

Proponent: Robert Doerr, Fountain City, WI, representing himself

Revise table as follows:

[F] TABLE 1103.1
REFRIGERANT CLASSIFICATION, AMOUNT AND TLV-TWA

REFRIGERANT	CHEMICAL FORMULA	CHEMICAL NAME OR BLEND	HAZARD CATEGORIES	REFRIGERANT CLASSIFICATION	DEGREES OF HAZARD	POUNDS PER 1000 CUBIC FEET	PPM	G/M3	TLV-TWA (PPM)
R-717	NH3	Ammonia	CG,C,F,OHH	B2	3-3-0[d]	~~0.022~~ 0.014	~~500~~ 320	~~0.35~~ 0.22	25
R-418A	zeotrope	R-290/22/152a (1.5/96.0/2.5)	CG,OHH	A1	2-0-0[c]				
R-419A	zeotrope	R-125/134a/E170 (77.0/19.0/4.0)	CG,OHH	A1	2-0-0[c]				
R-420A	zeotrope	R-134a/142b (88.0/12.0)	CG,OHH	A1	2-0-0[c]				
R-421A	zeotrope	R-125/134a (58.0/42.0)	CG,OHH	A1	2-0-0[c]				
R-421B	zeotrope	R-125/134a (85.0/15.0)	CG,OHH	A1	2-0-0[c]				
R-422A	zeotrope	R-125/134a/600a (85.1/11.5/3.4)	CG,OHH	A1	2-0-0[c]				
R-422B	zeotrope	R-125/134a/600a (55.0/42.0/3.0)	CG,OHH	A1	2-0-0[c]				
R-422C	zeotrope	R-125/134a/600a (82.0/15.0/3.0)	CG,OHH	A1	2-0-0[c]				
R-422D	zeotrope	R-125/134a/600a (65.1/31.5/3.4)	CG,OHH	A1	2-0-0[c]				
R-423A	zeotrope	R-134a/227ea (52.5/47.5)	CG,OHH	A1	2-0-0[c]				
R-424A	zeotrope	R-125/134a/600a/600/601a (50.5/57.0/0.9/1.0/0.6)	CG,OHH	A1	2-0-0[c]				
R-425A	zeotrope	R-32/134a/227ca (18.5/69.5/12.0)	CG,OHH	A1	2-0-0[c]				
R-426A	zeotrope	R-125/134a/600a/601a (5.1/93.0/1.3/0.6)	CG,OHH	A1	2-0-0[c]				

(Portions of table not shown do not change)

Reason: Update Table 1103.1 to be consistent with ASHRAE Addendum 34u-2004 and add new refrigerants for which ASHRAE Standard 34-2004 (and published addenda) has given a designation and safety classification.

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

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

M119–06/07
1107.4.6 (New)

Proponent: Michael St. James, ICO Flex System, Inc.

Add new text as follows:

1107.4.6 Flexible Hose. Flexible hose used in systems containing R-22 or 410-A shall meet or exceed those requirements set fourth in ANSI/ASHRAE 15. The flexible hose or "hose" shall comply with U.L. 1995, and where applicable U.L. 471. The hose shall meet or exceed the test standards outlined in; U.L. 207, U.L. 1963, and U.L. 536. Flexible hose used in systems containing R-22 and/or 410-A shall be tested and certified for use by a certified independent testing laboratory. Flexible hose designed for use in other applications shall be used in accordance with the manufacturer's specifications and shall comply with all applicable standards and safety guidelines.

Reason: Add new requirements to the Code. New technologies have developed hoses that can safely and effectively contain and transfer many of today's refrigerants. These Hoses provide numerous benefits to the contractor as well as homeowner. Flexible Hose is stronger than copper, eliminates leaks at joints as well as vibration induced leaks, and cuts installation time. In addition, because of the flexible nature of the Hose, during severe natural occurrences (tornadoes, hurricanes, and earthquakes) venting of refrigerant to the atmosphere and the resulting environmental damage is reduced.

In order to guarantee the integrity of a closed refrigeration system a series of standards and guidelines must be in place for inspectors to reference. This will insure that the appropriate hose and fittings are matched to the application and that their installation is performed correctly this will eliminate damage to equipment and/or components, cause financial burden to the homeowner, or have a negative environmental impact.

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

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

M120–06/07
1201.2

Proponent: Mark Riley, City of Troy, MI, representing himself

Delete and substitute as follows:

~~**1201.2 Pipe sizing.** Piping for hydronic systems shall be sized for the demand of the system.~~

1201.2 Sizing. Piping and hydronic systems shall be sized in accordance with the ASHRAE *Handbook of Fundamentals* or other equivalent computation procedure.

Reason: There is more to properly sizing a hydronic system than just sizing hydronic pipe. Pumps, coils, valves, and other appurtances must be correctly sized for the proper operation of the system. Failure to do so could also result equipment malfunction and damages. Also this new text gives a reference point to which standard to use for compliance.

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

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

M121–06/07
Table 1202.4, Chapter 15

Proponent: Richard W. Bonds, P.E., Ductile Iron Pipe Research Association

1. Revise table as follows:

TABLE 1202.4
HYDRONIC PIPE

MATERIAL	STANDARD (see Chapter 15)
Ductile iron pipe	ANSI/AWWA C151/A21.51; ANSI/AWWA C115/A21.15

(Portions of table not shown do not change)

2. Add standards to Chapter 15 as follows:

AWWA

C115—99 Standard for Flanged Ductile-iron Pipe with Ductile-iron or Gray-iron Threaded Flanges AWWA
C151/A21.51—02 Standard for Ductile-iron Pipe, Centrifugally Cast for Water

Reason: Add ductile iron as a new approved piping material. Ductile iron pipe has been used regularly for hydronic piping for decades, especially hot water, chilled water, and ground source heat pump systems. Its omission was obviously an over site. The International Standard ISO9349-04 "Preinsulated Ductile Iron Pipeline Systems," which was first issued in 1991, attests to its usage for such installations. Also, there are numerous manufacturers of insulation for ductile iron pipe used for chilled water and hot water distribution. One such company is Perma-Pipe. An article published in the Fall/Winter 1992/1993 U.S. Piper magazine describes a district cooling system for the city of Cleveland, Ohio utilizing thousands of feet of ductile iron pipe and fittings.

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

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

M122–06/07

Table 1202.4, Table 1202.5, Chapter 15

Proponent: Jim Paschal, Bodycote Testing Group, representing Aquatherm

1. Revise tables as follows:

TABLE 1202.4
HYDRONIC PIPE

MATERIAL	STANDARD (see Chapter 15)
Polypropylene (PP) plastic pipe	ASTM F 2389

(Portions of table not shown do not change)

TABLE 1202.5
HYDRONIC PIPE FITTINGS

MATERIAL	STANDARD
Plastic	ASTM D 2466; ASTM D 2467; ASTM D 2468; ASTM F 438; ASTM F 439; ASTM F 877; ASTM F 2389

(Portions of table not shown do not change)

2. Add new standard to Chapter 15 as follows:

ASTM

F 2389 Specification for Pressure-rated Polypropylene (PP) Piping Systems

Reason: The purpose of this revision is to allow the use of PP piping materials in the IMC for hydronic applications.

PP systems have been used in hydronic applications for over 20 years in Europe, and are currently being used in the U.S. through local jurisdictional approvals. There are architects and design engineers that would like to use these materials once they are in the IMC. The PP systems provide some advantages in green building design and LEED certification not available with current materials in the IMC.

PP piping systems were added to the IPC and IRC in 2006. In the IRC, the material is acceptable for both hydronic and plumbing applications. The systems are also listed by ICC under Evaluation Report (ESR) 1613 for hydronic applications in accordance with the IMC. There is an ASTM standard for the products, F 2389, and the products are also listed by NSF International.

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

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

M123–06/07
Table 1202.5, Chapter 15

Proponent: Richard W. Bonds, P.E., Ductile Iron Pipe Research Association

1. Revise table as follows:

TABLE 1202.5
HYDRONIC PIPE FITTINGS

MATERIAL	STANDARD (see Chapter 15)
Ductile iron and gray iron	ANSI/AWWA C110/A21.10
Ductile iron	ANSI AWWA C153/A21.53

(Portions of table not shown do not change)

2. Add standards to Chapter 15 as follows:

ANSI/AWWA C110/A21.10 Standard for Ductile-iron and Gray-iron Fittings,3 Inches through 48 Inches, for Water
ANSI AWWA C153/A21.53 Standard for Ductile-iron Compact Fittings for Water Service

Reason: Add ductile iron and gray iron fittings as a new approved piping material. Ductile iron and gray iron fittings have been used regularly for hydronic piping for decades, especially for hot water, chilled water, and ground source heat pump loop systems. Its omission was obviously an oversite. The International Standard ISO9349-04 "Preinsulated Ductile Iron Pipeline Systems," which was first issued in 1991, attests to its usage for such installations. Also, there are numerous manufacturers of insulation for ductile iron pipe used for chilled water and hot water distribution. One such company is Perma-Pipe. An article published in the Fall/Winter 1992/1993 U.S. Piper magazine describes a district cooling system for the city of Cleveland, Ohio utilizing thousands of feet of ductile iron pipe and fittings.

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

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

M124–06/07
1203.8.2 (New)

Proponent: Sidney Cavanaugh, Cavanaugh Consulting, representing Nvent

Add new text as follows:

1203.8.2 Push-fit Joints. Push-fit joints shall be installed in accordance with the manufacturer's instructions.

Reason: This code change will recognize a new technology that offers a solder-less joining system that complies with appropriate copper pipe, copper tube and fittings standards. The fittings are listed by all major code organizations and CSA. They can be used on water distributions systems and hydronic heating systems.

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

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

M125–06/07
1203.16, 1203.16.1, 1203.16.2 (New)

Proponent: Jim Paschal, Bodycote Testing Group, representing Aquatherm

Add new text as follows:

1203.16 Polypropylene (PP) plastic. Joints between PP plastic pipe and fittings shall comply with Sections 1203.16.1 and 1203.16.2.

1203.16.1 Heat-fusion joints. Heat fusion joints for polypropylene pipe and tubing 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 2389-06.

1203.16.2 Mechanical and compression sleeve joints. Mechanical and compression sleeve joints shall be installed in accordance with the manufacturer's instructions.

Reason: The purpose of this revision is to allow the use of PP piping materials in the IMC for hydronic applications.

PP systems have been used in hydronic applications for over 20 years in Europe, and are currently being used in the U.S. through local jurisdictional approvals. There are architects and design engineers that would like to use these materials once they are in the IMC. The PP systems provide some advantages in green building design and LEED certification not available with current materials in the IMC.

PP piping systems were added to the IPC and IRC in 2006. In the IRC, the material is acceptable for both hydronic and plumbing applications. The systems are also listed by ICC under Evaluation Report (ESR) 1613 for hydronic applications in accordance with the IMC. There is an ASTM standard for the products, F 2389, and the products are also listed by NSF International.

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

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

M126–06/07
1206.1.1

Proponent: Edward L. Andrews, II, Andrews Mechanical, Inc., representing himself

Delete without substitution:

~~**1206.1.1 Prohibited tee applications.** Fluid in the supply side of a hydronic system shall not enter a tee fitting through the branch opening.~~

Reason: Don't limit the designer in Section 1206.1.1. Primary and secondary piping and pumping is a prime reason to strike out this section. Also underscores balancing a manifold where you enter into the branch and out the barrels for balancing. It is more important to understand what velocity the fluid is traveling than which way it is coming into the tee fitting in hydronic piping. There is no safety reason for this code. The plumbing industry has been balancing parallel water heaters this way for years without any problems.

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

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

M127–06/07
1206.2

Proponent: Edward L. Andrews, II, Andrews Mechanical, Inc., representing himself

Delete without substitution:

~~**1206.2 System drain down.** Hydronic piping systems shall be designed and installed to permit the system to be drained. Where the system drains to the plumbing drainage system, the installation shall conform to the requirements of the *International Plumbing Code*.~~

Reason: It is impractical to do this in a radiant floor and no one follows it anyway. This is way out of line and practice. There's not one radiant company who supplies a product that has a way to do this. There is no safety reason to do this. If people are concerned about freezing then put glycol in the system.

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

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

M128–06/07
1206.2 (New); IRC M2101.11 (New)

Proponent: John Certuse, P.E., Industrial Services & Engineering Inc.

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Add new text as follows:

M1206.12 Freezing. Heating system piping, including discharge and supply piping to radiators, baseboards and hot water heat exchanger coils within air handlers that are located in areas outside of the heated building envelope and in

a location susceptible to freezing temperatures, shall be protected from freezing. Such protection shall be by the addition of an industry acceptable antifreeze/glycol solution to the heating system water where possible, the application of heat or the use of a pumping arrangement that will periodically cycle water flow to prevent freezing.

All exposed pipes shall be insulated to retard heat loss. Insulation alone shall not be relied on as the sole means of protecting this piping.

PART II – IRC

Add new text as follows:

M2101.11 Freezing. Heating system piping, including discharge and supply piping to radiators, baseboards and hot water heat exchanger coils within air handlers that are located in areas outside of the heated building envelope and in a location susceptible to freezing temperatures, shall be protected from freezing. Such protection shall be by the addition of an industry acceptable antifreeze/glycol solution to the heating system water where possible, the application of heat or the use of a pumping arrangement that will periodically cycle water flow to prevent freezing.

All exposed pipes shall be insulated to retard heat loss. Insulation alone shall not be relied on as the sole means of protecting this piping.

Reason: As a Professional Engineer investigating freeze damage to buildings in Northern Climates, improper installation of heating systems and heating system piping is common due to the poor code direction in these systems.

Unlike plumbing systems that are addressed in the International Plumbing Code, heating system piping is not accounted for regarding this failure.

Cost Impact: Each case is unique. In some the installation modification and/pr antifreeze would increase the cost in some, it would not. For the most part, if this was planned for up front (if it were in the ICC Code), it would not.

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

M129–06/07
1206.2; IRC M2101.2

Proponent: Mark Riley, City of Troy, MI, representing himself

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Revise as follows:

1206.2 System drain down. Hydronic piping systems shall be designed and installed to permit the system to be drained. Where the system drains to the plumbing drainage system, the installation shall conform to the requirements of the *International Plumbing Code*.

Exception: The buried portions of systems embedded underground or under floors.

PART II – IRC

Revise as follows:

M2101.2 System drain down. Hydronic piping systems shall be installed to permit the system to be drained. When the system drains to the plumbing drainage system, the installation shall conform to the requirements of Chapters 25 through 32 of this code.

Exception: The buried portions of systems embedded underground or under floors.

Reason: To require a hydronic system to be drained down in underground applications would be impractical or impossible in these applications. There are other methods that can be used to remove the fluid from the 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

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

M130–06/07
1209.5 (New); IRC M2103.2 (New)

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

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

Add new text as follows:

1209.5 Thermal barrier required. Radiant floor heating systems shall be provided with a thermal barrier in accordance with Sections 1209.5.1 through 1209.5.4

1209.5.1 Slab on grade installation. Radiant piping utilized in slab on grade applications shall be provided with insulating materials installed beneath the piping having a minimum R-value of 5.

1209.5.2 Suspended floor installation, In suspended floor applications, insulation shall be installed in the joist bay cavity serving the heating space above and shall consist of materials having a minimum R-value of 19.

1209.5.3 A Thermal break required. Thermal breaks shall be provided consisting of asphalt expansion joint materials or similar insulating materials at a point where a heated slab meets a stem wall or other conductive slab.

1209.5.4 Thermal barrier material marking. Insulating materials utilized in thermal barriers shall be identified in accordance with Section 102.1.1 of the *International Energy Conservation Code*.

PART II – IRC

Add new text as follows:

M2103.2 Thermal barrier required. Radiant floor heating systems shall be provided with a thermal barrier in accordance with Sections M2103.2.1 through M2103.2.4

M2103.2.1 Slab on grade installation. Radiant piping utilized in slab on grade applications shall be provided with insulating materials installed beneath the piping having a minimum R-value of 5.

M2103.2.2 Suspended floor installation, In suspended floor applications, insulation shall be installed in the joist bay cavity serving the heating space above and shall consist of materials having a minimum R-value of 19.

M2103.2.3 A Thermal break required. Thermal breaks shall be provided consisting of asphalt expansion joint materials or similar insulating materials at a point where a heated slab meets a stem wall or other conductive slab.

M2103.2.4 Thermal barrier material marking. Insulating materials utilized in thermal barriers shall be identified in accordance with Section 102.1.1 of the *International Energy Conservation Code*.

Reason: Many tens of thousands of dollars can be spent on radiant heat systems that do not work properly due to the lack of thermal barriers. There's not much inspectors can do when they see piping lying in the dirt with no insulation beneath it. Radiant systems cannot operate as intended without a thermal barrier.

In the case of a slab on grade application, the ground will require a substantial charging of energy in order to hit a point of equilibrium where the thermal energy starts coming upwards instead of going downwards. Thermal energy flows from hot to cold, always and continuously. It substantially effects the over-all energy requirements and can seriously affect the performance of the system negatively and waste precious resources.

In the case of a suspended floor application, if the insulation is not properly applied, the lower floor (basement) will have a tendency to overheat and the floor that is trying to be heated will be under-heated. Once the system is installed without insulation its' too late and balancing is virtually impossible. The end result is that energy bills are high, comfort levels are low due to the lack of insulation, which in most cases can not be retrofitted to appease the situation. The lack of insulation can drive the operating costs as high as 25% depending upon the application and exposure. The paybacks for the consumer are huge considering the minimal cost of insulating materials such as 1-inch foam, which costs approximately .48/sq. ft. The energy code does not provide guidance in this situation. It is appropriate for this text to be included in this document as this is what is used by installers for the installation.

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

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

M131–06/07
IMC 1404.1, Chapter 15; IRC M2301.3.1, Chapter 43

Proponent: Bob Eugene, Underwriters Laboratories, Inc.

THIS PROPOSAL IS ON THE AGENDA OF THE IMC AND THE IRC MECHANICAL CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IMC

1. Revise as follows:

1404.1 Collectors. Factory-built collectors shall be listed and labeled in accordance with UL 1279, and bear a label showing the manufacturer's name and address, model number, collector dry weight, collector maximum allowable operating and non-operating temperatures and pressures, minimum allowable temperatures and the types of heat transfer fluids that are compatible with the collector. The label shall clarify that these specifications apply only to the collector.

2. Add standard to Chapter 15 as follows:

UL

1279-99 Outline of Investigation for Solar Collectors

PART II – IRC

1. Revise as follows:

M2301.3.1 Collectors. Collectors shall be listed and labeled in accordance with UL 1279 ~~to~~ and bear a label showing the manufacturer's name, model number, serial number, collector weight, collector maximum allowable temperatures and pressures, and the type of heat transfer fluids that are compatible with the collector. The label shall clarify that these specifications apply only to the collector.

2. Add new standard to Chapter 43 as follows:

UL

1279-99 Outline of Investigation for Solar Collectors

Reason: Add a direct reference identifying the criteria used for listing and labeling.

Providing information regarding the specific criteria that apply to various products help the users.

These safety requirements cover factory built solar collector modules for use in active solar energy systems, wherein solar energy is converted into heat energy and transferred to a heat transfer fluid such as air, water, or organic or inorganic fluids circulated through the collector. The requirements also apply to a separate solar collector module intended for use in a thermal siphon system, such as for domestic water heating.

Bibliography: Subject 1279, Outline of Investigation for Solar Collectors

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

Analysis: Results of review of the proposed standard will be posted on the ICC website by August 20, 2006.

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

M132-06/07
Chapter 15

Proponent: Standards writing organizations as listed below.

Revise standards as follows:

ASHRAE

American Society of Heating, Refrigerating and
Air-Conditioning Engineers, Inc.
1791 Tullie Circle, NE
Atlanta, GA 30329-2305

Standard reference number	Title
15-2004 ~~2001~~	Safety Standard for Refrigeration Systems
ASHRAE- 2005 ~~2001~~	ASHRAE Fundamentals Handbook –2005 ~~2001~~

ASSE

American Society of Sanitary Engineering
901 Canterbury Road, Suite A
Westlake, OH 44145

Standard reference number	Title
1017-2003 ~~1999~~	Performance Requirements for Temperature Actuated Mixing Valves for Hot Water Distribution Systems

ASTM

ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959

Standard reference number	Title
A 53/A 53M-05 ~~02~~	Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
A 106/A 106M-04b	Specification for Seamless Carbon Steel Pipe for High-Temperature Service
A 420/A 420M-05 ~~04~~	Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low-Temperature Service
B 32-04 ~~03~~	Specification for Solder Metal
C 411-05 ~~97~~	Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation
D 56-05 ~~02a~~	Test Method for Flash Point by Tag Closed Tester
D 1527-99(2005) ~~e01~~	Specification for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe, Schedules 40 and 80
D 1693-05 ~~01~~	Test Method for Environmental Stress-Cracking of Ethylene Plastics
D 2235-04 ~~01~~	Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings
D 1785-05 ~~04~~	Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80 and 120
D 2241-05 ~~04a~~	Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR-Series)
D 2282-99(2005) ~~e01~~	Specification for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe (SDR-PR)
D 2466-05 ~~02~~	Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40

D 2467-05 ~~04~~	Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80
D 2513-05 ~~04a~~	Specification for Thermoplastic Gas Pressure Pipe, Tubing, and Fittings
D 2564-04 ~~02~~	Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems
D 2683-04 ~~98~~	Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing
D 2846/D 2846M-99e01	Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot- and Cold-Water Distribution Systems
D 3278-96(2004)e01	Test Methods for Flash Point of Liquids by Small Scale Closed-Cup Apparatus
E 84-05e01 ~~04~~	Test Method for Surface Burning Characteristics of Building Materials
E 119-05a ~~00e~~	Test Methods for Fire Tests of Building Construction and Materials
E 136-04 ~~99e01~~	Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C
E 2231-02e01 ~~02~~	Standard Practice for Specimen Preparation and Mounting of Pipe and Duct Insulation Materials to Assess to Surface Burning Characteristics
F 439-05 ~~02e01~~	Specification for Socket-Type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80
F 442/F 442M-99(2005)	Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe (SDR-PR)
F 876-05 ~~04~~	Specification for Crosslinked Polyethylene (PEX) Tubing
F 877-05 ~~02ae01~~	Specification for Crosslinked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems
F 1281-05 ~~03~~	Specification for Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene (PEX-AL-PEX) Pressure Pipe
F 1476-01 ~~95a~~	Standard Specification for Performance of Gasketed Mechanical Couplings for Use in Piping Applications

NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02269-9101

Standard reference number	Title
91-04 ~~99~~	Exhaust Systems for Air Conveying, of Vapors, Gases, Mists, and Noncombustible Particulate Solids
211-~~03~~ 06	Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances

SMACNA

Sheet Metal and Air Conditioning Contractors National Association, Inc.
4021 Lafayette Center Drive
Chantilly, VA 20151-1209

Standard reference number	Title
SMACNA/ANSI (2005) ~~95~~	HVAC Duct Construction Standards-Metal and Flexible (2005)

UL

Underwriters Laboratories, Inc.
333 Pfingsten Road
Northbrook, IL 60062

Standard reference number	Title
103-01	Factory-Built Chimneys for Residential Type and Building Heating Appliances-with Revisions through December ~~2003~~ 2005
174-04	Household Electric Storage Tank Water Heaters—with Revisions through ~~October 1999~~ November 2005
181-~~96~~ 05	Factory-Made Air Ducts and Air Connectors ~~—with Revisions through May 2003~~
181A- ~~98~~ 2005	Closure Systems for Use with Rigid Air Ducts and Air Connectors ~~-with Revisions through December 1998~~
181B- ~~95~~ 2005	Closure Systems for Use with Flexible Air Ducts and Air Connectors ~~-with Revisions through August 2003~~
207-2001	Refrigerant-Containing Components and Accessories, Nonelectrical—with Revisions through November 2004
268-96	Smoke Detectors for Fire Protective Signaling Systems—with Revision through ~~January 1999~~ October 2003
268A-98	Smoke Detectors for Duct Application—with Revisions through ~~September 2001~~ April 2003

412-2004	Refrigeration Unit Coolers ~~with Revisions through November 2001~~
471-~~1995~~ 2006	Commercial Refrigerators and Freezers—with Revisions through ~~November 2001~~ February 2006
641-95	Type L Low-Temperature Venting Systems— with Revisions through ~~April 1999~~ August 2005
726-95 ~~98~~	Oil-Fired Boiler Assemblies —with Revisions through ~~January 2001~~ February 2006
731-1995	Oil-Fired Unit Heaters with Revisions through February 2006
732-1995	Oil-Fired Storage Tank Water Heaters - with Revisions through ~~January 1999~~ February 2005
834-04	Heating, Water Supply, and Power Boilers-Electric ~~with Revisions through November 1998~~
867-00	Electrostatic Air Cleaners – with Revisions through ~~May~~ February 2004
900-94	Air Filter Units — ~~with Revisions through October 1999~~
1240-2005 ~~1994~~	Electric Commercial Clothes ~~with Revisions through May 2000~~
1820-2004 ~~1997~~	Fire Test of Pneumatic Tubing for Flame and Smoke Characteristics ~~with Revisions through March 1999~~
1887-2004 ~~1996~~	Fire Test of Plastic Sprinkler Pipe and Visible Flame and Smoke Characteristics ~~with Revisions through June 1999~~
1995-2005 ~~1998~~	Heating and Cooling Equipment ~~with Revisions through August 1999~~
2158-1997	~~Outline of Investigation~~ for Electric Clothes Dryer – with Revisions through May 2004

Reason: The *ICC Code Development Process for the International Codes* (Procedures) Section 4.5* requires the updating of referenced standards to be accomplished administratively, and be processed as a Code Proposal. In May 2005, a letter was sent to each developer of standards that are referenced in the I-Codes, asking them to provide ICC with a list of their standards in order to update to the current edition. Above is the list received of the referenced standards under the maintenance responsibility of the IMC Committee.

***4.5 Updating Standards:** The updating of standards referenced by the Codes shall be accomplished administratively by the appropriate code development committee in accordance with these full procedures except that multiple standards to be updated may be included in a single proposal.

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