# FG2-07/08, Part I
## IFGC 106.3.2 (New)

***NOTE: PARTS II, III, IV AND V DID NOT RECEIVE A PUBLIC COMMENT AND ARE ON THE CONSENT AGENDA. PARTS II, III, IV AND V ARE REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART I.***

*Proposed Change as Submitted:*

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

**PART I – IFGC**

**Add new text as follows:**

**106.3.2 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.

**Reason:** Consistency and coordination among the I-Codes are 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, for the 2006/2007 cycle, and extended, for the 2007/2008 cycle, the ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) to review Chapter 1 administrative provisions in the International Codes family and improve the correlation among the I-Codes through the code development process.

The AHC-Admin is submitting a series of code change proposals designed to provide consistent and correlated administrative provisions among the I-Codes. The intent of this correlation effort is not necessarily 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.

This proposal focuses on inspections prior to permit issuance and is being submitted by the AHC-Admin to correlate the IFGC, IMC, IPC, IPSDC and IWUIC with current Section 109.2 of the *International Building Code* and *International Existing Building Code*, Section 105.2.2 of the *International Fire Code* and the change that was approved in the 2006/2007 cycle to create Section R105.9 of the *International Residential Code* (see *Supplement to the International Codes/2007)*.

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.

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

**PART I – IFGC**
**Committee Action:** **Disapproved**

**Committee Reason:** The authorization given in the proposed text is already common practice and is the privilege of the authority having jurisdiction. Section 106.4 is a more appropriate location for such new text.

**Assembly Action:** **None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted for Part I.**

*Public Comment:*

**Rebecca Baker, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes, requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**~~106.3.2~~ 106.4 Preliminary inspection.** Before a permit is issued, the code official is authorized to inspect and ~~approve~~ evaluate the systems, equipment, buildings, devices, premises, and spaces or areas to be used.

**Commenter's Reason:** The ICC Ad-Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin) was tasked with reviewing Chapter 1 administrative provisions in each of the I-Codes and attempting to correlate applicable provisions through the code development process.

The proposed modifications do two things: First, the term “approved” is replaced with the term “evaluate” to further clarify the purpose of the code official's visit in a pre-permit inspection and, Second, in accordance with the IFGC committee’s suggestion, the new text is relocated to be Section 106.4 as a more appropriate location.

The AHC-Admin requests that the IFGC committee action be overturned and the modification approved to provide a useful administrative tool currently found in the IBC, IEBC and IFC and the IRC supplement, and correlation with the committee actions in Palm Springs for similar text in the IMC, IPC, IPSDC and IWUIC.

Final Action: AS AM AMPC____ D

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***NOTE: PARTS II, III, IV AND V REPRODUCED FOR INFORMATIONAL PURPOSES ONLY – SEE ABOVE***

**PART II – IMC**

**Add new text as follows:**

**106.3.2 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.

**PART III – IPC**

**Add new text as follows:**

**106.3.2 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.

**PART IV – IPSDC**

**Add new text as follows:**

**106.2.2 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.

**PART V – IWUIC**

**Add new text as follows:**

**105.4.1 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.

Reason – Parts II, III, IV and V: Same as for Part I

**PART II – IMC**
**Committee Action:** **Approved as Modified**

**Modify the proposal as follows:**

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

**Committee Reason:** This section needs to be consistent with similar sections in other I-codes. This provision can be a valuable tool for the code official, especially for existing buildings, by allowing him/her to inspect conditions that might affect safety before issuing the permit. The modification replaced the term “approve” with the term “evaluate” to avoid the impression that the code official can only approve the items rather than evaluating and possibly disapproving them.

**Assembly Action:** **None**

**PART III – IPC**
**Committee Action:** **Approved as Modified**

**Modify the proposal as follows:**

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

**Committee Reason:** The committee agreed with the proponent’s reason statement indicating that the new text is necessary for consistency with coordinating sections already established in the IBC, IEBC, and IRC and legally allows the code official to make ‘evaluation’ inspections of a site or building prior to a permit being issued. The modification was to change the word “approve” to “evaluate” so as to further clarify the purpose of the code official’s visit in a pre-permit inspection.

**Assembly Action:** **None**

**PART IV – IPSDC**
**Committee Action:** **Approved as Modified**

**Modify the proposal as follows:**

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

**Committee Reason: :** The committee agreed with the proponent's reason statement indicating that the new text is necessary for consistency with coordinating sections already established in the IBC, IEBC, and IRC and legally allows the code official to make 'evaluation' inspections of a site or building prior to a permit being issued. The modification was to change the word "approve" to "evaluate" so as to further clarify the purpose of the code official's visit in a pre-permit inspection.

**Assembly Action:** **None**

**PART V – IWUIC**
**Committee Action:** **Approved as Submitted**

**Committee Reason:** The committee agreed that the proposal will correlate the IWUIC with the IBC, IRC, IFC, IFGC, IMC, IPC, and IPSDC and will provide the code official with a useful tool in managing the permit process, especially in cases of permits being issued for an existing building.

**Assembly Action:** **None**

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# FG9-07/08
## 202 (New)

*Proposed Change as Submitted:*

**Proponent:** James Ranfone, representing American Gas Association

**Add new definition as follows:**

**SECTION 202**
**GENERAL DEFINITIONS**

**GROUNDING ELECTRODE.** An electrically conductive terminal that provides an electrical connection to the earth.

**Reason:** The IFGC lacks a definition for Grounding Electrode. The extracted section 310 Electrical Bonding is being revised in the 2009 *National Fuel Gas Code* and will require specific CSST bonding coverage. The definition is necessary to provide clarity to code users on this coverage. The definition is consistent with the definition in the 2009 National Fuel Gas Code.

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

**Committee Action:** **Approved as Submitted**

**Committee Reason:** The proposed definition will provide consistency with Z223.1 (NFGC) and will be a needed definition because the term is used in the new CSST bonding text that will appear in Section 310 of the 2009 IFGC.

**Assembly Action:** **None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Robert Adkins, Prince William County, VA, representing Virginia Building Code Officials Association/ Virginia Plumbing Mechanical Inspectors Association requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**GROUNDING ELECTRODE.** A device intended to provide ~~An electrically conductive terminal that provides~~ an electrical connection to the earth.

**Commenter's Reason:** As written, the definition could be taken to include almost any piece of subterranean scrap metal. This modification makes it clear that the device or terminal must be intended to create the connection to earth.

Final Action: AS AM AMPC____ D

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# FG10-07/08
## 202 (New), Chapter 8 (New)

*Proposed Change as Submitted:*

**Proponent:** James Ranfone, representing American Gas Association

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

**SECTION 202 (IFGC)**
**GENERAL DEFINITIONS**

**COMBUSTIBLE MATERIAL.** A material or assembly constructed of one or more components or materials that are not defined as noncombustible.

**NONCOMBUSTIBLE MATERIAL.** A material that, in the form in which it is used and under the conditions anticipated, will not ignite, burn, support combustion, or release flammable vapors when subjected to fire or heat. Materials that are reported as passing ASTM E 136, are considered to be noncombustible materials.

**2. Add standard to Chapter 8 as follows:**

**ASTM**
E136-04 Test Method for Behavior of Materials in a Vertical Tube Furnace at 750° C

**Reason:** The IFGC uses the terms “combustible material” and “noncombustible material” (for example, see section 308) but lacks definitions. The definition for “noncombustible material” is taken from the 2009 National Fuel Gas Code.

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

**Committee Action:** **Approved as Modified**

**SECTION 202 (IFGC)**
**GENERAL DEFINITIONS**

~~**COMBUSTIBLE MATERIAL.** A material or assembly constructed of one or more components or materials that are not defined as noncombustible.~~

**NONCOMBUSTIBLE MATERIAL.** A material that, in the form in which it is used ~~and under the conditions anticipated~~, will not ignite, burn, support combustion, or release flammable vapors when subjected to fire or heat. Materials that are reported as passing ASTM E 136, are considered to be noncombustible materials.

(Portions of proposal not shown remain unchanged)

**Committee Reason:** The proposed definition of noncombustible is needed because the term is used but not currently defined. The modification deletes the unnecessary converse definition and deletes subjective text that would cause interpretation problems.

**Assembly Action:** **None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Guy Tomberlin, Fairfax County, VA, representing Virginia Plumbing and Mechanical Inspectors Association and Virginia Building and Code Officials Association, requests Disapproval.**

**Robert F. Loeper, Jr., President, representing Region VII Chapter of ICC requests Disapproval.**

**Commenters' Reason:** If FG 10 is approved as submitted it will be the third different definition of the same term within the I codes. We would propose for your consideration, FG 11 for approval as submitted to help prevent this unfavorable situation. FG 11 is the exact same definition that is contained in the IMC. The scope of confusion surrounding this issue appears to be gypsum. Is it combustible or not? According to the IBC it is not, however, the use of gypsum in the IBC methods of construction are somewhat different than the uses covered in the IFGC. The uses of gypsum in the IFGC are identical to those in the IMC. The difference of definitions for this term between the IMC and IBC were intentional back at the inception of the IMC. The applications addressed in the IFGC and the IMC are specifically applicable to clearance to combustibles. The references in the IBC are related to the construction of walls and ceilings and have nothing to do with clearance to combustibles for heat producing appliances and equipment. While it is true, gypsum won't support fire, the paper coating will certainly burn. Therefore, if the capability of any product's ignition exists, it would be counterproductive to utilize such product for a clearance to combustible construction method related to heat producing appliances or equipment.

Final Action: AS AM AMPC____ D

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# FG11-07/08
## 202 (New), Chapter 8 (New)

*Proposed Change as Submitted:*

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

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

**SECTION 202 (IFGC)**
**GENERAL DEFINITIONS**

**NONCOMBUSTIBLE MATERIALS.** Materials that, when tested in accordance with ASTM E 136, have at least three of four specimens tested meeting all of the following criteria:

1. The recorded temperature of the surface and interior thermocouples shall not at any time during the test rise more than 54°F (30°C) above the furnace temperature at the beginning of the test.
2. There shall not be flaming from the specimen after the first 30 seconds.
3. If the weight loss of the specimen during testing exceeds 50 percent, the recorded temperature of the surface and interior thermocouples shall not at any time during the test rise above the furnace air temperature at the beginning of the test, and there shall not be flaming of the specimen.

**2. Add standard to Chapter 8 as follows:**

**ASTM**

E136-04 Test Method for Behavior of Materials in a Vertical Tube Furnace at 750° C

**Reason:** This is not a new regulation. In fact it is the definition that many localities utilize for enforcement of the current combustible provisions found in the IFGC, however some do not. This causes inconsistent application and non-uniform enforcement of the current provisions. This proposal was submitted last code cycle; unfortunately the opposition was based on the wording of the definition. This was a clear example of "missing the forest for the trees." This is the exact wording from the IMC chapter 2 definitions. The IMC has many more references to combustible issues than the IFGC and this definition serves the many applications very well. Another important fact I must point out is that all of the fuel gas provisions were actually located in the 1996 edition of the IMC before the first IFGC was ever published. Absolutely no testimony has been provided that indicates that there are any problems associated with the use of this term to evaluate combustible issues related to fuel gas installations. The IFGC refers to combustible in several sections (Section 308 for example) but fails to provide guidance as to exactly what is combustible. This is a much needed addition to correct an omission that has been overlooked since the IFGC's inception.

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

**Committee Action:** **Disapproved**

**Committee Reason:** The proposed text is cumbersome and difficult to interpret and enforce. Disapproval is consistent with the action taken to approve the alternate definition in FG10. Items 1, 2 and 3 of the definition are not appropriate for code text because they might be changed within the actual standard.

**Assembly Action:** **Approved as Submitted**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because an assembly action was successful and public comments were submitted.**

*Public Comment 1:*

**Guy Tomberlin, Fairfax County, VA, representing Virginia Plumbing and Mechanical Inspectors Association and Virginia Building and Code Officials Association, requests Approval as Submitted.**

**Robert F. Loeper, Jr., President, representing Region VII Chapter of ICC requests Approval as Submitted.**

**Commenters' Reason:** This recommendation was approved by Assembly Floor Action in Palm Springs. If FG 10 is approved as submitted it will be the third different definition of the same term within the I codes. We would propose for your consideration, FG 11 for approval as submitted to help prevent this unfavorable situation. FG 11 is the exact same definition that is contained in the IMC. The scope of confusion surrounding this issue appears to be gypsum. Is it combustible or not? According to the IBC it is not, however, the use of gypsum in the IBC methods of construction are somewhat different than the uses covered in the IFGC. The uses of gypsum in the IFGC are identical to those in the IMC. The difference of definitions for this term between the IMC and IBC were intentional back at the inception of the IMC. The applications addressed in the IFGC and the IMC are specifically applicable to clearance to combustibles. The references in the IBC are related to the construction of walls and ceilings and have nothing to do with clearance to combustibles for heat producing appliances and equipment. While it is true, gypsum won't support fire, the paper coating will certainly burn. Therefore, if the capability of any product's ignition exists, it would be counterproductive to utilize such product for a clearance to combustible construction method related to heat producing appliances or equipment.

*Public Comment 2:*

**Ted A. Williams, American Gas Association, requests Disapproval.**

**Commenter's Reason:** The testing requirements proposed for the definition are not enforceable by the code official since he/she does not have information on the specimen test results for compliance to ASTM E 136-04. Reference to listing to ASTM E 136-04, as approved by the Committee for Proposal FG10-07/08, is sufficient and enforceable. If the proposed requirements for materials as used under the IFGC are necessary, these requirements should be proposed to ASTM for the satisfying ASTM requirements for the intended application and not promulgated through the IFGC.

Final Action: AS AM AMPC____ D

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# FG12-07/08
## 202 (New)

*Proposed Change as Submitted:*

**Proponent:** James Ranfone, representing American Gas Association

**Add new definition as follows:**

**SECTION 202 (IFGC)**
**GENERAL DEFINITIONS**

**EXTERIOR MASONRY CHIMNEYS.** Masonry chimneys exposed to the outdoors on one or more sides below the roof line.

**Reason:** The IFGC contains venting tables 504.3(6a), 504.3(6b), 504.3(7a) and 504.3(7b) applicable to exterior masonry chimneys but the code lacks a definition. The proposed definition is taken from the 2006 National Fuel Gas Code (definition 3.3.17.1). The new definition would clarify IFGC code provisions.

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

**Committee Action:** **Approved as Submitted**

**Committee Reason:** The proposed definition is consistent with that in the NFGC, Z223.1. The code refers to exterior chimneys but fails to define them.

**Assembly Action:** **None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Bob Croft, Pikes Peak Regional Building Department, representing Colorado Chapter of ICC, requests Disapproval.**

**Commenter's Reason:** Although the proposed definition is taken from Section 3.3.17.1 of the 2006 National Fuel Gas Code, it does not solve the issue of which is the correct table [504.3 (6a) thru (7b)] to apply when designing a vent system. The use of a masonry chimney as a gas vent has certain inherent problems associated with the condensing of flue gases. The reason for the number tables is to ensure climatic and physical conditions are addressed. By this definition, many non-exterior chimneys may have a much higher percentage surface area exposed to an unconditioned space such as the attic and portion above the roof line, than those that meet this proposed definition.

Final Action: AS AM AMPC____ D

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# FG15-07/08
**202**

*Proposed Change as Submitted:*

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

**Revise definition as follows:**

**SECTION 202 (IFGC)**
**GENERAL DEFINITIONS**

**ROOM LARGE IN COMPARISON WITH SIZE OF THE APPLIANCE (Supp).** Rooms having a volume equal to at least 12 times the total volume of a furnace, water heater or air-conditioning appliance and at least 16 times the total volume of a boiler. Total volume of the appliance is determined from exterior dimensions and is to include fan compartments and burner vestibules, when used. When the actual ceiling height of a room is greater than 8 feet (2438 mm), the volume of the room is figured on the basis of a ceiling height of 8 feet (2438 mm).

**Reason:** This criterion is actually already included within the installation instructions of most water heaters not listed for installation in closets or alcoves. Adding this text to the IFGC increases usability and lends to consistency with the water heater manufacturer's recommendations. This also is consistent with the action taken last code cycle in the IMC (see M18-06/07). Further, it only makes sense to identify the minimum size space a water heater can be installed in where the water heater is not listed for closet or alcove installation, exactly the same as other gas appliances.

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

**Committee Action:** **Approved as Submitted**

**Committee Reason:** The revision is consistent with the appliance manufacturer's installation instructions. The definition serves to define a closet. The concern for a water heater should be no different than for a furnace, boiler or air-conditioning appliance.

**Assembly Action:** **None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Ted A. Williams, American Gas Association, requests Disapproval.**

**Commenter's Reason:** The proposed sizing of rooms applied to water heaters is inconsistent with sizing principles and methods for providing adequate combustion air and clearances for these appliances in closets and other rooms, which are conventional building practice. The proposal will disallow this type of installation and, instead, require installation in spaces that are unnecessarily large and in many cases

would be incompatible with conventional building floor plans. The proponent has provided no argument or evidence that the current practice of installation and provision of adequate combustion air and clearances is unsafe or otherwise unacceptable. The proponent's argument for consistency with provisions for other water heaters under the IMC may be evidence of problematic issues within that code, but it does not argue for changing the IFGC.

Final Action: AS AM AMPC____ D

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# FG17-07/08, Part I
## 306.3, 306.4

*Proposed Change as Submitted:*

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

**PART I – IFGC**

**Revise as follows:**

**[M] 306.3 (Supp) 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 ~~when~~ measured along the centerline 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~~ and 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 not less than 6 feet (1829 mm) high for its entire length, the passageway shall be not greater than 50 feet (15 250 mm) in length.

**[M] 306.4 (Supp) 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 ~~when~~ 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 extending 4 inches (102 mm) above the adjoining grade and having 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~~ and 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 not less than 6 feet high (1829 mm) for its entire length, the passageway shall not be limited in length.

**Reason:** This language is inconsistent with that of the IMC and IRC. The intent is to provide relief in the size of the opening provided that the appliance can be removed through such a size; not to be dismantled in order to do so. All three documents need to be consistent in their approach; that the opening needs to be as large as the largest appliance, not the largest piece. The last sentence of each section fails to specify an access opening size where the opening is NOT large enough to allow removal of the appliance. The IMC and IRC text is revised to be consistent with the IFGC text. The text only implies that the openings might need to be larger than 20" x 30" based on an appliance size. The revision clarifies that both criteria apply.

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

**Analysis**: Sections 306.3 and 306.4 of the *International Fuel Gas Code* (IFGC) are designated as being under the purview of the IMC Committee, however, the primary revision in Part I is related only to the IFGC and will therefore be heard by the IFGC Committee.

**PART I – IFGC**
**Committee Action:** **Approved as Submitted**

**Committee Reason:** Attic access openings and passageways need to be large enough to allow appliances to pass through without the need to disassemble them. This would apply to taking an appliance out of an attic as well as putting a new one in an attic. It is unclear what the "largest component" of an appliance would be. The last sentence is revised to clarify that the stated opening size is the minimum in all cases.

**Assembly Action:** **None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted for Part I.**

*Public Comment:*

**Ted A. Williams, American Gas Association, requests Disapproval for Part I.**

**Commenter's Reason:** The proposal would require excessive sizing of openings to accommodate removal of all appliances in their fully assembled configurations. Such requirements would also require installation of access openings that are inconsistent with reasonable location of access openings. In addition, access openings sized for fully assembled appliances presumes that other openings in the building (e.g., door frames) are likewise sized for removal in this state, which is not accurate. Also, removal of fully assembled appliances, in many cases such as with a fully-assembled furnace, is a practical impossibility, arguing against the necessity of requirements of this proposal. The proponent has not offered a technical justification for this change. Consistency with the IMC and IRC, offered by the proponent, is not in of itself a persuasive argument for the proposed change. In addition, the cost impact analysis of the proposal does not appear to consider issues of increased sizing of openings or the potential need to relocate openings to meet the additional size requirements implied by the proposed change.

Final Action: AS AM AMPC____ D

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# FG17-07/08, Part II
## IMC 306.3, 306.4

*Proposed Change as Submitted:*

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

**PART II – 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 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~~ and large enough to allow removal of the largest 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.

**306.4 Appliances under floors.** Underfloor spaces containing appliances requiring access shall be provided with an access opening and unobstructed passageway large enough to remove the largest 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~~ and large enough to allow removal of the largest 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.

**Reason:** This language is inconsistent with that of the IMC and IRC. The intent is to provide relief in the size of the opening provided that the appliance can be removed through such a size; not to be dismantled in order to do so. All three documents need to be consistent in their approach; that the opening needs to be as large as the largest appliance, not the largest piece. The last sentence of each section fails to specify an access opening size where the opening is NOT large enough to allow removal of the appliance. The IMC and IRC text is revised to be consistent with the IFGC text. The text only implies that the openings might need to be larger than 20" x 30" based on an appliance size. The revision clarifies that both criteria apply.

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

**Analysis**: Sections 306.3 and 306.4 of the *International Fuel Gas Code* (IFGC) are designated as being under the purview of the IMC Committee, however, the primary revision in Part I is related only to the IFGC and will therefore be heard by the IFGC Committee.

**PART II – IMC**
**Committee Action:** **Approved as Submitted**

**Committee Reason:** This change clarifies that the opening must be large enough to remove the largest appliance without having to dismantle the appliance. This will make the IMC consistent with the language in the IFGC and IRC.

**Assembly Action:** **None**

## *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted for Part II.**

*Public Comment:*

**Ted A. Williams, American Gas Association, requests Disapproval for Part II.**

**Commenter's Reason:** The proposal would require excessive sizing of openings to accommodate removal of all appliances in their fully assembled configurations. Such requirements would also require installation of access openings that are inconsistent with reasonable location of access openings. In addition, access openings sized for fully assembled appliances presumes that other openings in the building (e.g., door frames) are likewise sized for removal in this state, which is not accurate. Also, removal of fully assembled appliances, in many cases such as with a fully-assembled furnace, is a practical impossibility, arguing against the necessity of requirements of this proposal. The proponent has not offered a technical justification for this change. Consistency with the IMC and IRC, offered by the proponent, is not in of itself a persuasive argument for the proposed change. In addition, the cost impact analysis of the proposal does not appear to consider issues of increased sizing of openings or the potential need to relocate openings to meet the additional size requirements implied by the proposed change.

Final Action: AS AM AMPC____ D

# FG17-07/08, Part III
## IRC M1305.1.3, M1305.1.4

*Proposed Change as Submitted:*

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

**PART III – IRC-M**

**Revise as follows:**

**M1305.1.3 Appliances in attics.** Attics containing appliances requiring access shall be provided with an opening and a clear and unobstructed passageway large enough to allow removal of the largest 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~~ and large enough to allow removal of the largest 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.

**M1305.1.4 Appliances under floors.** Underfloor spaces containing appliances requiring access shall have an 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) 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~~ and large enough to remove the largest 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 language is inconsistent with that of the IMC and IRC. The intent is to provide relief in the size of the opening provided that the appliance can be removed through such a size; not to be dismantled in order to do so. All three documents need to be consistent in their approach; that the opening needs to be as large as the largest appliance, not the largest piece. The last sentence of each section fails to specify an access opening size where the opening is NOT large enough to allow removal of the appliance. The IMC and IRC text is revised to be consistent with the IFGC text. The text only implies that the openings might need to be larger than 20" x 30" based on an appliance size. The revision clarifies that both criteria apply.

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

**Analysis**: Sections 306.3 and 306.4 of the *International Fuel Gas Code* (IFGC) are designated as being under the purview of the IMC Committee, however, the primary revision in Part I is related only to the IFGC and will therefore be heard by the IFGC Committee.

**PART III – IRC-M**
**Committee Action:** **Approved as Submitted**

**Committee Reason:** The addition of the word "and" in both sections makes it clear that the opening must meet the minimum dimension and large enough to remove the largest appliance without having to dismantle the appliance. This will make the IRC consistent with the language in the IFGC and IMC.

**Assembly Action:** **None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted for Part III.**

*Public Comment:*

**Ted A. Williams, American Gas Association, requests Disapproval for Part III.**

**Commenter's Reason:** The proposal would require excessive sizing of openings to accommodate removal of all appliances in their fully assembled configurations. Such requirements would also require installation of access openings that are inconsistent with reasonable location of access openings. In addition, access openings sized for fully assembled appliances presumes that other openings in the building (e.g., door frames) are likewise sized for removal in this state, which is not accurate. Also, removal of fully assembled appliances, in many cases such as with a fully-assembled furnace, is a practical impossibility, arguing against the necessity of requirements of this proposal. The proponent has not offered a technical justification for this change. Consistency with the IMC and IRC, offered by the proponent, is not in of itself a persuasive argument for the proposed change. In addition, the cost impact analysis of the proposal does not appear to consider issues of increased sizing of openings or the potential need to relocate openings to meet the additional size requirements implied by the proposed change.

Final Action: AS AM AMPC____ D

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# FG18-07/08
**404.1**

*Proposed Change as Submitted:*

**Proponent:** James Ranfone, representing American Gas Association

**Revise as follows:**

**404.1 (Supp) Prohibited locations.** Piping shall not be installed in or through a ducted supply, return or exhaust, or a clothes chute, chimney or gas vent, dumbwaiter or elevator shaft. ~~Piping installed downstream of the point of delivery shall not extend through any townhouse unit other than the unit served by such piping.~~

**Reason:** There is no justification to prohibit the installation of gas piping through townhouses. Banking meters in townhouse developments and running piping through basements/crawl spaces is more desirable since the meters/regulator sets would be located away from driveways where they could be subject to vehicle impact. Requiring meters to be set in the front of each townhouse (if banking is not allowed) could force meter sets to be installed near each individual driveways raising the possibility of vehicle impact. An alternative location in fenced back yards is also problematic since access would be limited in the event of an emergency.

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

**Committee Action:** **Disapproved**

**Committee Reason:** Gas piping run through someone else's property is subject to tampering and an easement agreement may be necessary to obtain access to such piping. Townhouses are separated by property lines and gas piping should not cross property lines. If a townhouse unit burns down, any gas piping that extended through it to serve adjacent units will be destroyed resulting in gas leakage and loss of service to the adjacent units. If a significant increase in gas demand occurs in a townhouse unit, it may be necessary to increase the size of piping that passes through other units and other people's property.

**Assembly Action:** **None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because public comments were submitted.**

*Public Comment 1:*

**Ted A. Williams, American Gas Association, requests Approval as Submitted.**

**Commenter's Reason:** Committee disapproval of the proposal as submitted hinged in part upon the perception of increased hazard of building occupants from location of customer piping through townhouse units. However, no data has ever been provided supporting prohibition of this installation practice, which has been used for many years. Arguments concerning increased hazards must be balanced against hazards from rerouting customer piping around the foundation wall (and increasing risks of damage from excavation and other exposure related hazards) and relocation of gas meters, otherwise installed in banks where they might be naturally protected, to locations more prone to damage.

*Public Comment 2:*

**Michael Zandaroski, CenterPoint Energy, requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**404.1 (Supp) Prohibited locations.** Piping shall not be installed in or through a ducted supply, return or exhaust, or a clothes chute, chimney or gas vent, dumbwaiter or elevator shaft.

**404.1.1 Townhouse piping.** Piping installed downstream of the point of delivery shall not extend through any townhouse unit other than the unit served by such piping.

Exception: Single family dwelling units constructed in a group of more than four attached units in which each unit extends from the foundation to the roof and has open space on only one side of the unit.

**Commenter's Reason:** Current conditions are resulting in construction of single family dwelling units in which each unit extends from the foundation to the roof, that have open space on only one side of the unit. These double row units resemble townhomes. Siting meters at locations meeting all codes becomes problematic for these types of residences.

Proper placement of natural gas meters is critical. Various national, state and local codes stipulate that the natural gas meter have a three foot (or greater) clear zone away from fresh air intakes, building openings, doors, operable windows and any ignition source. The three feet clear zone is measured from the gas relief valve vent for the purpose of safety and accessibility in event of an emergency.

With these space limitations on the only open side of the unit, banking meters on the end units is a preferred safe location. Banking meters also eliminates locating meters near garages where they are susceptible to vehicular damage and adds the requirement of impact protection. Post protection can sometimes limit garage accessibility.

The Committee expressed concern about running gas piping through someone else's property. Association documents for these type buildings include utility easement language that allows for utility installation, maintenance, repair, and replacement. These utilities are normally inaccessible and concealed similar to that of multi-story condos, minimizing the potential for tampering.

Additionally, if meters are banked at the open side of the structure and piping and not allowed to pass through the structure in a common utility easement area, there are a host of significant safety concerns which become apparent. In these cases the adjacent townhome would be served from the meter via an underground or above ground fuel line. Banked meters with below ground customer owned fuel lines will create multiple un-locatable lines at a location. These buried lines are susceptible to dig–ins and would require the town home owner or association to maintain them for integrity. Similarly, banking meters and running above ground piping on the structure to the various units is not practical, and simply exposes long lengths of piping to damage or tampering by anyone.

**Analysis:** The provision in the proposed new Section 404.1.1 applies only to townhouses, but, the proposed exception addresses dwelling units that do not fall under the definition of townhouses.

Final Action: AS AM AMPC____ D

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# FG19-07/08
## 404.4

*Proposed Change as Submitted:*

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

**Delete and substitute as follows:**

~~**404.4 Piping through foundation wall.** Underground piping, where installed below grade through the outer foundation or basement wall of a building, shall be encased in a protective pipe sleeve. The annular space between the gas piping and the sleeve shall be sealed.~~

**404.4 Underground penetrations prohibited.** Gas piping shall not penetrate building foundation walls at any point below grade. Gas piping shall enter and exit a building at a point above grade and the annular space between the pipe and the wall shall be sealed.

**Reason:** There have been many cases throughout the country where explosions have occurred as a result of a gas leak that originates underground and made its way into the building. One of the reasons this occurs is because natural gas tends to follow the pipe in its ditch due to less resistance. Piping entering foundations below grade provides a path for gas to follow. The safety of residents should not be left up to how well a bead of caulking has been applied. Plastic piping is also subject to the same scenario, especially when the 8-inch burial

depth is taken into consideration. Plastic will not hold up to common tools such as shovels, spades, picks and roto-tillers. Also think about expansive soils and the potential effect it can have on the piping. The heaving soil will have a devastating effect on a caulked sleeve. It's not uncommon to have a gas line snapped off completely at the foundation wall due to the overwhelming force of expansive soil. By only allowing the pipe to enter the building above grade will eliminate the likelihood that gas would enter the building. Life, limb, property and the potential threat of explosion should not be determined by the integrity of a sealed joint alone. Depending how deep the ditch is, the weight of the back-fill alone could be significant enough to have an impact on a caulked joint. One should also consider that the joint could deteriorate over time.

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

**Committee Action:** **Disapproved**

**Committee Reason:** There was no evidence provided that the proposed text will reduce the risk of gas leakage entering a building. Gas leakage can migrate into a building by many paths such as under footings, around water and sewer pipes, through cracks in the foundation, etc. The exact cause of documented gas explosions in buildings is not known.

**Assembly Action:** **Approved as Submitted**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because an assembly action was successful and public comments were submitted.**

*Public Comment 1:*

**Guy McMann, Jefferson County, CO, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO), requests Approval as Submitted.**

**Commenter's Reason:** There was a lot of testimony on this proposal and the floor voted overwhelmingly in support. Underground foundation penetrations of gas lines have proven themselves to be sources of many explosions. There was testimony from jurisdictions all over the country confirming this poor practice. The committee kept bringing up gas migration entering buildings from different places around the foundation from points upstream from the meter but this proposal has nothing to do with that. This change addresses penetrations DOWNSTREAM from the meter. In this instance, gas will follow the pipe due to a lack of resistance. This has been proven time and time again. Depending on a caulked joint to save life, limb and property is not the correct path to follow.

*Public Comment 2:*

**Ted A. Williams, American Gas Association, requests Disapproval.**

**Commenter's Reason:** Prohibition of piping through foundation walls, a conventional installation practice, has not been supported by any data that would refute the adequacy of proper installation and sealing of the opening from gas migration associated with outside leakage. The prohibition also presumes that only the foundation penetration that serves the gas piping provides the only pathway for gas leakage from the outside, which is incorrect. To this point, drainage, sewer, and other foundations, many of which are never intended to be gas tight, have provided a point of entry for leaking gas but are not addressed by this prohibition. Use of common trenching of services would, in fact, provide a bias for leaking gas to follow one of these pathways and potential foundation entry points. Requiring above grade entry points into the foundation will require extra piping and joints, both inside and outside, exposing the piping system to additional locations for damage (and in the inside, increased risk of leakage within the building). Increases in outside exposure may be particularly significant in urban and congested locations where piping out have to come above grade through sidewalks before turning to enter the foundation. This would also present practical issues of locating the piping system and interior piping to entry points that are compatible with the building design.

Final Action: AS AM AMPC____ D

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# FG23-07/08

## 404.8.1 (New)

*Proposed Change as Submitted:*

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

**Add new text as follows:**

**404.8.1 Isolation.** Metallic piping and metallic tubing that conveys fuel gas from an LP-gas storage container shall be provided with an approved dielectric fitting to electrically isolate the underground portion of the pipe or tube from the above ground portion that enters a building. Such dielectric fitting shall be installed above ground, outdoors.

**Reason:** Electrical isolation is currently required in this location for all federally regulated underground gas utilities. However LP systems do not typically fall under the guides of federally regulated authority. Now that bonding is clearly required for all CSST systems, this will prevent any potential fault back to an outside LP storage tank. Even though this situation does not cause a problem, some have pointed out that this application is not electrically isolated. This completely eliminates any speculation that underground gas piping might serve as a grounding electrode.

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

**Committee Action:** **Approved as Modified**

**Modify proposal as follows:**

**404.8.1 Isolation.** Above ground LP-gas metallic piping ~~and metallic tubing that conveys fuel gas from an LP-gas storage container~~ shall be ~~provided with an approved dielectric fitting to~~ electrically isolated from ~~the~~ underground ~~portion of the pipe~~ metallic piping ~~or tube from the above ground portion that enters a building. Such~~ Dielectric fittings shall be installed above ground, outdoors.

**Committee Reason:** Electrical isolation is currently required for natural gas service piping, but, LP-gas piping is not required to be treated in the same way. The proposed isolation requirement will eliminate any perception that underground gas piping is being used as a grounding electrode. All CSST piping systems will be required to be bonded to a grounding electrode system in the 2009 code and this proposal will make sure that the underground LP-gas piping is electrically isolated. The modification simply intends to make the wording more concise.

**Assembly Action:** **None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Guy Tomberlin, Fairfax County, VA, representing Virginia Plumbing and Mechanical Inspectors Association and Virginia Building and Code Officials Association, requests Approval as Modified by this public comment.**

**Bruce Swiecicki, National Propane Gas Association, requests Approval as Modified by this public comment.**

**Modify original proposal as follows:**

~~**404.8.1**~~ **404.8 Isolation.** Metallic piping and metallic tubing that conveys fuel gas from an LP-gas storage container shall be provided with an approved dielectric fitting to electrically isolate the underground portion of the pipe or tube from the above ground portion that enters a building. Such dielectric fitting shall be installed above ground, outdoors.

(Renumber subsequent sections)

**Commenter's Reason (Tomberlin):** This proposal was approved as modified by the committee during public comment. The committee agreed in concept that this requirement was an appropriate addition to the fuel gas code. However when they reworded the text they inadvertently increased the application unnecessarily to cover other installations not originally intended. After further review and evaluation it is evident that the originally submitted text is the more appropriate approach. This proposed modified version is to create a simple stand alone section for this criteria. The section number is the only modified portion of this proposal from the originally submitted proposal.

**Commenter's Reason (Swiecicki):** The original proposal intended to electrically isolate the LP-gas tank and metallic piping located outside and underground, from aboveground piping that enters the building. The Committee revised the proposal to require electrical isolation between all indoor and outdoor piping used for LP-gas. Such a requirement would affect piping that runs from inside a building to outdoor appliances such as grills and patio lights. This was clearly not intended by the original proposal.

A separate section for this text is appropriate because the original proposal intended to make the new text a subsection related to protection against corrosion, which is not related to the subject of this new text.

Final Action: AS AM AMPC____ D

# FG25-07/08
**407.2**

*Proposed Change as Submitted:*

**Proponent:** James Ranfone, representing American Gas Association

**Revise as follows:**

**407.2 (Supp) Design and installation.** Piping shall be supported with metal pipe hooks, metal pipe straps, metal bands, metal brackets, ~~or~~ metal hangers, or building structural components, suitable for the size of piping, of adequate strength and quality, and located at intervals so as to prevent or damp out excessive vibration. Piping shall be anchored to prevent undue strains on connected appliances and shall not be supported by other piping. Pipe hangers and supports shall conform to the requirements of MSS SP-58 and shall be spaced in accordance with Section 415. Supports, hangers, and anchors shall be installed so as not to interfere with the free expansion and contraction of the piping between anchors. All parts of the supporting equipment shall be designed and installed so they will not be disengaged by movement of the supported piping.

**Reason:** The revisions would clarify that metal piping supports and building structural components must be used to support gas piping. The current code only specifies that pipe straps be constructed of metal while not specifying what the remaining piping supports could be constructed from (which could include plastic). We believe the intent of this section was always to require that piping supports be made from metal.

Also, the revision would allow the use of building structural components to support gas piping. For example, laying piping across joists in an attic installation or installing gas piping through floor joists have been an acceptable and widely used method that is not currently allowed by the code. The National Fuel Gas Code Committee has adopted a similar change for the 2009 NFGC edition.

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

**Committee Action:** **Approved as Submitted**

**Committee Reason:** The proposed revision is consistent with the NFGC, Z223.1 and clarifies that the intent is to require all pipe supports to be constructed of metal, not just straps. Support devices made of plastic should not be used to support gas piping. It is common practice and acceptable to support piping by resting it on structural components of a building such as joists.

**Assembly Action:** **None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**John Stelzenmueller, City of Tualatin, OR, representing Oregon Mechanical Officials Association, requests Disapproval.**

**Commenter's Reason:** This code change is too restrictive and eliminates other support materials that have been used successfully for years. This code change will have a significant impact on several manufacturers that have established a niche in the mechanical industry with other than metal supports.

Final Action: AS AM AMPC____ D

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# FG27-07/08
**409.5.3**

*Proposed Change as Submitted:*

**Proponent:** Bryan Popp, Dormont Manufacturing Company

**Delete without substitution:**

~~**409.5.3 (Supp) Located at manifold.** Where the appliance shutoff valve is installed at a manifold, such shutoff valve shall be located within 50 feet (15 240 mm) of the appliance served and shall be readily accessible and permanently identified. The piping from the manifold to within 6 feet (1829 mm) of the appliance shall be designed, sized and installed in accordance with Sections 401 through 408.~~

**Reason:** This provision is not consistent with the scope Section 101.2.2, the definition of "piping system" (Chapter 2) and the Valve isolation provisions of Section 406.3.4. The existing language of Section 409.5.3 and the definition of "piping system" and the valve isolation provision combined enable users of the *International Fuel Gas Code* (IFGC) to avoid pressure testing large sections of fuel gas piping.

The existing language of Section 409.5.3 can be misapplied in the field to enable appliance shut off valves to be installed remotely from appliances (often between floor joists in basements). These remote locations may be dispersed throughout the structure and not in "one location" as described by the authors of the *National Fuel Gas Code* 2006 edition. These remotely located appliances shut off valves may become concealed by subsequent basement finishing projects.

There does not appear to be any provision in the existing language that requires these remotely located appliance shutoff valves to be installed in the same unit in multi-unit buildings.

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

**Committee Action:** **Disapproved**

**Committee Reason:** Valves located in accordance with this section have to be located on the manifold assembly, have to be indentified as to their purpose and have to be readily accessible. These requirements relieve the concerns raised by the proponent. There is no apparent problem with what is allowed by current text.

**Assembly Action:** **None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Bryan Popp, Dormont Manufacturing Company, requests Approval as Submitted.**

**Commenter's Reason:** This proposal eliminates the unnecessarily risky and conflicting language of 409.5.3 that allows appliance shut off valves to be remotely located up to 50 feet from the appliance served.

Unnecessary Risks: For most appliance applications, the installation use and servicing of the appliance can become unnecessarily risky with the shutoff valve being up to 50 feet away. The existing language permits the appliance shutoff valve to be located remotely from the appliance on a different floor or in a different room or between floor joists in an unfinished basement or in an attic. Examples of unnecessary risk include:

- Turning on the gas and leak checking after a new appliance installation.
- Pilot lighting / re-lighting.
- Unrelated work in the area of the appliance, where a need to shut off the gas is determined.

Confusion and Conflicts within the code: The existing language of 409.5.3 introduces confusion and conflicts within the International Fuel Gas Code. Examples include:

- Manifold is undefined: This provision can be misapplied to enable just about any shutoff valve to be located remotely from the appliance. A tee with one leg capped could be considered a manifold or a pipe running along a floor joist in an unfinished basement could be considered a manifold with shut off valves at each of its branches.
- Ready Access:
  - "Manifolds" can be readily accessible at inspection and subsequently become covered up during remodeling rendering them without access when needed.
  - If the shut off valve is located in a basement or an attic, the code is silent about whether requiring the use of a ladder constitutes ready accessible.
- Permanently identified: No means or requirement is provided regarding the permanent identification of these valves.
- Pipe sizing, inspection and testing: The definition of piping system, the requirements for pressure testing and for leak testing can become confusing and conflicting when attempting to apply the provisions of 409.5.3 in the field.

Final Action: AS AM AMPC____ D

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# FG28-07/08
## 410.1

*Proposed Change as Submitted:*

**Proponent:** Joseph Underwood, representing himself

**Revise as follows:**

**410.1 Pressure regulators.** A line pressure regulator shall be installed where the appliance is designed to operate at a lower pressure than the supply pressure. Line gas pressure regulators shall be listed as complying with ANSI Z21.80. Access shall be provided to pressure regulators. Pressure regulators shall be protected from physical damage. Regulators installed on the exterior of the building shall be approved for outdoor installation. Regulators installed outdoors shall be designed, installed or protected so that their operation will not be affected by the elements including freezing rain, sleet, snow, ice, mud and debris.

**Reason:** The purpose of this proposal is to provide pressure regulators installed outdoors with protection from the elements and other environmental factors that could affect their safe operation. As the code is currently written Section 410 fails to address the protection of pressure regulators installed outdoors from the elements. Adding the proposed text will help provide this protection. IFGC Section 413 requires this protection for regulators installed outdoors. Although Section 413 pertains to high pressure systems, atmospherically controlled pressure regulators regardless of their operating pressures operate on the same basic principles and should therefore be protected likewise.

NFPA 58 Liquefied Petroleum Gas Code 3.2.12.4 currently requires this protection. Many regulators are interchangeable between Natural gas and LP gas, yet the IFGC does not address this protection.

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

**Committee Action:** **Disapproved**

**Committee Reason:** Current text of this section already requires what is being proposed.

**Assembly Action:** **None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because public comments were submitted.**

*Public Comment 1:*

**Richard J. Ditty, Climate Makers, Inc., requests Approval as Submitted.**

**Commenter's Reason:** The committee's reason for disapproval states "Current text of this section already requires what is being proposed." Section 410 addresses vent protection for regulators installed indoors that require an independent vent to the outside of the building, however, nowhere does Section 410 specifically mention vent protection for regulators installed on the exterior of buildings. Section 410 only requires that regulators installed on exterior of the building shall be approved for outdoor installations. The popularity of rooftop heating equipment certainly warrants that the issue of protection from elements that may affect the operation of their regulators be addressed. The Uniform Mechanical Code and NFPA 58 both currently require regulator vent protection for regulators installed on the exterior of the building.

*Public Comment 2:*

**Lana Herdegen, Climate Makers, Inc., requests Approval as Submitted.**

**Bob Herron, Minevalco, representing Maxicap, Inc., requests Approval as Submitted.**

**Commenters' Reason:** The committee's reason for disapproval states "Current text of this section already requires what is being proposed." However, upon close examination of Section 410.1, it is clear that the code does not specifically address vent protection on regulators installed outdoors. This protection, however, is specifically addressed for regulators installed under Section 413.5. It would seem obvious that the same protection requirements should be required for regulators installed under Section 410.1. Currently outdoor regulator vent protection is required by NFPA 583, Section 3.2.12.4 and the 2006 Uniform Mechanical Code, Section 1333.4 "Special Rules on Atmospherically Controlled Regulators."

Final Action: AS AM AMPC____ D

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# FG29-07/08

## 410.4 (New), Chapter 8 (New)

*Proposed Change as Submitted:*

**Proponent:** Seth W. Mackay-Smith, UMAC, Inc. representing GasBreaker, Inc.

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

**410.4 Excess flow valves.** Automatic excess flow gas shutoff valves shall be listed for the application in accordance with ANSI Z21.93/CSA 6.30 and shall be sized and installed in accordance with the manufacturer's installation instructions.

**2. Add standard to Chapter 8 as follows:**

**ANSI**

Z21.93/CSA 6.30-08 Standard for Excess Flow Valves for Natural and LP Gas up to Pressures of 5 psig

**Reason:** These safety devices can be used on the fuel gas supply system to reduce the possibility of large gas leaks from pipe disconnects or breakage. The devices meet appropriate standards such as CSA 3-92 and ANSI/CSA Z21.93 and should be recognized when they do so. Some local jurisdictions are already installing the valves in residences and standardization and guidance from the national code body is appropriate. EFVs are already recognized in the 2006 UPC. Finally, this language has already been approved and recommended by the NFPA Piping Panel.

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

**Committee Action:** **Disapproved**

**Committee Reason:** There is currently no standard to which these devices can be listed.

**Assembly Action:** **None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Sid Cavanaugh, Cavanaugh Consulting, representing Brass Craft, requests Approval as Submitted.**

**Commenter's Reason:** Hopefully by the time the hearing is held we will have completed the project at CSA for a new standard so that this new standard and new technology can be recognized in the 2009 IFGC. The non completion of the project was the only reason given by the committee to reject this proposal.

Final Action: AS AM AMPC____ D

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# FG30-07/08
## 410.4 (New), Chapter 8 (New)

*Proposed Change as Submitted:*

**Proponent:** Sidney L. Cavanaugh, Cavanaugh Consulting, representing Brass Craft

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

**410.4 Excess flow valves.** Automatic excess flow gas shutoff valves shall be listed and approved and shall be sized for the maximum gas flow anticipated in the pipes in which such valves are installed. Such valves shall be listed as complying with ANSI Z21.93, ASTM FXXXX or ASTM FXXXX.

**2. Add standards to Chapter 8 as follows:**

**ANSI**

| | |
|---|---|
| Z21.93/CSA 6.30-08 | American National Standard/CSA Standard for Excess Flow Valves for Natural and LP Gas up to Pressures of 10 psig |

**ASTM**

| | |
|---|---|
| ASTM FXXXX | Test Methods for Performance of Low Pressure (5 psi max) Excess Flow Valves |
| ASTM FXXXX | Specification for Low Pressure (5 psi max) Excess Flow Valves for Fuel Gas Systems |

**Reason:** These devices increase the protection of health and safety of consumers and meet appropriate standards such as CSA 3-92 and ANSI/CSA Z21.93. These safety devices can be used on the fuel gas supply system to eliminate potential explosions as well as added fuel sources to existing fires should they occur. These valves should be recognized in the IFGC as they are currently listed by all model code agencies in North America and are recognized by the 2006 UPC. It is also a companion to other code changes.

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

**Committee Action:** **Disapproved**

**Committee Reason:** There is currently no standard to which these devices can be listed.

**Assembly Action:** **None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Sid Cavanaugh, Cavanaugh Consulting, representing Brass Craft, requests Approval as Modified by this public comment.**

**Replace proposal as follows:**

**410.4 Excess flow valves.** Excess flow valves shall be listed as complying with ANSI Z21.93, shall be sized and installed in accordance with the manufacturer's installation instructions and shall be approved.

**Add standard to Chapter 8 as follows:**

**ANSI**

| | |
|---|---|
| Z21.93/CSA 6.30-08 | American National Standard/CSA Standard for Excess Flow Valves for Natural and LP Gas up to Pressures of 10 psig |

**Commenter's Reason:**

1. The valves are currently being installed and used in many jurisdictions across North American including those that mandate their use.
2. The current proposed language provides guidance for those jurisdictions and provides provisions that EFVs will be sized properly, listed, and installed to the manufacturer's installation instructions.
3. The language was approved and recommended by the NFPA piping panel. This after two meetings in which the topic was thoroughly discussed.
4. These devices are listed using current recognized standards such as CSA-3-92, ASTM F2138 and F1802.
5. Projects are well underway at CSA (ANSI Z21.93/CSA 6.30) and ASTM () to develop ANSI consensus standards for low pressure applications (maximum 5 psi) which should be finished early in 2008. The ANSI Z21.83 main committee and CSA TC will review the CSA Z21.93 document at the Sept 25th meeting in Cleveland. ASTM main committee will review ASTM documents in November.
6. The CSA TAG has thoroughly reviewed all the minimum performance requirements including bypass inside residences.
7. These devices are recognized in the UPC and UMC codes.
8. The sole reason for rejection (the lack of a consensus standard) is not consistent with the NFGC code. There are other non-consensus standards referenced in the current code such as MSS, US Government documents and even non-ANSI ASTM standards
9. Several areas of the code would be enhanced by EFV recognition. This includes Chapter 8 Inspection, Testing and Purging and above ground piping.
10. The technical evidence/questions presented against the proposals at the prior hearing were speculative and unsubstantiated by real research and test.

Final Action: AS AM AMPC____ D

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# FG31-07/08
## 202 (New)

*Proposed Change as Submitted:*

**Proponent:** Sidney L. Cavanaugh, Cavanaugh Consulting, representing Brass Craft

**Add new definition as follows:**

**SECTION 202 (IFGC)**
**GENERAL DEFINITIONS**

**EXCESS FLOW VALVE.** A valve designed to close when the fuel gas passing through it exceeds a prescribed flow rate.

**Reason:** This definition is needed to recognize necessary safety devices which can be used on the fuel gas supply system to eliminate potential explosions as well as added fuel sources to existing fires should they occur. It is also a companion to other code changes. Similar wording has been accepted in the 2006 UPC.

Also this is the same definition that appears in NFPA 58 "Storage & Handling of LP Gas".

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

**Committee Action:** **Disapproved**

**Committee Reason:** Disapproval is consistent with the action taken on FG29-07/08 and FG30-07/08

**Assembly Action:** **None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Sid Cavanaugh, Cavanaugh Consulting, representing Brass Craft, requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**EXCESS FLOW VALVE.** A valve designed to ~~close~~ activate when the fuel gas passing through it exceeds a prescribed flow rate.

**Commenter's Reason:**
1. The valves are currently being installed and used in many jurisdictions across North American including those that mandate their use.
2. The current proposed language provides guidance for those jurisdictions and provides provisions that EFVs will be sized properly, listed, and installed to the manufacturers installation instructions
3. The language was approved and recommended by the NFPA piping panel. This after two meetings in which the topic was thoroughly discussed.
4. These devices are listed using current recognized standards such as CSA-3-92, ASTM F2138 and F1802.
5. Projects are well underway at CSA (ANSI Z21.93/CSA 6.30) and ASTM () to develop ANSI consensus standards for low pressure applications (maximum 5 psi) which should be finished early in 2008. The ANSI Z21.83 main committee and CSA TC will review the CSA Z21.93 document at the Sept 25th meeting in Cleveland. ASTM main committee will review ASTM documents in November.
6. The CSA TAG has thoroughly reviewed all the minimum performance requirements including bypass inside residences.
7. These devices are recognized in the UPC and UMC codes. 8. The sole reason for rejection (the lack of a consensus standard) is not consistent with the NFGC code. There are other non-consensus standards referenced in the current code such as MSS, US government documents and even non-ANSI ASTM standards
9. Several areas of the code would be enhanced by EFV recognition. This includes Chapter 8 Inspection, Testing and Purging and above ground piping
10. The technical evidence/questions presented against the proposals at the prior hearing were speculative and unsubstantiated by real research and test

Final Action: AS AM AMPC____ D

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# FG32-07/08
## 411.1.1 (New)

*Proposed Change as Submitted:*

**Proponent:** Bryan Popp, Dormont Manufacturing Company

**Add new text as follows:**

**411.1.1 Commercial cooking appliance gas supply orientation.** The building gas supply branch connection for commercial cooking appliances shall be located and oriented as follows:

1. The building gas supply branch connection shall be oriented vertically downward.
2. The bottom of the building gas supply branch connection shall be located not less than 36 inches (914 mm) and not more than 42 inches (1067 mm) above the floor.
3. The building gas supply branch connection shall be located directly behind the appliance it serves and not obstructed by any other appliance or equipment.

**Reason:** The proposed language improves safety of commercial cooking installations by:
- Standardizing the gas supply branch connection locations,
- Eliminating random configurations that sacrifice safety, and
- Ensuring the manufacturer's installation instructions are followed.

The proposed language accommodates all acceptable connection methods and appliance inlet configurations.

Similar language is proposed in the current cycles of the *National Fuel Gas Code*, the *Uniform Plumbing Code* and the *Uniform Mechanical Code*.

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

**Committee Action:** **Disapproved**

**Committee Reason:** The proposed text is redundant with the manufacturer's installation instructions for the appliance connector.

**Assembly Action:** **None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Bryan Popp, Dormont Manufacturing Company, requests Approval as Modified by this public comment.**

**Replace proposal as follows:**

**411.1.1 Commercial cooking appliances.** Commercial cooking appliances installed on casters and appliances that are moved for cleaning and sanitation purposes shall be connected to the piping system with an appliance connector listed as complying with ANSI Z21.69 or in accordance with Item 1 or 3 of Section 411.1. The listed commercial cooking appliance connector shall be installed and configured in accordance with the manufacturer's installation instructions. Movement of appliances with casters shall be limited by a restraining device installed in accordance with the connector and appliance manufacturer's installation instructions.

**Commenter's Reason:** This modification to the original proposal provides for improved safety of commercial cooking installations. Existing code language does not clearly indicate that Z21.69 listed connectors must be installed and configured according to the manufacturer's installation instructions. Potentially dangerous connections result from improper configurations.

Language clearly stating the requirements for caster mounted appliances to have restraining devices is needed in the code to enable AHJ's, installers and other users of the code to readily enforce/implement this important safety requirement.

Final Action: AS AM AMPC____ D

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# FG43-07/08
## 616.1, Chapter 8 (New)

*Proposed Change as Submitted:*

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

**1. Revise as follows:**

**616.1 Powered equipment.** Permanently installed equipment powered by internal combustion engines and turbines shall be installed in accordance with the manufacturer's installation instructions and NFPA 37. Stationary engine generator assemblies shall meet the requirements of UL 2200.

**2. Add standard to Chapter 8 as follows:**

**UL**

2200-04 Stationary Engine Generator Assemblies

**Reason: Reason**: UL 2200 is the ANSI standard used to evaluate stationary engine generator assemblies for this application. This coordinates with the action taken on M114-06/07 for IMC Section 915.1.

***IMC 915.1 (Supp) General.*** *The installation of liquid-fueled stationary internal combustion engines and gas turbines, including exhaust, fuel storage and piping, shall meet the requirements of NFPA 37. Stationary engine generator assemblies shall meet the requirements of UL 2200.*

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

**Committee Action:** **Disapproved**

**Committee Reason:** The proposed text could exclude powered equipment tested to other UL standards.

**Assembly Action:** **Approved as Submitted**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because an assembly action was successful.**

Final Action: AS AM AMPC____ D

# FG45-07/08, Part I
## 618.5

*Proposed Change as Submitted:*

**Proponent:** Tony Longino, County of Greenville SC, representing South Carolina Plumbing Gas Mechanical Inspectors Association

**PART I – IFGC**

**Revise as follows:**

**618.5 Prohibited sources.** Outside or return air for a forced-air heating system shall not be taken from the following locations:

1. Closer than 10 feet (3048 mm) from an appliance vent outlet, a vent opening from a plumbing drainage system or the discharge outlet of an exhaust fan, unless the outlet is 3 feet (914 mm) above the outside air inlet.
2. Where there is the presence of objectionable odors, fumes or flammable vapors; or where located less than 10 feet (3048 mm) above the surface of any abutting public way or driveway; or where located at grade level by a sidewalk, street, alley or driveway.
3. A hazardous or insanitary location or a refrigeration machinery room as defined in the *International Mechanical Code*.
4. A room or space, the volume of which is less than 25 percent of the entire volume served by such system. Where connected by a permanent opening having an area sized in accordance with Section 618.2, adjoining rooms or spaces shall be considered as a single room or space for the purpose of determining the volume of such rooms or spaces.

   **Exception:** The minimum volume requirement shall not apply where the amount of return air taken from a room or space is less than or equal to the amount of supply air delivered to such room or space.

5. A room or space containing an appliance where such a room or space serves as the sole source of return air.

   **Exception:** This shall not apply where:

   1. The appliance is a direct-vent appliance or an appliance not requiring a vent in accordance with Section 501.8.
   2. The room or space complies with the following requirements:
      2.1. The return air shall be taken from a room or space having a volume exceeding 1 cubic foot for each 10 Btu/h (9.6 L/W) of combined input rating of all fuel-burning appliances therein.
      2.2. The volume of supply air discharged back into the same space shall be approximately equal to the volume of return air taken from the space.
      2.3. Return-air inlets shall not be located within 10 feet (3048 mm) of any appliance firebox or draft hood in the same room or space.
   3. Rooms or spaces containing solid fuel-burning appliances, provided that return-air inlets are located not less than 10 feet (3048 mm) from the firebox of such appliances.

6. A closet, bathroom, toilet room, kitchen, garage, mechanical room, boiler room or furnace room.

   **Exception:** Where return air intakes are located not less than of 10 feet (3048 mm) from cooking appliances, taking return air from kitchen service areas shall not be prohibited.

**Reason:** Many Commercial kitchens are designed with HVAC systems that serve only the kitchen service area. Many do not have defining walls from other service areas leaving designers and inspectors with the question of where does the kitchen start and end. Section 5 prohibits return opening in a kitchen, leaving designers with the choice of using outside air only or returning air to another part of the building. This change would allow for recirculation in a kitchen service area without interfering with the operation of other appliances such as hoods. The distance of 10' was from a legacy code and from the distances provided in the same section from odors and intakes.

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

**PART I – IFGC**
**Committee Action:** **Disapproved**

**Committee Reason:** The proponent asked that the proposal be disapproved in anticipation of submitting a public comment to reword the text to capture his intent.

**Assembly Action:** **None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted for Part I.**

*Public Comment:*

**Tony Longino, County of Greenville, SC, representing South Carolina Plumbing, Mechanical and Gas Inspectors Association, requests Approval as Modified by this public comment for Part I.**

**Modify proposal as follows:**

618.5 Prohibited sources. Outside or return air for a forced-air heating system shall not be taken from the following locations:

1. through 5. (No change to current text)
6. A closet, bathroom, toilet room, kitchen, garage, mechanical room, boiler room or furnace room.

**Exception:** Where return air intakes are located not less than 10 feet from cooking appliances, and serve only the kitchen area, taking return air from a kitchen area shall not be prohibited

**Commenter's Reason:** I requested disapproval from the committee in Palm Springs due to a misunderstanding between the staff and myself on the intent of my code change. Staff re-worded my original proposal before it came to the committee to improve on the code language and concerns over the term "kitchen service area". However with the re-write of the section we lost the intent of allowing a return when the system serves only the kitchen area.

The code as written prohibits return ducts to be located in a kitchen due to concerns of interfering with the draft of the exhaust hoods and to prevent the contaminants and byproducts of cooking from entering the HVAC system.

When a HVAC system serves only a kitchen area, the return must either come from that area or it must have 100% outside air. Standard HVAC systems are not designed to handle more than 25% of the air that is returned to the system to be unconditioned. This would make it impossible to condition the area with a standard system. This would be a waste of energy and an increase in expense to the owner and builder both at the purchase of the equipment and the constant expense of conditioning outside air.

This proposal would allow a return intake to be installed in a commercial kitchen provided there is a 10' separation between the cooking appliances and the return intake, as long as the system served only the kitchen area. This will prevent contaminants, smoke and odor from spreading to a dining area or other areas of the building.

I believe this modification will clean up the language as intended by staff and eliminate the need to define the term "kitchen service area", while reducing the cost of commercial kitchens both in construction and operation.

The 10'distance between appliances and return intakes was drawn from a legacy code and was effective for many years without incident. There are testing procedures currently in code to prevent the return from interfering with the exhaust and all returns for HVAC systems require filtering to prevent damage to the system from contaminants.

Final Action: AS AM AMPC____ D

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# FG45-07/08, Part II
## IMC 918.6

*Proposed Change as Submitted:*

**Proponent:** Tony Longino, County of Greenville SC, representing South Carolina Plumbing Gas Mechanical Inspectors Association

**PART II – IMC**

**Revise as follows:**

**918.6 Prohibited sources.** Outdoor or return air for a forced-air heating system shall not be taken from the following locations:

1. Closer than 10 feet (3048 mm) from an appliance vent outlet, a vent opening from a plumbing drainage system or the discharge outlet of an exhaust fan, unless the outlet is 3 feet (914 mm) above the outdoor air inlet.
2. Where there is the presence of objectionable odors, fumes or flammable vapors; or where located less than 10 feet (3048 mm)above the surface of any abutting public way or driveway; or where located at grade level by a sidewalk, street, alley or driveway.
3. A hazardous or insanitary location or a refrigeration machinery room as defined in this code.
4. A room or space, the volume of which is less than 25 percent of the entire volume served by such system. Where connected by a permanent opening having an area sized in accordance with Sections 918.2 and 918.3, adjoining rooms or spaces shall be considered as a single room or space for the purpose of determining the volume of such rooms or spaces.

   **Exception:** The minimum volume requirement shall not apply where the amount of return air taken from a room or space is less than or equal to the amount of supply air delivered to such room or space.

5. A closet, bathroom, toilet room, kitchen, garage, mechanical room, boiler room or furnace room.

   **Exception:** Where return air intakes are located not less than of 10 feet (3048 mm) from cooking appliances, taking return air from kitchen service areas shall not be prohibited.

6. A room or space containing a fuel-burning appliance where such room or space serves as the sole source of return air.

   **Exceptions:**

   1. This shall not apply where the fuel-burning appliance is a direct-vent appliance.
   2. This shall not apply where the room or space complies with the following requirements:
      2.1. The return air shall be taken from a room or space having a volume exceeding 1 cubic foot for each 10 Btu/h (9.6 L/W) of combined input rating of all fuel-burning appliances therein.
      2.2. The volume of supply air discharged back into the same space shall be approximately equal to the volume of return air taken from the space.
      2.3. Return-air inlets shall not be located within 10 feet (3048 mm) of any appliance firebox or draft hood in the same room or space.
   3. This shall not apply to rooms or spaces containing solid fuel-burning appliances, provided that return-air inlets are located not less than 10 feet (3048 mm) from the firebox of such appliances.

**Reason:** Many Commercial kitchens are designed with HVAC systems that serve only the kitchen service area. Many do not have defining walls from other service areas leaving designers and inspectors with the question of where does the kitchen start and end. Section 5 prohibits return opening in a kitchen, leaving designers with the choice of using outside air only or returning air to another part of the building. This change would allow for recirculation in a kitchen service area without interfering with the operation of other appliances such as hoods. The distance of 10' was from a legacy code and from the distances provided in the same section from odors and intakes.

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

**PART II – IMC**
**Committee Action:** **Disapproved**

**Committee Reason:** The proponent requested that the committee disapprove this code change to allow him to possibly rework it and submit a public comment.

**Assembly Action:** **None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted for Part II.**

*Public Comment:*

**Tony Longino, County of Greenville, SC, representing South Carolina Plumbing, Mechanical and Gas Inspectors Association, requests Approval as Modified by this public comment for Part II.**

**Modify proposal as follows:**

918.6 Prohibited sources. Outside or return air for a forced-air heating system shall not be taken from the following locations:

1. through 4. (No change to current text)
5. A closet, bathroom, toilet room, kitchen, garage, mechanical room, boiler room or furnace room.

> **Exception:** Where return air intakes are located not less than 10 feet from cooking appliances, and serve only the kitchen area, taking return air from a kitchen area shall not be prohibited

**6. (No change to current text)**

**Commenter's Reason:** I requested disapproval from the committee in Palm Springs due to a misunderstanding between the staff and myself on the intent of my code change. Staff re-worded my original proposal before it came to the committee to improve on the code language and concerns over the term "kitchen service area". However with the re-write of the section we lost the intent of allowing a return when the system serves only the kitchen area.

The code as written prohibits return ducts to be located in a kitchen due to concerns of interfering with the draft of the exhaust hoods and to prevent the contaminants and byproducts of cooking from entering the HVAC system.

When a HVAC system serves only a kitchen area, the return must either come from that area or it must have 100% outside air. Standard HVAC systems are not designed to handle more than 25% of the air that is returned to the system to be unconditioned. This would make it impossible to condition the area with a standard system. This would be a waste of energy and an increase in expense to the owner and builder both at the purchase of the equipment and the constant expense of conditioning outside air.

This proposal would allow a return intake to be installed in a commercial kitchen provided there is a 10' separation between the cooking appliances and the return intake, as long as the system served only the kitchen area. This will prevent contaminants, smoke and odor from spreading to a dining area or other areas of the building.

I believe this modification will clean up the language as intended by staff and eliminate the need to define the term "kitchen service area", while reducing the cost of commercial kitchens both in construction and operation.

The 10'distance between appliances and return intakes was drawn from a legacy code and was effective for many years without incident. There are testing procedures currently in code to prevent the return from interfering with the exhaust and all returns for HVAC systems require filtering to prevent damage to the system from contaminants.

Final Action: AS AM AMPC____ D

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# FG47-07/08
## 621.2

*Proposed Change as Submitted:*

**Proponent:** Perry Bumpers, Fireplace Creations, representing himself; David Price, representing Environmental Protection Agency (EPA); Craig Conner, Building Quality, representing himself; and Stephen Klossner, representing American Lung Association Health House

**Revise as follows:**

**621.2 Prohibited use.** One or more unvented room heaters shall not be used as the sole source of comfort heating in a dwelling unit. Unvented room heaters shall not be installed in a manufactured home. Unvented room heaters shall not be installed in a residence that complies with the air leakage requirements in Section 402.5 of the *International Energy Conservation Code*.

**Reason (Bumpers):** I have been in the hearth industry for 19 years. My company has torn out 375 unvented units because of consumer complaints. Consumers complain of various problems: moisture related problems, sooting, bad smells, headaches, and sinus problems. Many consumers report that their health improves after the unvented unit is removed. My company will not sell or install gas-fired unvened fireplaces or heaters.

In my area, consumers frequently purchase the unvented units themselves. Those consumers often intend to heat their whole residence with unvented heaters. The consumers seldom read or understand the code. Unvented heaters should not be used to heat homes.

**Reason (Price):** EPA supports the proposed changes to the International Fuel Gas Code that would add additional restrictions to the use of un-vented "vent-free" heating devices. EPA believes the proposed restriction should include, gas space heaters, vent-free gas log-sets installed in fireplaces where the damper is to remain closed, vent-free gas fireplace inserts installed in existing masonry or factor-built fireplaces and vent-free gas fireplaces and stoves. Pollutant emissions from these devices will include carbon monoxide, nitrogen dioxide, formaldehyde, respirable suspended particles, and water vapor. The proposed changes target the conditions presented by tighter energy-efficient building envelopes and reduced air change rates, found in manufactured homes, and in much new construction.

Proponents of the use of un-vented equipment frequently cite the modeling study by Whitmyre and Pandian, (2003), which attempted to predict the contribution of water vapor from these combustion devices to levels of indoor relative humidity. The study utilizes an air exchange rate of 0.35 – 1.0 ACH. However, much of the nation's new housing stock is tighter than this range. Data show the average normalized leakage for energy efficient homes is 0.31, however many energy-efficient homes are well below this level. And, energy-efficiency programs and the numerous emerging green programs (and fast-rising fuel prices) are expected to produce many more homes that achieve this level of tightness. However, with these reduced air exchange rates, devices like un-vented appliances, depositing a range of pollutants to the indoor air, become evermore problematic to occupant health.

While the study reports expected RH levels in areas (with this equipment) that are connected to other living spaces to be below 70% RH in all cases, and below 60% RH in 95 - 100% of simulations for all DOE Heating Regions, RH levels in rooms not connected to other spaces begin to approach or exceed 60% RH fairly frequently. EPA recommends that RH be kept below 60%RH, and ideally between 30 – 50%. Unfortunately, mold growth in actual homes frequently does not follow the modeling parameters. When humidity levels become elevated, all that is often needed is a surface in the home cooler than ambient levels, (from contributors such as a lack of air movement, poor ventilation, or insufficient insulation), for condensation to develop, leading to mold growth. Conditions in homes are not consistent throughout. EPA believes that un-vented devices would be expected to present conditions for mold growth in many tight, energy-efficient homes.

Manufacturers of these products recommend that their use be limited to four hours, however, in practice, human behavior does not match guidance. Reports indicate that many individuals use these devices as a primary heating source for living spaces for extended hours, greatly increasing the opportunity for increases in pollutant loads beyond those modeled in the study.

Finally, as a safety measure, the manufacturers indicate that they equip un-vented heating equipment with an oxygen detection sensors, to automatically shut off the supply of gas to the unit if oxygen levels drop below normal levels (20.9% at sea level) to 18%, to prevent a device from consuming oxygen levels in a room to below safe levels. Atmospherically-vented combustion equipment, normally (sans spillage conditions) provides venting of pollutants to the outdoors, regardless of the burn efficiency. Any gas appliance is subject to impairments to normal operation, resulting from installation errors that may affect operation, clogged burners, or accumulations of dirt from lack of owner maintenance (which is common in household where regular replacement of furnace filters often does not occur) that impairs the combustion efficiency. It is an unreasonable risk to a home's inhabitants to provide only an oxygen detection sensor as the margin of safety.

**Reason (Conner):** This proposal adds one sentence explicitly prohibiting unvented gas heaters from being installed in existing manufactured homes. This proposal helps protect manufactured homes from excessive moisture. Moisture produced by unvented gas heaters goes directly into the home. Excessive moisture causes mold and can damage the structure. The solution is simple: vent gas heaters.

The producers of unvented gas heaters assert there are no documented fatalities associated with unvented gas heaters. A comparison to showers may be useful. Unvented showers would probably not produce fatalities either. However, unvented showers are a bad idea because routinely venting shower moisture into the home will lead to moisture problems; therefore the code requires showers to be vented. Accordingly, we should vent gas heater moisture for the same reason we vent shower moisture.

The producers of unvented heaters point to the benefits of their oxygen depletion sensor (ODS). The sensor may protect against oxygen depletion, but it does not protect against excessive moisture.

HUD regulates the construction of all manufactured homes, no matter where the homes are placed. Both HUD's Manufactured Home Construction and Safety Standards (Section 3280.707) and NFPA 501, the "Standard for Mobile Homes", prohibit unvented gas heaters in manufactured homes. NFPA 501, Section 10.6 states:

*"Fuel-burning, heat-producing appliances and refrigeration appliances shall be of the vented type and shall vent to the outside. Exception: Ranges and ovens."*

In spite of HUD's and NFPA 501's regulation prohibiting unvented gas heaters, unvented gas heaters are routinely sold for use in existing manufactured homes.

Opponents offered in testimony that the term "manufactured home" was the wrong term. The IRC defines "Manufactured Homes" in its definition section. Moreover, Appendix E of the IRC addresses manufactured homes as a code topic.

The IRC may be applied to existing manufactured homes under IRC Appendix E, applied as a sort of "condition of listing" for the homes, or applied to the homes simply because they are residences. IRC Appendix E states that it applies to:

"*Manufactured homes used as a single dwelling unit installed on privately owned (non-rental) lots*" including application to "*Alterations, additions, or repairs to existing manufactured homes*."

IRC Appendix E also states:

*"BUILDING SERVICE EQUIPMENT, AE505.1 General. The installation, alteration, repair, replacement, addition to or maintenance of the building service equipment within the manufactured home shall conform to regulations set forth in the Manufactured Home Standards."*

The term "building service equipment" is defined to include heaters. Clearly parts of the IRC apply to manufacturer homes and the equipment in those homes.

Opponents offered manufactured homes might not belong in the I-codes, due to HUD's preemptive regulation of new manufactured homes. As outlined above, portions of the I-codes are sometimes applied to manufactured homes after they are sited.

Unvented gas heater producers assert that there is no evidence of moisture damage to manufactured homes. The manufactured home industry thinks differently. Manufactured home industry research has identified unvented heaters as a major moisture problem in manufactured homes.

"*Domestic sources of moisture include bathing, showering, cooking, mopping, and clothes washing and drying.* ***The more problematic indoor sources are unvented gas appliances****, indoor gardens, saunas, hot tubs, and indoor storage of firewood*." [1]

Unvented gas heaters should not be allowed in the relatively air tight homes that meet the energy code air sealing requirements to avoid moisture and air quality problems. Unvented gas heaters should never be installed in manufactured homes.

**Reason (Klossner):** My primary concerns with unvented appliances would fall into four main categories;

1. The production of water vapor from the combustion process.
   The moisture production from even a 10,000 Btu unvented appliance would exceed the water vapor production from a shower, if both operated for the same period of time. Most codes would require operable windows or mechanical ventilation in bathrooms to help in controlling this moisture production by a shower. There is also the likelihood that an unvented appliance would operate for longer periods of time on average, and that occupants would be unlikely to open windows when attempting to use these as a heat source because it is cold outside.
2. The introduction of low levels of carbon monoxide into the home environment.
   There is limited data on the health impacts of low level carbon monoxide exposure. What is known is that the elderly, very young and pregnant females would have increased health effects from this contaminant. At levels of 25 PPM, which is below the alarm threshold for UL rated carbon monoxide detectors, the study I listed below shows damage to hearing for children.
3. The introduction of nitrogen dioxide into the home environment.
   Nitrogen dioxide is a known exasperator for asthmatics. The study cited below they found that when unvented combustion heating

1 From *"Moisture Problems in Manufactured Homes"* by the Manufactured Housing Research Alliance (emphasis added), page 4.2. The report is available at http://www.pathnet.org/si.asp?id=441

appliances were replaced with vented appliances or electric heat, the incidence of all asthma-related symptoms and missed school days declined sharply.

4. The introduction of combustion contaminants in current housing stock, based on house tightness.
Housing stock is getting tighter based on current codes and standards. Energy efficient programs are grabbing a larger share of the housing market. None of the energy programs that I am aware of allow unvented appliances to be installed. This is partly because of the increased contaminant load from carbon monoxide, nitrogen dioxide and water vapor. The American Lung Association's Health House program has excluded them from our building guidelines mainly because of the water vapor productions and nitrogen dioxide, a known asthma exasperator.

Studies and Executive Summaries -

1. The production of water vapor from combustion
http://www.homeenergy.org/archive/hem.dis.anl.gov/eehem/96/960905.html#tab1
From this article - Even benign gases can be a problem if not adequately vented. A shower emits about 300 grams per hour of water into the air and is typically used for less than one hour daily. Building codes require operable windows or installed ventilation fans to remove this vapor. In contrast, about 400 grams of water vapor is produced per 10,000 Btu of fuel consumed. This water, if not removed by ventilation, will condense on cold surfaces such as windows and wall cavities. In moderate and moist climates, the accumulation of moisture leads to mildew and fungal growth. Fungal colonies in building materials cause rot and decay, and produce spores that can cause allergic reactions.
2. The introduction of low levels of carbon monoxide into the home environment
University of California - Los Angeles (http://www.newsroom.ucla.edu/) Contact: Elaine Schmidt
How chronic exposure to tiny levels of carbon monoxide damages hearing in young ears - UCLA scientists first to identify mechanism.
Findings: UCLA scientists have discovered how chronic exposure to low levels of carbon monoxide [C O] damages the inner ear, resulting in permanent hearing loss. At the Ca/OSHA's exposure limit of 0.0025 percent -- or 25 parts per million CO in the air -- the gas creates oxidative stress, a condition that damages the cochlear cells, leading to impairment of the auditory nerves.
Context: Tobacco smoke, gas heaters, stoves and ovens all emit CO, which can rise to high concentrations in poorly ventilated homes. Infants and children are particularly vulnerable to CO exposure because they spend a great deal of time in the home. No policies exist to regulate CO in the home.
This is the first time that inhaled CO has been linked to oxidative stress, a known risk factor in many disorders, including Alzheimer's, Parkinson's,Multi Sclerosis, Lou Gherig's Disease and Cardiovascular Disease. Tobacco smoke, which contains CO, aggravates many of these diseases. The UCLA findings highlight the need for policy makers to reexamine the regulation of car exhaust, tobacco smoke, smog, and heating and cooking appliances.
3. The introduction of nitrogen dioxide into the home environment.
http://www.epa.gov/iaq/no2.html#Health%20Effects%20Associated%20with%20Nitrogen%20Dioxide
From this document:
Sources of Nitrogen Dioxide. Kerosene heaters, un-vented gas stoves and heaters. Environmental tobacco smoke.
Health Effects Associated with Nitrogen Dioxide
Eye, nose, and throat irritation. May cause impaired lung function and increased respiratory infections in young children.
EPA's Integrated Risk Information System profile for Nitrogen Dioxide - epa.gov/iris/subst/0080.htm[14]
$NO_2$ acts mainly as an irritant affecting the mucosa of the eyes, nose, throat, and respiratory tract. Extremely high-dose exposure (as in a building fire) to $NO_2$ may result in pulmonary edema and diffuse lung injury. Continued exposure to high $NO_2$ levels can contribute to the development of acute or chronic bronchitis. Low level $NO_2$ exposure may cause increased bronchial reactivity in some asthmatics, decreased lung function in patients with chronic obstructive pulmonary disease and increased risk of respiratory infections, especially in young children.
Average level in homes without combustion appliances is about half that of outdoors. In homes with gas stoves, kerosene heaters, or un-vented gas space heaters, indoor levels often exceed outdoor levels.
The full text of the study below is posted at http://ije.oupjournals.org/cgi/reprint/33/1/208
"Scientists Say Unvented Gas Heaters Worsen Asthma Symptoms"
In February 2004, Australian scientists expressed concern that unvented gas heaters and related combustion appliances pose a risk to asthmatic children. The study they conducted focused on unvented heaters in schools, but the researchers asserted that it is reasonable to conclude that unvented combustion appliances pose a risk to children and all asthmatics in the home environment as well.
In the home, unvented fireplaces, gas logs, and gas heaters release carbon dioxide, nitrous oxides, and nitrous acids in their combustion processes. Outdoors, nitrous oxides form smog, a potent asthma trigger in sensitive populations. Indoors, the Australian study linked nitrous oxides, in combination with breathing in higher concentrations of carbon dioxide and nitrous acids, with increased incidence of tight chest, difficulty breathing, and full-blown asthma attacks requiring the use of fast-acting "rescue" inhalers.
The study found that when unvented combustion heating appliances were replaced with vented appliances or electric heat, the incidence of all asthma-related symptoms and missed school days declined sharply.
http://www.homeenergy.org/archive/hem.dis.anl.gov/eehem/98/980108.html
From this article
The New York State Research and Development Authority (NYSERDA) produced a peer-reviewed critique of the GRI standard. Among other things, it criticizes the GRI's indoor air quality guideline of 0.5 ppm (parts per million) for nitrogen dioxide. "No international, federal, or state guidelines that have been adopted are as high as 0.5 ppm. If an air quality guideline of 0.25 ppm is used for nitrogen dioxide, air quality will quickly reach unacceptable levels for homes" in climates with more than 2,000 heating degree-days. Some such climates include mild Santa Barbara, California; St. Louis, Missouri; and Washington, D.C.
The NYSERDA report also criticized the GRI's science. "The heater sizes recommended," it says, "are larger than the heater sizes which were used to calculate indoor air contaminant levels."
4. The introduction of combustion contaminants in current housing stock, based on house tightness.
The following study shows data on approximately 100,000 homes measured for air tightness. At the medial tightness levels, energy programs should have mechanical ventilation and ordinary homes should possibly have some form of ventilation. Adding this contaminant load without requiring ventilation could lead to increased problems with moisture and increased exasperation for asthmatics and other people with reactive air way disease occupying these homes. This would include the very young and elderly in this category.
http://epb.lbl.gov/publications/lbnl-59041.pdf

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

**Committee Action:** **Disapproved**

**Committee Reason:** Unvented room heaters are safe if installed and used in accordance with the manufacturer's instructions. No evidence was given to support the banning of such appliances. Some of the health concerns expressed by the proponents could not be substantiated and could be attributed to other causes.

**Assembly Action:** **None**

## *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because public comments were submitted.**

*Public Comment 1:*

**Perry Bumpers, Fireplace Creations, requests Approval as Submitted.**

**Commenter's Reason:** I've been in the hearth industry for 20 years. My company will not sell a vent free product. We have torn out and replaced well over 400 vent free fireplaces. Complaints remain the same year after year. Headaches, more sinus problems, moisture related problems, soot related problems bad smell and film all over the windows. After removal of the vent free product, many customers report fewer colds, sore throats and sinus problems. Also, the moisture is gone.

My company sells hearth products in five states and in these areas of the country it is not uncommon to find vent free products being used as the sole source of heat. These homes and businesses have window air conditioner units and sometimes as many as 4 vent free products being used for heating. They have no central heating systems. Why is this being allowed when everyone agrees vent free products are for supplemental heat only? When the consumer comes into the showroom, 90% of them tell you they want heat. The comment is usually made, "I want a vent free." We train our people to ask the questions, "Why do you want vent free?" The answer usually is, "I want all the heat and I don't want to lose any of the heat up the flue." Why should the consumer believe any different than they shouldn't use the vent free for heat? Most advertisements in the winter months for vent free go as follows:

1. Heat your home for pennies an hour.
2. Vent free 99.9% efficiency saves $$ while it heats your home.
3. Don't let your money go up your chimney; heat with vent free logs.
4. Cut your fuel bill in half with vent free logs, stoves or fireplaces. They're 99.9% efficient.
5. For just pennies a day, heat your home.

It seems that those ads that sell vent free products are always about heat. It's usually never mentioned that vent free is for supplemental heat only, or anything about how to size the room your vent free should go into.

It is not uncommon to find new construction that 2 or 3 vent free fireplaces in them. Many times these products range from 32,000 to 40,000 BTUs. Many times the combined area in which 2 or 3 vent free fireplaces are installed may only equal 1,000 to 1,500 square feet and nobody seems to care. In most new construction today, the end user never sees an owner's manual and, if they do, most don't read the instructions again. A customer comes into my showroom complaining about their fireplace. There was no information about the fireplace when I bought the house. We turned on the fireplace and it smelled so bad and it got the mantel hot. I need someone to come out and check it. Most of the time, the customers want to know why the product was put in the home after they got all the facts.

Most companies today that manufacture gas fireplaces make a product called a direct vent. The product eliminates most of the concerns and dangers that are associated with using vent free fireplaces, logs and space heaters.

For all the reasons above, I feel vent free products should be removed from the marketplace.

*Public Comment 2:*

**Tim Manz, University of Minnesota Building Code Division, representing Association of Minnesota Building Officials, requests Approval as Submitted.**

**Commenter's Reason:** Unvented appliances generate products of combustion that are not vented out of the room in which they are installed. Primary constituents of the products of combustion include carbon monoxide, carbon dioxide, water vapor and nitrogen oxides—all of which can have an adverse affect on the building materials, furnishings and occupants in the building. Energy efficient buildings are not capable of tolerating high levels of relative humidity due to the likely formation of condensation on windows and exterior walls, which can create mold, mildew and even structural issues. As a result, it is unacceptable to allow the use of these types of appliances that will likely be operated on a regular basis for extended periods of time.

*Public Comment 3:*

**Craig Conner, Building Quality, representing himself, requests Approval as Modified by this public comment.**

**Stephen R. Klossner, American Lung Association of the Upper Midwest, requests Approval as Modified by this public comment.**

**Roger Oxford, Hearth & Home Technologies, Inc., requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**621.2 Prohibited use.** One or more unvented room heaters shall not be used as the sole source of comfort heating in a dwelling unit. Unvented room heaters shall not be installed in a manufactured home. Unvented room heaters shall not be installed in a residence ~~that complies with the air leakage requirements in Section 402.4 of the *International Energy Conservation Code*~~.

**Commenter's Reason – Conner:** The original code change required determining if a residence was as airtight as required by the energy code. Verbal testimony correctly noted it could be difficult to establish air tightness, especially for existing residences. The moisture produced by unvented heaters in routine operation could easily be a problem in existing as well as new homes. Therefore, it makes sense to eliminate the use of unvented heaters in all residences and use vented heaters instead. Some states, jurisdictions, and even countries have already banned the use unvented heaters, severally restricted their use or required mechanical ventilation in conjunction with the unvented heaters.

Perhaps stating the obvious—Unvented heaters produce moisture inside the home as a product of their operation, even when operating correctly. That moisture is deposited in the home, usually on some colder condensing surface. Excessive or uncontrolled moisture can damage homes and/or have negative health impacts. Mechanical systems can malfunction or run at less than perfect adjustment. This is a health/life safety issue. As homes become tighter, they become less tolerant of additional moisture sources and indoor pollutants. Approved changes in the IECC will require an overall tightening of the building shell increasing the potential for moisture problems from unvented gas heaters. Common sense indicates that moisture and the byproducts of combustion should be vented.

More discussion of unvented heaters can be found at http://www.ventyes.org/

**Commenter's Reason – Klossner:** There is concern on several fronts for allowing the operation of unvented appliances in today's housing stock. Moisture production as well as contaminant production must all be considered with their operation. The moisture production from even a 10,000 Btu unvented appliance would exceed the water vapor production from a shower, if both operated for the same period of time. Most codes would require operable windows or mechanical ventilation in bathrooms to help in controlling this moisture production by a shower. Assuming a consumer will open a window when using these appliances for heating is not reasonable. Moisture problems in new housing stock are a significant call back problem for builders. Studies have clearly shown that low level combustion contaminants such as carbon monoxide are not safe for the elderly or pregnant woman and can affect the hearing of very young children. These occur below the current level of detection for UL approved carbon monoxide detectors. In a recent study by the University of Illinois, nitrogen dioxide, which exacerbates asthma, was found to exceed the World Health Organizations threshold value in over 80% of the homes studied. Even using the less stringent Canadian standards, this study found 50% of the homes exceeded their threshold level. Clearly there is no place for unvented appliances in today's housing stock!

**Commenter's Reason – Oxford:** Hearth and Home Technologies (HHT) is the world's largest manufacturer of hearth products under the brands Heatilator®, Heat & Glo™, Quadra-Fire® and Harman. Annually, we manufacture hundreds of thousands gas, wood, pellet and electric hearth systems. We are the recognized technology leader in the hearth industry and have more design patents than any other company including a patent for unvented gas fireplaces that dates back to 2000. We have the ability to make and sell unvented gas hearth products; but in the best interest of the homeowner/consumer choose not to make or sell unvented gas hearth products.

Additionally, we own the largest hearth installation and distribution company in the US, acquired in 2000. When acquired the distribution business was selling a large amount of unvented products. We exited the unvented category at significant financial risk to our revenue and profitability, unless we could convert the new company's builders and consumers to a vented product. We did this because we believed so strongly that the unvented gas category is not right for the homeowner/consumer. As we have acquired more companies through the years, the same decision has been made each and every time.

Our vision is to be profitable, to be responsible corporate citizens and to create long term value for our stakeholders while conducting our business in a way that sustains the well-being of society, our environment and the economy in which we live and work. Quite simply, we consider selling unvented gas heater products irresponsible. We have always held that the unvented gas heater category was not in the best interest of the homeowner/consumer and therefore should not be manufactured by the industry. It is our opinion unvented gas heaters are not appropriate for today's homes for the reasons listed below. Our position has gotten stronger through the years, as proof of our concerns has grown with the increased use of the unvented category since the mid 1990's.

**Expanding consensus to exclude unvented gas appliances.**

- Virtually all of the largest national homebuilders have ceased using unvented gas hearth products because of inherent liability.
- Many jurisdictions ban or severely limit the application of unvented gas heaters. With housing being built tighter and more efficient every year, we believe this ban should be consistent in all jurisdictions.
- National organizations have introduced green building programs which exclude unvented gas appliances as a prerequisite to certification. Those include US Green Building Council's LEED® for Homes, American Lung Association's Health House® and Environmental Protection Agency's Energy Star® with Indoor Air Package. The National Association of Home Builders' Model Green Home Building Guidelines recommends the use of direct vent systems.

**Reduced indoor air quality (IAQ).**

1. Water vapor from the gas combustion process exhausts at approximately 1 quart/hour. Tightly built homes can't adequately process this additional moisture, so mold growth can result as condensation accumulates on cooler surfaces in the home.
2. Unhealthy indoor air quality can result from the byproducts of unvented gas combustion, specifically carbon monoxide and nitrogen dioxide.
3. Improper usage and installation by homeowner/consumers can put them in an unsafe position in violation of manufacturer's instructions.
    - Manufacturer's claim that unvented gas appliances are "99% efficient" leading consumers to believe these appliances can be used as primary heat sources. In reality, the 99% efficiency claim is attainable only if all the water vapor condenses completely within the home.
    - Public statements show many "do-it-yourself" homeowners lack the knowledge to properly install and maintain unvented gas heaters.

**Better alternatives, in line with consumer preferences, comprise the majority of what is sold and in use today. The vented products are cost competitive.**

- Unvented gas appliances have represented a declining share of hearth market since 1997.
- Manufacturers provide comparable vented gas appliances at a comparable consumer cost.
- The consumer advantage with unvented gas appliances being cheaper to install does not justify the risks.

- Many other manufacturers of hearth products choose not to manufacture unvented gas hearth products. The vast majority of manufacturers of unvented gas appliances also manufacture vented gas appliances, so they could also change to vented products.

Not one person on our management team would use unvented gas hearth products in their home. We believe that homeowner/consumers are people just like us and would want the same thing we do. The best overall value product should safely meet their needs and the unvented category is does not, so why would we manufacture and sell them? The potential liability is a financial risk; but, more than money is at issue here. Behaving responsibly means having a positive impact on the environment of people's homes where our product is used. We must strive to move beyond what we have the right to sell our customers —but to focus on what is the right thing to sell our customers.

*Public Comment 4:*

**Don Denton, Vent-Free Gas Products Alliance of the Air-Conditioning, Heating and Refrigeration Institute, requests Disapproval.**

**Sue Walker, Vice President of DESA, LLC and Chairperson of the Vent-Free Gas Products Alliance, requests Disapproval.**

**Mark Jaynes, Vice President of Blossman Gas, requests Disapproval.**

**Dave Delaquila, Section Director of the Air-Conditioning, Heating, and Refrigeration Institute (AHRI), requests Disapproval**

**Bruce Swiecicki, Vice President of the National Propane Gas Association, requests Disapproval.**

**Gary Whitmyre, Board Certified Toxicologist and Principle of risksciences, llc, requests Disapproval.**

**A. L. Wilson, Qualified Environmental Professional (QEP), Wilson Environmental Associates, requests Disapproval.**

**Commenter's Reason: This public comment is made by a group of gas equipment and Indoor Air Quality (IAQ) experts on behalf of the Vent-Free Gas Products Alliance of the Air-Conditioning, Heating and Refrigeration Institute (AHRI). These individuals include the Vice President of a leading vent-free manufacturer, the Vice President of a major LP retailer in the Southeastern United States, the AHRI Director responsible for vent-free standards and regulatory matters, the Vice President of the National Propane Gas Association, a consulting engineer specializing in combustion and indoor air quality, a Board Certified toxicologist, and a Qualified Environmental Professional.**

**We wholeheartedly endorse the unanimous decision of the 12 members of the International Fuel Gas Code Committee to reject Proposal FG47 at the Code Development Hearing (CDH) held on February 21, 2008, in Palm Springs, California. The following information is our group's written Public Comment.**

**Sue Walker, Vice President of DESA, LLC and Chairperson of the Vent-Free Gas Products Alliance**
*[Topics: Regulatory, code, and consumer acceptance; CPSC findings on safety; landmark IAQ studies]*

The Vent-Free Gas Product Alliance is comprised of 13 manufacturers of whole goods and controls whose mission is to work closely with code and regulatory authorities to maintain proper coverage of vent-free gas products as supplemental heating appliances in relevant national, state and local codes. After 28 years of this work, **49 states and all major codes permit the installation of vent-free gas products after conducting very careful review of the product's performance and safety record**. Each of these codes including the IFGC and the IECC define how adequate air volume must be calculated to support the safe operation of gas combustion products and the requirements are identically stringent for vent-free and vented gas appliances.

In 1980 the ANSI Z21.11.2 safety standard was implemented and required that all vent-free gas products be equipped with "new technology" oxygen detection safety pilots and numerous other safety features. Since then more than 18 million units of vent-free gas appliances have been installed in U.S. homes. **The Consumer Product Safety Commission (CPSC) in 2005 confirmed that since 1980 there has never been a documented death or poisoning associated with emissions from a vent-free gas product. Concurrently numerous landmark indoor air quality research studies have confirmed that vent-free gas products meet the most recognized IAQ guidelines used in this country**.

Our industry is not aware of any technology that has come under closer scrutiny for the past 28 years. However, there is simply no independent scientific research confirming any negative environmental IAQ impact related to vent-free gas products. **Should this code change proposal be adopted, the market for these products would be severely restrained without justification.**

**Mark Jaynes, Vice President of Blossman Gas**
*[Topics: Major retailers' long-term experience]*

Thank you for the opportunity to register in opposition to Proposal FG-47. **I have 25 years experience managing the sale, installation and service of home appliances for two major propane companies in 14 southeastern states. My experience with vent-free gas products has been extremely positive** compared to that described by Mr. Bumpers, one of the proponents of FG-47. I have been the appliance merchandising manager for Dowdle Gas Company with 70+ retail outlets in 5 states, and in a similar position for Blossman Gas Company responsible for 70 retail outlets in 9 states, installing and servicing vent-free gas products as well as a full line of home appliances. Both Dowdle and Blossman Gas are highly recognized as extremely responsible, successful propane gas companies that rely on customer satisfaction in all their activities. Neither company would ever persist in marketing an appliance that was linked to extensive customer dissatisfaction and removal, as Mr. Bumpers alleges. During testimony at the Palm Springs meeting before the IFGC Committee, Mr. Bumpers admitted that each time he removed a vent-free gas product he benefited financially by installing a more expensive, more profitable vented appliance.

**Over these 25 years, I estimate that these two companies have been responsible for the sale, installation and service of 20,000+ vent-free gas products including heaters, logs, fireplaces and stoves**. I am pleased to assure you that most consumers have been very pleased with the performance of these products. Frankly, existing customers have been the key to future sales as they recommend the appliance to family, friends, and neighbors. Many households purchased the products for supplemental heat, others chose the logs for the economy and cleanliness vs. vented gas logs or burning wood. Some consumers simply wanted a reliable source of heat during power outage. As with any category of appliance, occasionally there was a problem or complaint. Generally the issue was resolved via a routine service call, and consumer education regarding proper use of the product. Manufacturers of the product have been very responsive and supportive of retailers and consumers. In summary, **I believe that vent-free gas products are safe, offer reliable performance, and are very important to many households that depend on supplemental gas heat to save on home heating costs**.

**Dave Delaquila, Section Director of the Air-Conditioning, Heating, and Refrigeration Institute (AHRI)**
*[Topics: Conflicts caused by proponents' proposed code changes; safety, performance, and construction requirements of national product standard and third-party certification of compliance]*

This proposal takes a narrowly focused viewpoint between the interrelationships of the various I-codes simply by noting compliance with the air leakage requirements in section 402.5 of the IECC. **The codes already provide for adequate coverage and in fact there is no problem when installing an unvented heater in a home that conforms with the IECC** if the code requirements are followed.

First, **the codes are very clear with respect to the installation of gas-fired equipment in the IECC and the need to provide adequate ventilation, make-up and combustion air when installing gas equipment**. In section 102 of the IECC, which covers materials, systems and equipment, it specifically states that all equipment shall be installed in accordance with the manufacturer's installation instructions and the International Building Code (IBC). The IBC clearly states in section 101 that other I-codes referenced in the IBC shall be considered part of that code to the prescribed extent as specified in each of those codes. Furthermore, in clause 101.4.2, for gas equipment, it states that the International Fuel Gas Code (IFGC) shall apply to the installation and operation of gas appliances.

**The IFGC is very clear about the need for providing adequate ventilation, make-up and combustion air when installing gas appliances** as referenced in section 304. It also prescribes specific appliance requirements as provided for in section 621 for unvented room heaters. From this standpoint all of the proper installation requirements are adequately covered and the need to restrict the installation of these heaters is unjustified. **The proponents provide no direct evidence whatsoever that a properly installed and maintained gas appliance in a home that conforms to the IECC is problematic and as such there no basis for adopting this code change.**

In addition, awareness should be raised with respect to the proponents concern that the Oxygen Depletion Safety pilot (ODS) is the only safety device provided for in the product safety standard, ANSI Z21.11.2. This is simply incorrect. The product standard includes many requirements addressing the safe construction and performance that all gas-fired unvented room heaters must conform to get listed. For example, performance testing includes combustion tests where products of combustion cannot exceed 0.02% CO and 0.002 % NO2 air free. In addition, the standard includes tests for pilot burners and safety shutoff devices; ODS safety shutoff systems; burner operating characteristics; clothing ignition potential, wall, floor and ceiling as well as surface and discharge air temperatures. Furthermore, as part of the product listing, the certification agency conducts follow-up inspections whereby it randomly selects product literally "off-the-shelf" and tests it. If it does not pass the manufacturer must take corrective action or de-list the product. These are continued safety measures that verify that the listed products continue to perform as designed and manufactured.

It is completely misleading to suggest that manufacturers simply attached an ODS pilot to a gas burner, surround it with decorative logs and then sell the product. There are safety, construction, and performance tests, as well as instructional content intended to eliminate product defects. And all products sold and installed in the U.S. are required to be listed by an independent third party certification agency

**There is simply no evidence that provides any basis for adopting this code change proposal and AHRI fully supports the committee and subsequent floor action to reject.**

**Bruce Swiecicki, Vice President of the National Propane Gas Association**
*[Topics: Propane industry experience; combustion air requirements; national product standard; acceptability for installation in after-market manufactured homes]*

Of the 18 million vent free gas products installed in the U.S. since 1980, about 40%, or 7.2 million, are fueled by propane. These units are used in both site-built homes and manufactured homes.

Propane marketers install a large percentage of these units. These marketers are highly trained, competent and qualified to perform this work.

**The same code requirements for combustion air are in place for both vented equipment and vent free appliances.**

**Unvented heaters must comply with nationally recognized standards**, specifically ANSI Z21.11.2. There are emissions tests and safety requirements that each unit must comply with prior to being listed and labeled by a third party agency such as CSA.

Vent free heaters are extremely important for providing heat to people living in mild climates and they should not be banned from use by the IFGC.

With respect to manufactured housing, local codes have jurisdiction once the manufactured home is placed on site. **ANSI Z21.11.2 permits the installation of unvented heaters in manufactured housing and the Manufactured Housing Institute acknowledges that vent free heaters can be installed in manufactured homes once they are on site.**

**Don Denton, Consulting Engineer, specializing in gas combustion and indoor air quality**
*[Topics: Scientific evidence on compliance with national indoor air quality guidelines; product liability safety record; impacts of tight construction and over-sizing, New York State review and acceptance]*

The core issue raised by the proposal concerns the impact of vent-free gas products on a home's indoor air quality. During the original development of the International Mechanical Code years ago, and ultimately the International Fuel Gas Code as well, the code developers had to evaluate whether or not vent free gas products should be permitted. A highly qualified independent firm, American Gas Association Research (AGAR), under sponsorship of the Gas Research Institute (GRI), conducted two landmark studies that provided the answers.

These researchers examined five primary emissions of concern for all kinds of operating conditions and housing stock throughout the United States. They created a computer model to run these permutations, and verified it by comparing calculated emissions to actual emission measurements taken from two control test houses. Importantly, the results were compared against nationally recognized IAQ guidelines developed by the Consumer Product Safety Commission, ASHRAE, and others.

**AGAR concluded that vent-free gas products met these nationally recognized IAQ guidelines, and in most cases yield emissions that are significantly less than the maximum allowable. In short, they are safe to use.**

Subsequent studies conducted by other reputable organizations such as Energy International, Arthur D. Little, Wilson Environmental, and Risksciences have added to confirmation of the original AGAR research or contributed to strengthening of the national product standard,

as in the case of the nitrogen dioxide requirement. Most importantly, these research conclusions are backed up by the outstanding safety and product liability record of 18+ million units installed in the U.S. since 1980. We live in a litigious society in which people are quick to file lawsuits, and my experience as a Product Liability Administrator for 20 years does not support the proponents' claims about vent-free.

Furthermore, I appreciate their concerns about tight construction. The great news about vent-free gas products is that **as a home is made tighter, less cold air enters through air exchanges; there is less need for heat, so the emissions go down.** Also, even at extreme tightness of 0 ACH, the ODS will shut off the heater long before unsafe emission levels are reached.

Likewise, the proponents expressed concerns about over-sizing a heater for the application. The input merely determines the cycle time. A heater with twice the needed input will operate only half of the time as a heater sized best for the application, so **an oversized heater does not negatively impact IAQ** either. **Relative to both tightness of the home and input of the appliance, these products are self-compensating devices.**

New York State evaluated vent-free gas heating products for almost two years over 1996-1998. The state departments that are responsible for protecting consumers reviewed the available scientific evidence and endorsed their allowance.

In conclusion, **I urge the ICC members to reject Proposal FG47.**

**Gary Whitmyre, Board Certified Toxicologist and Principle of risksciences, llc**
*[Topics: Scientific research on water vapor and mold/mildew formation]*

In 2002, I conducted a computer modeling study to determine how much vent-free gas heating appliances contribute to water vapor indoors**.** This study has been accepted and published in a peer-reviewed scientific journal. Water vapor is measured as relative humidity. **The concern is that high humidity may cause active mold and mildew growth**.

Using the computer model the results of this study were as follows: For most of the United States, these appliances did not raise the indoor relative humidity in any residential situation beyond a "safe zone" of less than 60 % relative humidity. This study was based on over 200,000 iterations of the model, representing different residential conditions in all of the different DOE heating regions. Even in Florida and the Gulf Coast where the outdoor humidity is high, the results were still very favorable. In colder regions, where the appliance is **"ON"** more, the total indoor relative humidity is still in the "safe zone". Even extended use of the appliance does not raise humidity beyond the "safe zone."

When the interior room door is closed, most of the cases involving a vent-free gas heater produce an indoor relative humidity that is still less than the level of concern for mold and mildew, which is 70 % relative humidity. Simply opening the interior door of the room where the vent-free gas heating device is located increases dilution of water vapor into the house. **My conclusion is that use of a vent-free appliance does NOT produce sufficient water vapor to promote mold and mildew growth**.

One of the proponents raised the issue that for tight houses, poor indoor air quality will occur. However, because a tighter home lets less cold air enter, the heating demand deceases and the vent-free heater spends less time **"ON"**. It is a self-limiting process.

In summary, vent-free gas heating appliances are only minor contributors to indoor relative humidity. Based on my 29 years of experience as a risk assessor, vent-free gas heating appliances are safe. **In conclusion, I recommend a vote "AGAINST" the proposal as written.**

**A. L. Wilson, Qualified Environmental Professional (QEP), Wilson Environmental Associates**
*[Topics: California field trials with favorable humidity results]*

This testimony summarizes the results from a study of selected vent-free gas logs conducted primarily during the winter and spring of 1998 to 1999. It was designed to provide performance and usage information to Southern California Gas Company and to the California state agencies involved in developing standards for such appliances.

Thirty-five volunteers used the vent-free gas logs during one winter and kept a diary. They used the logs an average of 2 to 3 times per week for 2 to 3 hours each use. Participants used the logs for heating the room, but sometimes, they were used for decoration. Participants would generally turn it off when the room was warm enough or when they went to bed. Temperature and humidity recording were made indoors for each home continuously.

Indoor temperature and relative humidity data were generally recorded every 30 minutes in the 35 homes during the winter. There was a wide range of temperatures recorded. The average indoor temperature ranged from 60°F to 74°F. Average indoor relative humidity ranged from 43 to 69 percent. Dew point temperature was calculated from the temperature and relative humidity data for each recorded period. Average dew point was calculated to range from 46°F to 55°F.

ASHRAE Standard 55 recommends that the dew point of occupied spaces not be less than 36°F to protect comfort. The thermal recommended upper bound for dew point temperature is approximately 60°F but varies slightly with indoor temperature. **The vast majority (>97%) of the calculated dew points were well within the comfort zone of 36°F to 60°F.** Less than 0.8 percent of the recordings indicated dew points more than 60°F while 1.6 percent of the time the dew point was less than 36°F. Most of the periods outside of the comfort zone were caused by low dew point temperature.

In March 1999, ten (10) homes were selected to conduct an extensive indoor air quality (IAQ) evaluation during a "worst-case" scenario. The smallest achievable connected room volume was separated from the rest of the house by closing internal and external doors. The gas logs were burned on the highest setting for about 4 hours. Indoor and outdoor measurements were made before, during and after the burns. About 8 hours of investigation was required for each home. The results provided information on the fireplace room volumes, pollutant concentration, pollutant decay rates, relative humidity and some limited emission rate data. Contaminants measured were: CO, CO2, particulates, and aldehydes.

**The relative humidity in 9 of the 10 homes actually decreased during the "worst-case" scenario burn tests.** The only home that did not decline only had the humidity increase from 53% to 57%.

**Concluding Group Comment**

**We urge the ICC members voting in the IFGC Final Action Hearing to support the Committee's unanimous decision by rejecting Proposal FG47 as well. We encourage you to follow the science, take comfort in the safety record, and strongly consider the repeated careful review of the technology by the entire code and regulatory communities at both the federal and state levels.**

**If you would like to know more about vent-free gas heating products, we invite you to check out our website at www.ventfree.org and visit our booth at the conference exhibit during the ICC Annual Meeting in Minneapolis. We'd be delighted to meet you and answer any questions that you might have. Our many years of experience have proven that when people know the facts, they make informed decisions. That's why vent-free gas heating products are allowed in 49 states and by all major codes, and they're the popular (and safe!) heating choice of 18 million Americans.**

Bibliography

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*Public Comment 5:*

**Ted A. Williams, American Gas Association, requests Disapproval.**

**Commenter's Reason:** The Committee Reason for disapproval at the Palm Springs hearing is correct: "No evidence was given to support the banning of such appliances [unvented room heaters]." Concerns expressed by the proponents should be addressed to responsible U. S. authorities with jurisdiction over the safety of these products. The U. S. Consumer Product Safety Commission (CPSC) is the responsible authority in the federal government. CPSC has promulgated federal rulemakings affecting the design and use of these products and should be consulted by the proponents in this case. Beyond CPSC's authority and activity regarding these products, other national organizations including the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) and the University of Illinois under sponsorship from the U. S. Department of Housing and Urban Development (HUD) are developing information and research on these products. Given these activities and opportunities to address the installation and use of unvented room heaters, ICC should not engage in activities that might unilaterally and without justification ban the use of these products.

Final Action: AS AM AMPC____ D