

# INTERNATIONAL FUEL GAS CODE

## FG2-06/07

### 101.2.4

*Proposed Change as Submitted:*

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

**Revise as follows:**

**101.2.4 Systems and equipment outside the scope.** This code shall not apply to the following:

1. Portable LP-gas equipment of all types that is not connected to a fixed fuel piping system.
2. Installation of farm equipment such as brooders, dehydrators, dryers and irrigation equipment.
3. Raw material (feedstock) applications except for piping to special atmosphere generators.
4. Oxygen-fuel gas cutting and welding systems.
5. Industrial gas applications using gases such as acetylene and acetylenic compounds, hydrogen, ammonia, carbon monoxide, oxygen and nitrogen.
6. Petroleum refineries, pipeline compressor or pumping stations, loading terminals, compounding plants, refinery tank farms and natural gas processing plants.
7. Integrated chemical plants or portions of such plants where flammable or combustible liquids or gases are produced by, or used in, chemical reactions.
8. LP-gas installations at utility gas plants.
9. Liquefied natural gas (LNG) installations.
10. Fuel gas piping in power and atomic energy plants.
11. Proprietary items of equipment, apparatus or instruments such as gas-generating sets, compressors and calorimeters.
12. LP-gas equipment for vaporization, gas mixing and gas manufacturing.
13. Temporary LP-gas piping for buildings under construction or renovation that is not to become part of the permanent piping system.
14. Installation of LP-gas systems for railroad switch heating.
15. Installation of hydrogen gas, LP-gas and compressed natural gas (CNG) systems on vehicles.
16. Except as provided in Section 401.1.1, gas piping, meters, gas pressure regulators and other appurtenances used by the serving gas supplier in the distribution of gas, other than undiluted LP-gas.
17. Building design and construction, except as specified herein.
18. Piping systems for mixtures of gas and air within the flammable range with an operating pressure greater than 10 psig (69 kPa gauge).
19. Portable fuel cell appliances that are neither connected to a fixed piping system nor interconnected to a power grid.
20. The construction of appliances.

**Reason:** The proposed addition of "Construction of appliances" to items not covered by the code is meant to clarify that the IFGC's requirements do not apply to the internal components of a listed appliance. The proposed IFGC revision coordinates with a similar revision contained in the 2006 National Fuel Gas Code (Section 1.1.1.2 #20).

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

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** The proposed text will clarify that the IFGC does not intend to regulate the internal components of appliances. (e.g. gas piping that is integral with appliance)

**Assembly Action:**

**Disapproved**

*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:*

**David C. Delaquila, Gas Appliance Manufacturing Association (GAMA), requests Approval as Submitted.**

**Commenter's Reason:** GAMA agrees that the International Fuel Gas Code should be clarified that it does not apply to the internal construction or components of listed appliances. That is under the jurisdiction of the specific product standard to determine the appropriate minimum safety construction requirements.

*Public Comment 2:*

**Guy Tomberlin, Fairfax County, Virginia, representing Virginia Building and Code Officials Association (VBCOA) and Virginia Plumbing and Mechanical Inspectors Association (VPMIA), requests Disapproval.**

**Commenter's Reason:** The addition of this exception to the scope of then IFGC is in direct conflict with Section 301.3 and almost the entire Chapter 6 requirements in reference to the standards that an appliance must comply with. If you remove the construction of appliances requirement then any appliance can be inappropriately installed. A gas range would be allowed to serve as a room heater.

The code official would attempt to write a violation for this type of inappropriate use but would have to cite the units listing and labeling. Unfortunately, the appliance construction provisions are part of the appliances listing, therefore, with the proposed exception to the IFGC scope, in this example, the blatant code violation would fall outside of the IFGC provisions.

What the proponent is attempting to accomplish is already covered adequately in Section 301.3. They want to make sure that field changes or alterations do not occur to appliances. Section 301.3 states that appliances shall be listed and labeled, if field alterations are made to appliances they no longer comply with their listing and labeling or Section 301.3 and must not be permitted to be utilized.

Final Action:        AS                    AM                    AMPC\_\_\_\_                    D

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**FG5-06/07**  
**103.2, 103.3, 103.4**

*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)

**Revise as follows:**

**SECTION 103 (IFGC)**  
**DEPARTMENT OF INSPECTION**

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

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

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

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

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

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

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

This proposal focuses on the department of inspection. A section-by-section discussion follows:

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

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

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

**103.3:** The purpose of this proposed change is to provide correlation with Section 103.3 of the *International Building Code*, *International Residential Code* and *International Existing Building Code*, and Section 301.3 of the *ICC Electrical Code---Administrative Provisions*. The new text provides the code official with an important administrative tool in assigning personnel to assist with the administration and enforcement of the code within the department. A similar correlating proposal has also been submitted to the *International Fire Code*, *International Mechanical Code*, *International Plumbing Code*, *International Property Maintenance Code*, *International Wildland-Urban Interface Code* and *International Private Sewage Disposal Code*.

**103.4:** The purpose of this proposed change is to provide correlation with Section 104.8 of the *International Building Code*, *International Residential Code*, *International Existing Building Code*, the texts of which the AHC felt provide a more logical presentation of the provision. It will also afford important protection to members of the appeals board who typically serve voluntarily and might not personally have the liability protection afforded by the revised text. A similar correlating proposal has been submitted to the *International Fire Code*, *International Mechanical Code*, *International Plumbing Code*, *International Property Maintenance Code*, *International Wildland-Urban Interface Code* and *International Private Sewage Disposal Code*.

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

**Committee Action:**

**Disapproved**

**Committee Reason:** Disapproval is consistent with the recommendations of other ICC code hearing committees for this proposal.

**Assembly Action:**

**None**

### *Individual Consideration Agenda*

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

*Public Comment:*

**Rebecca Baker, Jefferson County, CO, Chair, ICC Ad Hoc Committee on the Administrative Provisions in the I-Codes (AHC-Admin), requests Approval as Submitted.**

**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.

This change was proposed by the AHC-Admin to correlate the IFGC with Sections 103.2, 103.3 and 104.8 of the IBC, IRC and IEBC. Specifically, the language in 103.2 was struck because the committee felt that removal of the code official is an administrative personnel matter and, therefore, does not belong in the code. Section 103.3 spells out that employees shall have powers as delegated by the code official, thus enhancing the code official's ability to efficiently manage the department.

Importantly, the changes to Section 103.4 would include the board of appeals members along with the code official and department employees that are protected from personal liability in the discharge of their duties for those actions performed in accordance with the code in a reasonable and lawful manner. In most jurisdictions, the board of appeals members are citizen volunteers and should be protected from liability exposure. Without such protection, it would be difficult to attract volunteers to serve on the board of appeals.

The AHC-Admin disagrees with the committee action and requests that FG5-06/07 be approved as submitted so that this important and reasonable protection will be provided for volunteer members of the board of appeals and the IFGC will be correlated with Sections 103.2, 103.3 and 104.8 of the IBC, IRC and IEBC.

Final Action:        AS            AM            AMPC\_\_\_\_        D

# FG12-06/07

## 202, 303.6 and various other sections

### *Proposed Change as Submitted:*

**Proponent:** James Ranfone, American Gas Association; Guy Tomberlin, Fairfax County, Virginia, representing Virginia Plumbing and Mechanical Inspectors Association (VPMIA) and the Virginia Building Code Officials Association (VBCOA)

#### 1. Revise definitions as follows:

### SECTION 202

**APPLIANCE (EQUIPMENT).** Any apparatus or ~~equipment~~ device that utilizes gas as a fuel or raw material to produce light, heat, power, refrigeration or air conditioning.

**EQUIPMENT.** See “Appliance.” Apparatus and devices other than appliances.

#### 2. Delete definition without substitution:

~~**GAS UTILIZATION EQUIPMENT.** An appliance that utilizes gas as a fuel or raw material or both.~~

#### EXAMPLE SECTION:

#### Revise as follows:

**303.6 Outdoor locations.** ~~Equipment~~ Appliances installed in outdoor locations shall be either listed for outdoor installation or provided with protection from outdoor environmental factors that influence the operability, durability and safety of the equipment.

**Reason: (Ranfone)** The revisions would separate the use of the terms “appliance” and “equipment.” This will make the code more precise as to which provisions are to be applied to either type of device. The proposed changes would coordinate the IFGC sections with the extracted material from the 2006 National Fuel Gas Code (sections designated as “IFGS”) that have been revised to separate the terms appliance and equipment.

Our proposal would also give permission to ICC staff to perform an electronic search of the code and make the appropriate term changes/switches. These revisions would be published in the “2006/2007 Report of the Public Hearings” and provide an opportunity for the membership to review and take action on.

**(Tomberlin)** These definitions and terms currently mean the exact same thing in the IFGC references. These terms are distributed between IFGS and IFGC sections. The National Fuel Gas Code has separated these definitions appropriately and then globally identified where the code text means either appliance or equipment. The IFGC needs to do the same. This is not a technical proposal, but, more an editorial change. However, with the coverage in both areas of the code (IFGS and IFGC) we submitted a code change to assure this issue is taken care of.

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

**Analysis:** Section 303.6 is shown as an example of the global revision that will occur if this proposal is approved. Staff will substitute the term “appliance” for the terms “equipment” and “gas utilization equipment” wherever the terms “equipment” “gas utilization equipment” are currently used as a synonym for “appliance.”

#### Committee Action:

**Approved as Submitted**

**Committee Reason:** The proposed revisions coordinate the terminology used in the IFGC designated text of the code with that used in the IFGS designated text of the code. This terminology is consistent with the NFGC Z223.1.

#### Assembly Action:

**None**

### *Individual Consideration Agenda*

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

#### *Public Comment:*

**James Ranfone, American Gas Association, requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**LIST OF SECTIONS AND DEFINITIONS TO BE REVISED TO COORDINATE WITH THE REVISED DEFINITIONS OF “EQUIPMENT AND “APPLIANCE”**

101.2 Scope. This code shall apply to ..., fuel gas ~~utilization equipment~~ appliances, ...

101.2.2 Piping systems. ... Coverage shall extend from the point of delivery to the outlet of the ~~equipment~~ appliance shutoff valves. ...

101.2.3 Gas ~~utilization equipment~~ appliances. Requirements for gas ~~utilization equipment~~ appliances and related accessories ...

101.2.4 Systems, appliances and equipment outside the scope.

This code shall not apply to the following:

1. Portable LP-gas appliances and equipment of all types that ...
2. Installation of farm appliances and equipment such as ...

105.2 Alternative materials, methods, appliances and equipment.

105.4 Material, appliance and equipment reuse. Materials, appliances, equipment and devices shall not be ...

106.1 When required.

Exception: Where appliance and equipment replacements and repairs are ...

106.2 Permits not required.

2. Replacement of any minor component of an appliance or equipment that does not alter approval of such appliance or equipment or make such appliance or equipment unsafe.

107.1 Required inspections and testing.

3. Final inspection shall be made upon completion of the installation.

The requirements of this section ... any heating ~~equipment~~ appliance installed to replace existing heating ~~equipment~~ appliance serving ... such heating ~~equipment~~ appliance has ... such ~~equipment~~ appliance is ...

107.1.2.2 Follow-up inspection. Except where ready access is provided to installations, appliances, service equipment and accessories for ...

**DEFINITIONS:**

AIR, EXHAUST. Air being removed from any space or piece of equipment or appliance and conveyed directly to the atmosphere by means of openings or ducts.

BAROMETRIC DRAFT REGULATOR. A balanced damper ... combustion ~~equipment~~ appliance by controlling chimney draft. A double-acting barometric ... combustion ~~equipment~~ appliance ...

COUNTER APPLIANCES. Appliances such as coffee brewers and coffee urns and any appurtenant water-heating ~~equipment~~ appliance, ...

DRAFT. The pressure difference ... ~~equipment~~ appliance or any ...

PIPING SYSTEM. All fuel piping, ... the ~~equipment~~ appliance shutoff valves.

REGULATOR, GAS APPLIANCE. A pressure ... to the manifold of ~~equipment~~ the appliance. ...

REGULATOR, LINE GAS PRESSURE. A device ... ~~the equipment~~ appliance for controlling ...

ROOM LARGE IN COMPARISON WITH SIZE OF ~~EQUIPMENT~~ THE APPLIANCE.

~~EQUIPMENT~~ APPLIANCE SHUTOFF. A valve located ... ~~equipment~~ appliance for ...

303.6 Outdoor locations. ~~Equipment~~ Appliances installed ... the ~~equipment~~ appliance.

[M] 306.3 Appliances in attics. ... The passageway ... opening to the ~~equipment~~ appliance. ... A level service space ... service side of the ~~equipment~~ appliance. ...

[M] 306.3.1 Electrical requirements. A luminaire ... the ~~equipment~~ appliance location ...

[M] 306.4 Appliances under floors. ... The passageway ... the ~~equipment~~ appliance. ...

[M] 306.4.1 Electrical requirements. A luminaire controlled ... near the ~~equipment~~ appliance location ...

[M] 306.5.2 Electrical requirements. A receptacle outlet shall ... near the ~~equipment~~ appliance location ...

309.2 Connections. Electrical ... ~~equipment~~ appliance and the ... ~~equipment~~ appliance, shall conform ...

401.1 Scope. ... The applicability of this code ... the ~~equipment~~ appliance and ...

401.5 Identification. ... The marking shall ... the ~~equipment~~ appliance served.

407.2 Design and installation. ... Piping shall be ... connected ~~equipment~~ appliance and shall not ... All parts ... supporting ~~equipment~~ appliance...

408.4 Sediment trap. Where a ... the ~~gas utilization equipment~~ appliance, ... the ~~equipment~~ appliance shutoff valve ... the ~~equipment~~ appliance...

409.5 ~~Equipment Appliance~~ shutoff valve. ...  
Exception: Shutoff valves ... Such valves shall ... other ~~equipment~~ appliance. ...

409.5.1 Shutoff valve in fireplace. ~~Equipment Appliance~~ shutoff valves located ...

411.1 Connecting appliances.  
7. Listed and labeled ... use with food service ~~equipment~~ appliances having casters, or ... other large movable ~~equipment~~ appliances.

411.1.3.1 Maximum length.  
Exception: Rigid metallic piping used ... the ~~equipment~~ appliance shutoff valve ...

501.8 ~~Equipment Appliances~~ not required to be vented.  
10. Other ~~equipment~~ appliances listed for ...  
11. Specialized ~~equipment~~ appliances of limited input ...  
Where the appliances ~~and equipment~~ listed in Items 5 through 11 ... such appliances ~~and equipment~~ are installed, ... remaining unvented appliances ~~and equipment~~ does ... Where the room ... the ~~equipment~~ appliance is installed ...

621.5 Room or space volume. ... Where the ... the ~~equipment~~ appliance is installed ...

**SECTION 627 (IFGC)**  
**AIR-CONDITIONING EQUIPMENT APPLIANCES**

627.1 General. Gas-fired air-conditioning ~~equipment~~ appliances shall be ...

627.2 Independent piping. Gas piping serving heating ~~equipment~~ appliances shall be ... cooling ~~equipment~~ appliances ... heating and cooling ~~equipment~~ appliances ...

627.4 Clearances for indoor installation. Air-conditioning ~~equipment~~ appliances installed ... that air-conditioning ~~equipment~~ appliances listed for ... air-conditioning ~~equipment~~ appliances ...  
Air-conditioning ~~equipment~~ appliances ...

627.5 Alcove and closet installation. Air-conditioning ~~equipment~~ appliances ... The installation clearances for air-conditioning ~~equipment~~ appliances ...

627.6 Installation. Air-conditioning ~~equipment~~ appliances ... Unless the ~~equipment~~ appliance is ..., ~~equipment~~ the appliance shall be ...

627.7 Plenums and air ducts. A plenum ... the air-conditioning ~~equipment~~ appliance shall be ... the ~~equipment~~ appliance manufacturer's instructions. Where a plenum ... the ~~equipment~~ appliance, ... and ~~equipment~~ appliance manufacturer. ...  
Where the air-conditioning ~~equipment~~ appliance is installed ... by the ~~equipment~~ appliance, the air circulated by the ~~equipment~~ appliance shall be ... of the ~~equipment~~ appliance ...

627.10 Switches in electrical supply line. Means for ... the air-conditioning ~~equipment~~ appliance ...

**Commenter's Reason:** The committee approved a global change to replace the term "equipment" with the term "appliance" where appropriate. The original proposal directed ICC staff to perform an electronic search of the code and make the appropriate termsubstitutions. We have cooperated with ICC staff to provide the enclosed list of sections and the term substitutions, thereby bringing specificity to the original "global" intent. The intent of the proposed modification is to limit the scope of the original proposal to only those code sections listed in this public comment.

**Staff Note:** If FG12-06/07 is approved as modified, its effect will be limited to the sections listed in the public comment.

Final Action: AS AM AMPC\_\_\_\_ D

**FG13-06/07**  
**202**

*Proposed Change as Submitted:*

**Proponent:** John T. E. Walters, Prince William County, Virginia, representing Virginia Plumbing and Mechanical Inspectors Association (VPMIA) and the Virginia Building Code Officials Association (VBCOA)

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

**COMBUSTIBLE ASSEMBLY.** Wall, floor, ceiling, or other assembly constructed of one or more component materials that are not defined as noncombustible.

**NONCOMBUSTIBLE MATERIALS.** Materials that, when tested in accordance with ASTM E 136, have at least three of the 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 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 the 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**

E136-99e01 Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C.

**Reason:** These are the definitions currently located in and used by the IMC. The IFGC references these two terms but never identifies exactly what they are.

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

**Committee Action:**

**Disapproved**

**Committee Reason:** The definition of noncombustible materials allows one out of four specimens to not comply with the 3 stated criteria.

**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, Virginia, representing Virginia Building and Code Officials Association (VBCOA) and Virginia Plumbing and Mechanical Inspectors Association (VPMIA), requests Approval as Submitted.**

**Commenter's Reason:** The testimony during the Public Hearings achieved nothing more than confusion. This proposal is a much needed addition to the IFGC. All this proposal attempts to do is include recognized terms and definitions that are used in the IFGC but are not currently defined in Chapter 2. We propose using the exact same definitions from the IMC since the terms and definitions pertain to the similar (oil, solid fuel vs. gas etc..) applications between the two codes. The published reason for disapproval states that the definition of non-combustible allows material specimens to not comply with the 3 listed requirements. This is the accepted industry practice that has been utilized successfully for many years in the IMC. The application of these terms is much more widespread in the IMC than in the IFGC. The terms pertain to things like grease ducts which are not referenced in the IFGC. These definitions have served the IMC well and are appropriate terms for the applications in the IFGC. To leave out an explanation of terms that are referenced within any code is not the responsible approach because lack of information leads to non-uniform application and enforcement. The code user must be able to fully understand all of the applicable information pertaining to the provisions of the IFGC.

The floor action was to approve as submitted which would indicate that the folks in attendance at the public hearings did clearly understand the proposal and recognized the value of these accepted terms to be added to the IFGC.

*Public Comment 2:*

**David C. Delaquila, Gas Appliance Manufacturing Association (GAMA), requests Disapproval.**

**Commenter's Reason:** GAMA believes the proposed definitions are unnecessary for inclusion into the *International Fuel Gas Code*.

Final Action:        AS            AM            AMPC\_\_\_\_        D

**FG14-06/07  
202**

*Proposed Change as Submitted:*

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

**Add new definition as follows:**

**SECTION 202**

**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 committee recommendation for FG37-06/07.

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

*Individual Consideration Agenda*

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

*Public Comment:*

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

**Replace proposal as follows:**

**EXCESS FLOW VALVES (EFV).** A valve designed to activate when the fuel gas passing through the valve exceeds a predetermined flow rate.

**Commenter's Reason:** The rationale for denial of these code proposals is without technical merit. In addition, the NFGC (NFPA 54) Piping Panel has recommended similar wording be added to the NFGC at their technical committee meeting on February 20 and 21<sup>st</sup>. It would seem appropriate to harmonize the IFGC with the NFGC and other model codes with regard to inclusion and use of EFVs .

Final Action:      AS              AM              AMPC\_\_\_\_              D

**FG15-06/07  
202**

*Proposed Change as Submitted:*

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

**Revise definition as follows:**

**ROOM LARGE IN COMPARISON WITH SIZE OF EQUIPMENT.** Rooms having a volume equal to at least 12 times the total volume of a furnace, or air-conditioning appliance and at least 16 times the total volume of a boiler or water heater. 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:** The most important issue that this current definition identifies is exactly what a closet is. In turn this important definition lends the guidance to users as to the minimum size of room requirements when a gas appliance is not listed for closet installation. There is no reason why a water heater should be excluded from this definition because water heaters are either listed for closet installation or they need to be located in a minimum size compartment of at least 16 times its volume, same as boilers.

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

**Committee Action:**

**Disapproved**

**Committee Reason:** There is no justification to treat water heaters as boilers. Furnaces and boilers can have much larger input ratings than water heaters thereby justifying larger rooms. The water heater installation instructions will state the required clearances and if such instructions are followed, there is no concern for any location for the appliance.

**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, Virginia, representing Virginia Building and Code Officials Association (VBCOA) and Virginia Plumbing and Mechanical Inspectors Association (VPMIA), requests Approval as Submitted.**

**Commenter's Reason:** The published committee reason for disapproval of this proposal was because the appliance listing already covers this topic. This statement is inaccurate. This section of the code is not provided to address listing and labeling. This section of code exists solely to define what is a "closet." Currently no other code section, or code for that matter, provides the definition or the parameters of what is a closet. Staying consistent for all appliances is important for uniform application of the code. Appliances such as water heaters, boilers, and furnaces are all listed two ways, one is for closet installation and the other is not for closet installation. Without this text, how can any designer, installer, inspector, or plan reviewer determine if a space is appropriate for a water heater installation that is not listed for "closet installation"? Therefore how can it be safely determined (and who determines) if the space is suitable (large enough) for a water heater that is not listed for closet installation. One committee member stated that clearances are included in the installation instructions. The clearances that are identified with appliances not listed for closet installation are intended to address working space and serviceability of the appliance, not proper heat dissipation or air movement. This does not add any new or restrictive requirements for water heaters. What it does is provide missing guidance that the current code fails to provide. Common practice is that most people are using this criterion anyway for water heater installations. Another committee member stated at the public hearings that there was no data to show that a water heater is the same as a boiler. Isn't the btu load of any appliance the same as the identical btu load of another? In other words a 100,000 btu burner does not know if it is in a boiler or a water heater or a furnace, does it? What this proposal provides is the minimum space permitted for a water heater that is not listed and labeled for closet installation, that's it! Floor action to approve as submitted clearly indicates that the ICC membership agreed that this is a much needed enhancement to the IFGC.

*Public Comment 2:*

**David C. Delaquila, Gas Appliance Manufacturing Association (GAMA), requests Disapproval.**

**Commenter's Reason:** GAMA disagrees with the rationale that the definition defines what a closet is. In the vast majority of installations a closet space would not be at least 12 or 16 times the volume of the equipment. Therefore, it is not necessary to include water heaters in this definition.

Final Action:        AS            AM            AMPC\_\_\_\_        D

**FG18-06/07, Part I  
303.4**

*Proposed Change as Submitted:*

**Proponent:** Tony Longino, County of Greenville, South Carolina, representing himself

**PART I – IFGC**

**Revise as follows:**

**303.4 Protection from vehicle impact damage.** Appliances shall not be installed in a location subject to mechanical or vehicle impact damage except where protected by ~~an~~ approved ~~means~~ barriers.

For the purpose of this section, mechanical or vehicle impact damage shall not include possible damage from lawn maintenance equipment

**Reason:** The IFGC, IMC and IRC all contain different language for the same problem. There has been much debate over which term would best apply to the possibility of damage to appliances installed in areas that are subject to damage. The term vehicle damage does not cover the possibility of damage from anything other than passenger vehicles. The term mechanical damage leaves open everything that could cause damage. The phrase "mechanical or vehicle impact" will expand from the narrow interpretation of vehicles impact only to allow the authority having jurisdiction to require protection for forklifts, trailers, pallet jacks or other potential hazards.

The last sentence was added to try to eliminate any possibility of jurisdictions reading into this section that outdoor condensing units would have to be protected from lawn mowers and weed eaters.

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

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

**Committee Reason:** The proposed revision is too broad in scope and could include scratches and dents. If this provision is not limited to vehicle impact damage, everything would require a barrier.

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

*Individual Consideration Agenda*

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

*Public Comment:*

**David C. Delaquila, Gas Appliance Manufacturing Association (GAMA), requests Approval as Submitted.**

**Commenter's Reason:** GAMA believes that this proposal should be approved as submitted and clarification between the different codes in this case should be sought.

Final Action:      AS                      AM                      AMPC\_\_\_\_\_                      D

**FG18-06/07, Part II**  
**IMC 303.4**

*Proposed Change as Submitted:*

**Proponent:** Tony Longino, County of Greenville, South Carolina, representing himself

**PART II – IMC**

**Revise as follows:**

**303.4 Protection from damage.** Appliances shall not be installed in a location ~~where~~ subject to mechanical or vehicle impact damage ~~unless~~ except where protected by approved barriers. For the purpose of this section, mechanical or vehicle, impact damage shall not include possible damage from lawn maintenance equipment.

**Reason:** The IFGC, IMC and IRC all contain different language for the same problem. There has been much debate over which term would best apply to the possibility of damage to appliances installed in areas that are subject to damage. The term vehicle damage does not cover the possibility of damage from anything other than passenger vehicles. The term mechanical damage leaves open everything that could cause damage. The phrase "mechanical or vehicle impact" will expand from the narrow interpretation of vehicles impact only to allow the authority having jurisdiction to require protection for forklifts, trailers, pallet jacks or other potential hazards.

The last sentence was added to try to eliminate any possibility of jurisdictions reading into this section that outdoor condensing units would have to be protected from lawn mowers and weed eaters.

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

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

**Committee Reason:** The last sentence is too vague; lawn maintenance equipment could range from push-type lawn mowers to large tractors. Although the proponent's reason says that this is for outdoor condensing units, the language could also include appliances inside the garage.

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

*Individual Consideration Agenda*

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

*Public Comment:*

**David C. Delaquila, Gas Appliance Manufacturing Association (GAMA), requests Approval as Submitted.**

**Commenter's Reason:** GAMA believes that this proposal should be approved as submitted and clarification between the different codes in this case should be sought.

Final Action: AS AM AMPC\_\_\_\_\_ D

**FG21-06/07**

**404.1**

*Proposed Change as Submitted:*

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

**Revise as follows:**

**404.1 Prohibited locations.** Piping shall not be installed in or through a circulating duct, clothes chute, chimney or gas vent, ventilating duct, 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 additional safety or health benefit provided by the text shown to be stricken. This is just another utility run to a dwelling, the same as the water, sewer, and the electric service. All of these other utilities can be run to other townhouse units without this restriction, the same as any utility is run to a separately owned apartment dwelling in a multistory building. Since the "point of delivery" is required to have a shutoff valve in accordance with Section 409, any question of safety related to the piping is already covered. If there is a question of physical damage, this should be addressed separately as a distinct hazard. In addition, if the townhouse is considered a multifamily condo, the owner of the individual unit has no right or control over the piping the same as an owner of an apartment condo unit.

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

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

**Committee Reason:** Piping run through townhouse units is common practice and there is no safety benefit in prohibiting such practice.

**Assembly Action:** **Disapproved**

*Individual Consideration Agenda*

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

*Public Comment:*

**Guy Tomberlin, Fairfax County, Virginia, representing Virginia Building and Code Officials Association (VBCOA) and Virginia Plumbing and Mechanical Inspectors Association (VPMIA), requests Disapproval.**

**Commenter's Reason:** This is a utility issue that does not belong in the IFGC. If this language is removed it will permit the installation of a gas service for one dwelling unit to extend through multiple dwelling units (owned by others) fire rated wall construction and property lines. At a minimum, this installation would require a legal easement agreement of which the fuel gas code has no reason to promote. If a service is provided to several homes side by side outside, underground on someone else's property, a legal easement is required. Why then should it be acceptable to install the same service through multiple attics belonging to other homeowners without an easement? This makes absolutely no sense. It is unreasonable for the fuel gas code to endorse this situation without taking into consideration the

adverse safety effects this application creates. The one and only reason this proposal was submitted is to allow utility companies to install a “bank” of gas meters on one end of a row of town homes instead of extending the services outside to each home. Separate services to each individually owned home has been common practice until cost cutting measures have occurred within the utility industry. The fuel gas code cannot be used to endorse cost cutting measures taken by utility companies that ultimately end up increasing the cost of construction to the building industry while decreasing public safety.

Final Action: AS AM AMPC\_\_\_\_ D

## FG22-06/07 404.1

### *Proposed Change as Submitted:*

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

#### **Revise as follows:**

**404.1 Prohibited locations.** Piping shall not be installed in or through a ~~circulating air~~ supply, return or exhaust duct, clothes chute, chimney or gas vent, ~~ventilating duct~~, 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:** The term circulating air duct is being confused with a return air plenum. The true intent here is to keep piping out of air ducts in general. This section is constantly being misapplied in the thinking that a return air plenum can be considered a duct because air passes through it. This is simply not the case as gas lines have always been allowed in commercial return air plenums. Adding this language will help everyone in understanding what the intent here really is.

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

#### **Committee Action:**

**Disapproved**

**Committee Reason:** The proposed revision creates more confusion by referring to supply, return and exhaust ducts, none of which were addressed in the proponent’s reason.

#### **Assembly Action:**

**Approved as Modified**

#### **Modify the proposal as follows:**

**404.1 Prohibited locations.** Piping shall not be installed in or through a supply, return or exhaust duct, clothes chute, chimney or gas vent, ~~ventilating duct~~, 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.

### *Individual Consideration Agenda*

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

#### *Public Comment:*

**James Ranfone, American Gas Association, requests Approval as Modified by this public comment.**

#### **Modify proposal as follows:**

**404.1 Prohibited locations.** Piping shall not be installed in or through a ducted supply, return or exhaust ~~duct~~, 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.

**Commenter’s Reason:** To clarify the intent of the section.

Final Action: AS AM AMPC\_\_\_\_ D

## FG29-06/07

### 404.15

#### *Proposed Change as Submitted:*

**Proponent:** Steve Tokarz, Brass Craft Manufacturing

#### **Delete without substitution:**

~~**404.15 Prohibited devices.** A device shall not be placed inside the piping or fittings that will reduce the cross-sectional area or otherwise obstruct the free flow of gas.~~

~~**Exception:** Approved gas filters.~~

**Reason:** Past history suggests that this section was added to the code to prevent a practice of adding materials into gas piping fittings that were touted as additives that would increase the energy value (BTU) of the gas supply. Not only was the energy value unimproved but the additional materials could actually decrease appliance performance by restricting the flow of gas. The gas flow restriction was particularly of concern during times when gas distribution regulation had a larger variance than what is common today.

Section 404.15 Prohibited Devices potentially conflicts with sections 402.2 Maximum Gas Demand and 402.5 Allowable Pressure Drop. Some gas valves or manifolds commonly used throughout a piping system could be interpreted as failing section 404.15.

The section is easily misunderstood and could be improperly interpreted. Sections 402.2 and 402.5 as well as the piping tables adequately address the flow and pressure drops needed in a properly designed gas system. Any devices in the piping system should be accounted for in those engineering calculations.

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

#### **Committee Action:**

**Disapproved**

**Committee Reason:** Current text does not prohibit the installation of excess flow valves and applies only to devices installed in the interior of pipe or fittings. This text needs to remain to address any future devices that may be installed inside of piping systems.

#### **Assembly Action:**

**None**

#### *Individual Consideration Agenda*

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

#### *Public Comment:*

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

#### **Replace proposal as follows:**

**404.15 Prohibited devices.** A device shall not be placed inside the piping or fittings that will reduce the cross-sectional area or otherwise obstruct the free flow of gas.

~~**Exception:** Approved gas filters.~~ Excess flow valves.

**Commenter's Reason:** The rationale for denial of these code proposals is without technical merit. In addition, the NFGC (NFPA 54) Piping Panel has recommended similar wording be added to the NFGC at their technical committee meeting on February 20 and 21<sup>st</sup>. It would seem appropriate to harmonize the IGGC with the NFGC and other model codes with regard to inclusion and use of EFVs .

Final Action:      AS                  AM                  AMPC \_\_\_\_                  D

## FG30-06/07

### 408.4

#### *Proposed Change as Submitted:*

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

#### **Revise as follows:**

**408.4 Sediment trap.** Where a sediment trap is not incorporated as part of the gas utilization equipment, a sediment trap shall be installed downstream of the equipment shutoff valve ~~as close to the inlet of the equipment as practical.~~ The sediment trap shall be either a tee fitting with a capped nipple in the bottom

opening of the run of the tee or other device approved as an effective sediment trap. Illuminating appliances, ranges, clothes dryers and outdoor grills need not be so equipped.

**Exception:** A single sediment trap shall be permitted to be located upstream of the appliance shutoff valves and serve multiple appliances where the sediment trap, shutoff valves and appliances served are all located in the same room.

**Reason:** The word “practical” is not appropriate code language because it is too prescriptive and open to varying interpretations. The new single sediment trap exception is being added to clarify that sediment traps are not needed for multiple appliances served by a single piping branch as long as there is at least one properly installed sediment trap at the beginning of the piping section.

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

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

**Committee Reason:** The stricken text is too prescriptive and subjective in nature. A single properly installed sediment trap is capable of protecting multiple appliances all located together.

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

*Individual Consideration Agenda*

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

*Public Comment 1:*

**Jud Collins, Mannford, Oklahoma, representing himself, requests Disapproval.**

**Commenter’s Reason:** The proposed exception does not limit the size of the room in which the sediment trap, shutoff valves and appliances are located. Some mechanical rooms are huge. They cover the entire length of a building and one-half the width of the building. Without limiting the room size, there could be runs of gas piping exceeding 200 feet.

*Public Comment 2:*

**David C. Delaquila, Gas Appliance Manufacturing Association (GAMA), requests Disapproval.**

**Commenter’s Reason:** GAMA believes the proposed revision should be rejected. The proposed language does not address all scenarios. The “Exception,” assumes that the room is small, compared to the length of piping and number of appliances. If the “room” is a warehouse, with 20 appliances, you will need more than one sediment trap.

Final Action:      AS                  AM                  AMPC\_\_\_\_                  D

**FG31-06/07**  
**408.4**

*Proposed Change as Submitted:*

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

**Revise as follows:**

**408.4 Sediment trap.** Where a sediment trap is not incorporated as part of the gas utilization equipment, a sediment trap shall be installed ~~downstream of the equipment shutoff valve~~ as close to the inlet of the ~~equipment~~ appliance as practical. The sediment trap shall be either a tee fitting ~~with having~~ having a capped nipple ~~in the bottom opening of the run of the tee~~ of any length installed in the bottommost opening of the tee or other device approved as an effective sediment trap. Illuminating appliances, ranges, clothes dryers and outdoor grills need not be so equipped.

**Reason:** The sediment trap requirements have not been consistent in years past. Some code officials still reject gas piping systems that have sediment traps installed with a 4 inch nipple and cap. They unjustifiably claim it must be at least 6 inches in length. These rejections often result in the re-piping of a system. The space provisions required are difficult at best to comply with. Another unjustified provision

that some misinterpret, because of the phrase “the bottom opening of the run of the tee”, that the tee must be installed in the vertical position and the nipple and cap must be located in the bottom of that tee, the IFGC commentary even supports this overly restrictive notion. Are we to believe that sediment flowing through a gas piping system will not find its way into a tee that is facing down in the run of a pipe with an all thread nipple with cap installed in it? These ridiculous concepts would lead the user to believe that unwanted sediment is constantly flowing through gas piping systems everywhere, everyday. Most have never seen a system adversely affected by sediment. Most have never seen reports or any data that would support this. The IFGC Code Development Committee even voted to delete sediment trap requirements in the last code development cycle, but the gas appliance manufacturers (GAMA) submitted a successful Final Action comment to overturn committee action. This proposal corrects yet another ridiculous requirement of this section. The sediment trap does not need to be located after the appliance shut off valve. Service technicians do not service sediment traps when servicing the appliance. It is common practice to have a single gas line extend down from an overhead main and then provide two tees positioned for two different appliances, such as a furnace and a water heater, or two boilers, and have a single sediment trap on the bottom of the drop. Current text would prohibit this completely appropriate installation and require two separate drops with two separate sediment traps. Why would so many gas appliances not have to comply with the sediment trap requirements? It would appear that only boilers, water heaters, and furnaces are required to be provided with sediment traps. Does the sediment in a gas piping system know to go straight for these type appliances? Most all gas appliances have similar control devices such as the appliance regulator and the factory installed gas valve. How is it that we are not hearing about any sediment blockages in appliance control devices when sediment traps are only required for a small percentage of appliances. I submit that a sediment trap is not necessary at all! The gas appliance testing community has insisted that it is a necessity. They probably have done testing under adverse conditions to verify this. But gas that is supplied today is not loaded with sediment. In fact due to many other vigorous requirements that suppliers must comply with most gas is upward of 95%- 99% pure. If sediment is in a system then you have a much greater problem than the location or position of the sediment trap. Please support relaxing these overly restrictive, unwarranted, unnecessary and costly requirements that serve absolutely no benefit.

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

**Committee Action:**

**Approved as Modified**

**Modify proposal as follows:**

**408.4 Sediment trap.** Where a sediment trap is not incorporated as part of the gas utilization equipment, a sediment trap shall be installed downstream of the equipment shutoff valve as close to the inlet of the appliance as practical. The sediment trap shall be either a tee fitting having a capped nipple of any length installed in the bottommost opening of the tee or other device approved as an effective sediment trap. Illuminating appliances, ranges, clothes dryers and outdoor grills need not be so equipped.

**Committee Reason:** The proposed revisions allow varying designs for sediment traps and clarify that the receptacle length is not critical to the trap’s function. The modification prevents the trap from being upstream of the shutoff valve where servicing of the trap would require shutting off the gas to the entire building.

**Assembly Action:**

**None**

### *Individual Consideration Agenda*

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

*Public Comment 1:*

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

**Commenter’s Reason:** The “as modified” language that was approved during the Public Hearings removes the much needed allowance of locating a sediment trap before the appliance shut off valve. The new language is overly and unnecessarily restrictive. Look at the appliances that do not even require a sediment trap. How can it be that sediment does not know to travel through the piping systems towards appliances such as ranges, clothes dryers and outdoor grills? The fact is that sediment is really not a problem in current gas piping systems at all. Last code cycle sediment traps were deleted during the public comment hearings only to have a successful final action comment submitted by the Gas Appliance Manufacturers Association (GAMA) to have them reinstated. In laboratory testing sediment is sure to create a problem as GAMA asserted however for more than twenty years sediment in gas lines has not been prevalent. The gas suppliers and utilities take the necessary precaution to prevent sediment from entering their system. Current practice of the service technician does not include removal of the sediment trap for routine cleaning during appliance service. If a sediment trap has become full of debris the entire system needs attention not just the sediment trap itself. Therefore this excessive requirement serves no useful purpose for the exact location of the sediment trap. The ICC membership voted to maintain the requirement for sediment traps, but there is no need for this overly excessive requirement for the location to be after the appliance shut off valve. If a gas line “drop”, from a mainline located in a ceiling space, serves two side by side (or closely located) appliances it is not uncommon to install one sediment trap at the bottom of the drop. The new language would require two sediment traps located after each of the appliance shut off valves. For this typical example there is a substantial increase in cost for the installation, it adds more pipe and more fittings thus creating more labor. This added cost is unjustified and simply makes no sense.

Public Comment 2:

**David C. Delaquila, Gas Appliance Manufacturing Association (GAMA), requests Approval as Modified by this public comment.**

Further modify proposal as follows:

**408.4 Sediment trap.** Where a sediment trap is not incorporated as part of the gas utilization equipment, a sediment trap shall be installed downstream of the equipment shutoff valve as close to the inlet of the appliance as practical. The sediment trap shall be either a tee fitting having a capped nipple ~~of any~~ not less than 3 inches in length installed in the bottommost opening of the tee or other device approved as an effective sediment trap. Illuminating appliances, ranges, clothes dryers and outdoor grills need not be so equipped.

**Commenter's Reason:** GAMA offers the proposed modification. The National Fuel Gas Code, NFPA 54, and the standard for sediment traps, ANSI Z21.79, require a minimum pipe nipple length of 3 inches.

Final Action:        AS            AM            AMPC\_\_\_\_        D

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## FG32-06/07

**409.5, 409.5.1 (New), 409.5.2 (New), 409.5.3 (New)**

*Proposed Change as Submitted:*

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

### 1. Delete and substitute as follows:

~~**409.5 Equipment shutoff valve.** Each appliance shall be provided with a shutoff valve separate from the appliance. The shutoff valve shall be located in the same room as the appliance, not further than 6 feet (1829 mm) from the appliance, and shall be installed upstream from the union, connector or quick disconnect device it serves. Such shutoff valves shall be provided with access.~~

~~**Exception:** Shutoff valves for vented decorative appliances and decorative appliances for installation in vented fireplaces shall not be prohibited from being installed in an area remote from the appliance where such valves are provided with ready access. Such valves shall be permanently identified and shall serve no other equipment. Piping from the shutoff valve to within 3 feet (914 mm) of the appliance connection shall be sized in accordance with Section 402.~~

~~**409.5 Appliance shutoff valve.** Each appliance shall be provided with a shutoff valve in accordance with Section 409.5.1, 409.5.2 or 409.5.3.~~

~~**409.5.1 Located within same room.** Where the shutoff valve is located in the same room as the appliance, the shutoff valve shall be within 6 feet (1829 mm) of the appliance, and shall be installed upstream of the union, connector or quick disconnect device it serves. Such shutoff valves shall be provided with access. Appliance shutoff valves located in the firebox of a fireplace shall be installed in accordance with the appliance manufacturer's instructions.~~

~~**409.5.2 Vented decorative appliances.** Shutoff valves for vented decorative appliances and decorative appliances for installation in vented fireplaces shall not be prohibited from being installed in an area remote from the appliances where such valves are provided with ready access. Such valves shall be permanently identified and shall serve no other appliance. The piping from the shutoff valve to within 6 feet (1829 mm) of the appliance shall be designed, sized and installed in accordance with Sections 401 through 408.~~

~~**409.5.3 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.~~

### 2. Delete without substitution:

~~**409.5.1 Shutoff valve in fireplace.** Equipment shutoff valves located in the firebox of a fireplace shall be installed in accordance with the appliance manufacturer's instructions.~~

**Reason:** The revisions reorganize the appliance shutoff valve location coverage and add in a new allowed valve location at the vicinity of the manifold when such piping configuration is installed. Appliance shutoff valves are required by the IFGC to permit the servicing and replacement of an appliance without the need to shut down the entire gas system. These valves are not emergency shutoff valves. The proposed IFGC revision coordinates with a similar revision contained in the 2006 National Fuel Gas Code (Section 9.6.4.3).

The phrase "separate from the appliance" is being deleted since it is mistakenly being interpreted as meaning that the shut off valve cannot be located inside or under the housing of an appliance. This is not the code intent. For some appliances (i.e. wall heaters, vented fireplaces), the shutoff valve can be installed inside or under the appliance. It is our understanding that the main intent of this phrase is that the appliance's automatic valve cannot be used to meet the shutoff valve requirement.

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

**Committee Action:**

**Approved as Modified**

**Modify proposal as follows:**

**409.5 Appliance shutoff valve.** Each appliance shall be provided with a shutoff valve in accordance with Section 409.5.1, 409.5.2 or 409.5.3.

**409.5.1 Located within same room.** ~~Where~~ The shutoff valve ~~is~~ shall be located in the same room as the appliance. The shutoff valve shall be within 6 feet (1829 mm) of the appliance, and shall be installed upstream of the union, connector or quick disconnect device it serves. Such shutoff valves shall be provided with access. Appliance shutoff valves located in the firebox of a fireplace shall be installed in accordance with the appliance manufacturer's instructions.

**409.5.2 Vented decorative appliances and room heaters.** Shutoff valves for vented decorative appliances and decorative appliances for installation in vented fireplaces shall ~~not be prohibited from being~~ be permitted to be installed in an area remote from the appliances where such valves are provided with ready access. Such valves shall be permanently identified and shall serve no other appliance. The piping from the shutoff valve to within 6 feet (1829 mm) of the appliance shall be designed, sized and installed in accordance with Sections 401 through 408.

**409.5.3 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.

**Committee Reason:** The proposed new text is consistent with the NFGC, Z223.1 and allows an option to utilize shutoff valves located on a manifold. The revisions also clarify that it is not the intent to prevent shutoff valves from being installed within an appliance enclosure. The modification clarifies that the intent of Section 409.5.1 is to require the shutoff valve to be in the same room as the appliance. Section 409.5.2 was modified in an attempt to address room heaters and to provide language consistent with other code sections.

**Assembly Action:**

**None**

### *Individual Consideration Agenda*

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

*Public Comment 1:*

**James Anjam, Arlington County, Virginia, representing Virginia Building and Code Officials Association (VBCOA) and Virginia Plumbing and Mechanical Inspectors Association (VPMIA), requests Approval as Modified by this public comment.**

**Further modify proposal as follows:**

**409.5.2 Vented decorative appliances and room heaters.** Shutoff valves for vented decorative appliances, room heaters, and decorative appliance for installation in vented fireplaces shall be permitted to be installed in an area remote from the appliances where such valves are provided with ready access. Such valves shall be permanently identified and shall serve no other appliance. The piping from the shutoff valve to within 6 feet (1829 mm) of the appliance shall be designed, sized and installed in accordance with Sections 401 through 408.

(Portions of proposal not shown remain unchanged)

**Commenter's Reason:** The as modified language that was approved during the Public Hearings added the term "room heaters " in the title of the section but then failed to address room heaters within the text body of the section. This modification adds the term where it would appear to be applicable in the text.

*Public Comment 2:*

**David C. Delaquila, Gas Appliance Manufacturing Association (GAMA), requests Approval as Modified by this public comment.**

**Further modify proposal as follows:**

**409.5.2 Vented decorative appliances and room heaters.** Shutoff valves for ~~vented decorative appliances and decorative appliances-~~ for installation in vented fireplaces gas fireplaces, appliances installed in vented fireplaces and appliances installed in ventless firebox enclosures shall be permitted to be installed in an area remote from the appliances where such valves are provided with ready access. Such valves shall be permanently identified and shall serve no other appliance. The piping from the shutoff valve to within 6 feet (1829 mm) of the appliance shall be designed, sized and installed in accordance with Sections 401 through 408.

(Portions of proposal not shown remain unchanged)

**Commenter’s Reason:** GAMA agrees with the action taken by the IFGC Committee on FG32-06/07. GAMA believes that the revision in FG33-06/07 should be approved as an additional modification to the new text created by FG32-06/07 and agrees with the supporting reason of the proponent for FG33-06/07.

*Public Comment 3:*

**Bryan Popp, Dormont Manufacturing Company, requests Disapproval.**

**Commenter’s Reason:**

1. 50 feet is too far for an occupant to travel to turn off the gas to an appliance. There is no statement about the 50 feet being in a line of sight and unobstructed or how it is to be measured.
2. The language of permanently identified is vague when referring to a series of look alike valves at a manifold.
3. The volume of gas released into the structure when there is 50 feet of pipe between the shutoff valve and the appliance being disconnect is a lot more than the volume of gas released between the shutoff valve and 6 feet of connector in the current language.
4. Manifold as used in the proposed language can lead to confusion and misinterpretation. A manifold serving 1 appliance may be created to permit the shutoff valve to be up to 50 feet from the appliance.
5. There is no language to prevent the REMOTELY located appliance shut off valve from being opened while the appliance or its supply piping is being serviced.
6. The current language is preferred.

Final Action: AS AM AMPC\_\_\_ D

## FG37-06/07

### 410.4 (New)

*Proposed Change as Submitted:*

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

**Add new text as follows:**

**410.4 Excess flow valves.** Where automatic excess flow gas shutoff devices (valves) are installed, they shall be listed and approved and shall be sized for the maximum flow anticipated in the fuel gas piping in which they are installed.

**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:** The text “maximum flow anticipated” is not defined. The product standards for these devices are not completed or are applicable to service line devices. Current code does not prohibit the installation of such devices.

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

*Individual Consideration Agenda*

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

Public Comment:

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

Replace proposal as follows:

410.4 Excess flow valves (EFVs): Where automatic excess flow gas shutoff devices are installed, they shall be listed, sized for the maximum amount of flow anticipated in the pipe in which the valve is installed and installed in accordance with the manufacturer's installation instructions.

**Commenter's Reason:** The rationale for denial of these code proposals is without technical merit. In addition, the NFGC (NFPA 54) Piping Panel has recommended similar wording be added to the NFGC at their technical committee meeting on February 20 and 21<sup>st</sup>. It would seem appropriate to harmonize the IGGC with the NFGC and other model codes with regard to inclusion and use of EFVs .

Final Action:           AS                   AM                   AMPC\_\_\_\_           D

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## **FG38-06/07**

### **410.4 (New)**

*Proposed Change as Submitted:*

**Proponent:** Joseph Underwood, Hugo, Minnesota

**Add new text as follows:**

410.4 Regulator protection. Pressure regulators 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. Such protection is allowed to be integral with the regulator.

**Reason:** The purpose of this proposal is to move the existing requirement, 413.6 Pressure regulators, to Section 410, Pressure regulators, which will ensure that pressure regulators be protected from the elements.

Moving the provisions of Sections 413.6 to Section 410 would provide clarity to the code by requiring pressure regulators in general be protected, not just pressure regulators installed in compressed natural gas motor vehicle fuel dispensing stations as the code is currently written

This requirement currently exists in the International Fuel Gas Code, however, it resides in Section 413, Compressed Natural Gas Motor Vehicle Fuel-Dispensing Stations, 413.6 Pressure regulators. Adding the proposed text, or simply moving the provisions of 413.6 to Section 410 Flow Controls, would provide regulator protection in general and ensure consistency in the code.

National Fuel Gas Code 2.8.3 Regulator Protection. Pressure regulators shall be protected against physical damage. 1991 & 1997 Uniform Mechanical Code, 1320.9 Mechanical Protection. Gas outlet risers, regulators, meters, valves or other exposed equipment shall be protected from mechanical damage. Such protection may consist of posts, fencing or other permanent barriers. Atmospherically controlled regulators shall be installed in such a manner that moisture cannot enter the regulator vent and accumulate above the diaphragm. When the regulator vent may be obstructed by snow or ice, shields, hoods or other suitable devices shall be provided to guard against obstruction of the vent opening.

O.A.R.A. Manufacturer Installation Guide: In case of outside installation, the regulators should be properly protected from inclement weather.

Minnesota Dept. of Public Safety News Advisory, March 12, 1999: ...Outside meter and service regulator sets and other facilities should be kept clear of dripping water and accumulations of snow

**Bibliography:** 2000 International Fuel Gas code, National Fuel Gas Code 1999 Edition, 1997 Uniform Mechanical Code, O.A.R.A. Installation Guide, Minnesota Dept. of Public Safety News Advisory dated March 12, 1999.

**Cost Impact:** The code change proposal will increase the cost of construction. Estimated additional cost to construction is less than \$5.00.

**Committee Action:**

**Disapproved**

**Committee Reason:** Current Sections 410.1 and 410.3 already cover what is being proposed. The text borrowed from Section 413 is for high pressure systems, unlike the scope of Section 410.

**Assembly Action:**

**None**

*Individual Consideration Agenda*

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

Public Comment:

**David C. Delaquila, Gas Appliance Manufacturing Association (GAMA), requests Approval as Submitted.**

**Commenter's Reason:** GAMA agrees with the original proposal and the supporting reason of the proponent.

Final Action: AS AM AMPC\_\_\_\_\_ D

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## FG39-06/07

### 411.1, 411.1.1

*Proposed Change as Submitted:*

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

**Revise as follows:**

**411.1 Connecting appliances.** Except as required by Section 411.1.1, appliances shall be connected to the piping system by one of the following:

1. Rigid metallic pipe and fittings.
2. Corrugated stainless steel tubing (CSST) where installed in accordance with the manufacturer's instructions.
3. Semirigid metallic tubing and metallic fittings. Lengths shall not exceed 6 feet (1829 mm) and shall be located entirely in the same room as the appliance. Semirigid metallic tubing shall not enter a motor-operated appliance through an unprotected knockout opening.
4. Listed and labeled appliance connectors in compliance with ANSI Z21.24 and installed in accordance with the manufacturer's installation instructions and located entirely in the same room as the appliance.
5. Listed and labeled quick-disconnect devices used in conjunction with listed and labeled appliance connectors.
6. Listed and labeled convenience outlets used in conjunction with listed and labeled appliance connectors.
- ~~7. Listed and labeled appliance connectors complying with ANSI Z21.69 and listed for use with food service equipment having casters, or that is otherwise subject to movement for cleaning, and other large movable equipment.~~
- ~~8.~~ 7. Listed and labeled outdoor appliance connectors in compliance with ANSI Z21.75/CSA 6.27 and installed in accordance with the manufacturer's installation instructions.

**411.1.1 Commercial cooking appliances.** Commercial cooking 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, 2 or 3 of Section 411.1.

**Reason:** There are two sections covering the same topic; 411.1 #7 and 411.1.1. Section 411.1.1 was added into the 2006 IFGC and has the same general intent as item #7 in 411.1, to require the use of Z21.69 connectors for food service appliances that are routinely moved for cleaning. The proposed deletion of 411.1 #7 in favor of 411.1.1 eliminates duplication and clarifies the code.

The proposal would also allow the use of schedule 40 steel, tubing or other listed connectors for commercial cooking appliances. These types of connections are currently used for many types of commercial cooking appliances. Z21.69 connectors are intended for appliances equipped with casters that are frequently moved for cleaning. Many other types of cooking appliances do not have casters and are only occasionally or rarely moved.

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

**Analysis:** CSST is intended to directly connect only to those appliances that are fixed-in-place and not movable.

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** The stricken text is redundant with current Section 411.1.1. Appliances that are rarely or occasionally moved and that do not have casters should be able to be connected with rigid pipe or tubing. CSST manufacturers' instructions will prohibit the direct connection of CSST to appliances that are moved.

**Assembly Action:**

**Disapproved**

## 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:*

**David C. Delaquila, Gas Appliance Manufacturing Association (GAMA), requests Approval as Submitted.**

**Commenter's Reason:** GAMA agrees with the original proposal and the supporting reason of the proponent.

*Public Comment 2:*

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

**Modify proposal as follows:**

**411.1 Connecting appliances.** Except as required by Section 411.1.1, appliances shall be connected to the piping system by one of the following:

1. Rigid metallic pipe and fittings.
2. Corrugated stainless steel tubing (CSST) where installed in accordance with the manufacturer's instructions.
3. Semirigid metallic tubing and metallic fittings. Lengths shall not exceed 6 feet (1829 mm) and shall be located entirely in the same room as the appliance. Semirigid metallic tubing shall not enter a motor-operated appliance through an unprotected knockout opening.
4. Listed and labeled appliance connectors in compliance with ANSI Z21.24 and installed in accordance with the manufacturer's installation instructions and located entirely in the same room as the appliance.
5. Listed and labeled quick-disconnect devices used in conjunction with listed and labeled appliance connectors.
6. Listed and labeled convenience outlets used in conjunction with listed and labeled appliance connectors.
7. Listed and labeled appliance connectors complying with ANSI Z21.69 and installed in accordance with the manufacturer's instructions.
8. Listed and labeled outdoor appliance connectors in compliance with ANSI Z21.75/CSA 6.27 and installed in accordance with the manufacturer's installation instructions.

**411.1.1 Commercial cooking appliances.** Commercial cooking 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, 2 or 3 of Section 411.1.~~

**Commenter's Reason:** Striking the entire clause 7 from 411.1 will lead to the misinterpretation that an ANSI Z21.69 connector is NOT an approved option for appliances. The Z21.69 connector needs to be included in the list of 411.1.

Clause 7 is NOT redundant with clause 411.1.1. However, clause 7 can be modified to be consistent in format and content with the other clauses in 411.1.

Nothing in the current 411.1 language prohibits appliances that are never moved from being connected in accordance with item 1, 2, or 3 of this section, therefore no new language is needed in 411.1.1. Dangerous fatigue and strain will result if item 1, 2 or 3 are used on appliances that are moved occasionally. Employees of the kitchen will likely move the appliance without properly disconnecting connectors of the item 1, 2, or 3 type.

Current code language should be maintained for 411.1.1. Z21.69 connectors are specifically designed and intended for this application: They have met the performance testing required by the consensus standard of the industry, they include warnings and instructions intended to prevent dangerous connections in the commercial kitchen. Introducing other language into this clause will lead to confusion in the field and may lead to cooking appliances that are moved occasionally to be connected by less substantial means.

*Public Comment 3:*

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

**Modify 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, 2 or 3 of Section 411.1.

(Portions of proposal not shown remain unchanged)

**Commenter's Reason:** This modification corrects 2 important issues. First it adds the language in reference to appliances installed on casters. This requirement currently exists within the applicable standard but the typical code user may not possess the standard. There is no need to encourage every code user to purchase reference standards unnecessarily. This is a basic requirement that clearly increases public safety. It is unreasonable to not include such basic requirements in the code itself, especially when its application pertains to a

high percentage of food service installations. In addition, sometimes jurisdictions do not allow reference to reference standards for enforcement actions. It has been common format to have the code itself contain all necessary requirements for typical installations. Reference standards typically provide more detailed information related to a specific topic but it sets up inconsistent application when they require additional installation provisions.

Second, the approved as submitted language includes a reference to item #2 which is a reference to CSST to be used as an appliance connector. The listing for CSST does not include the use of this material for an appliance connector. CSST is permitted to connect appliances just as other piping materials but it is not listed to serve as an "appliance connector" in the situation that this code section addresses. The very reason CSST is not to be utilized as an appliance connector is because the fittings are not designed to be routinely moved or taken apart no different than rigid steel pipe. This very section is provided for appliance installations that are moved for cleaning on a frequent basis. When this flaw was identified during the Public Comment Hearings, it was stated that the listing adequately covers this application. This proposal as modified corrects the flawed concept of requiring the user to go to the standard (listing) for a common installation. The "as submitted" language actually creates deception that would indicate that CSST is an acceptable material for an "appliance connector". If item #2 remains as an appliance connector option in Section 411.1.1 is in direct conflict with a reference material standard listed for CSST in Section 403.5.4.

Final Action: AS AM AMPC\_\_\_\_ D

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## FG40-06/07

### 411.1.3.3

#### *Proposed Change as Submitted:*

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

#### **Revise as follows:**

**411.1.3.3 Prohibited locations and penetrations.** Connectors shall not be concealed within, or extended through, walls, floors, partitions, ceilings or appliance housings.

#### **Exceptions:**

1. Connectors constructed of materials allowed for piping systems in accordance with Section 403 shall be permitted to pass through walls, floors, partitions and ceilings where installed in accordance with the exception to Section 409.5.
2. Rigid steel pipe connectors shall be permitted to extend through openings in appliance housings.
3. Fireplace inserts that are factory equipped with grommets, sleeves or other means of protection in accordance with the listing of the appliance.

**Reason:** This proposal clarifies the approved use of other piping material for connectors when the shutoff valve may be located in a remote location from the appliance. In addition, the reference to 409.5 clarifies that pipe sizing shall remain in accordance with Section 402 to within 3 feet of the appliance. In addition, the newly added #2 provides guidance for the common practice of utilizing rigid pipe connectors.

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

#### **Committee Action:**

**Approved as Modified**

#### **Modify the proposal as follows:**

**411.1.3.3 Prohibited locations and penetrations.** Connectors shall not be concealed within, or extended through, walls, floors, partitions, ceilings or appliance housings.

#### **Exceptions:**

1. Connectors constructed of materials allowed for piping systems in accordance with Section 403 shall be permitted to pass through walls, floors, partitions and ceilings where installed in accordance with the exception to Section 409.5.
2. Rigid steel pipe connectors shall be permitted to extend through openings in appliance housings.
3. Fireplace inserts that are factory equipped with grommets, sleeves or other means of protection in accordance with the listing of the appliance.
4. Semirigid tubing and listed connectors shall be permitted to extend through an opening in an appliance housing, cabinet or casing where the tubing or connector is protected against damage.

**Committee Reason:** The proposed text corrects two flaws in the code that unintentionally limit connector pass-throughs. Under the exception to Section 409.5, the piping downstream from the remote shutoff valve is a connector and such piping needs to pass through walls, floors, etc. in order to reach the appliance that is remote from its shutoff valve. Rigid steel pipe downstream from the shutoff valve is

a connector and is the most common material used to pass through appliance housings and enclosures. The modification allows properly protected semirigid tubing and listed connectors to pass through all appliance housings and enclosures because there is no reason to limit such to fireplate inserts.

**Assembly Action:**

**None**

*Individual Consideration Agenda*

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

*Public Comment 1:*

**James Anjam, Arlington County, Virginia, representing Virginia Building and Code Officials Association (VBCOA) and Virginia Plumbing and Mechanical Inspectors Association (VPMA), requests Approval as Modified by this public comment.**

**Further modify proposal as follows:**

**411.1.3.3 Prohibited locations and penetrations.** Connectors shall not be concealed within, or extended through, walls, floors, partitions, ceilings or appliance housings.

**Exceptions:**

1. Connectors constructed of materials allowed for piping systems in accordance with Section 403 shall be permitted to pass through walls, floors, partitions and ceilings where installed in accordance with the exception to Section ~~409.5~~ 409.5.2.
2. Rigid steel pipe connectors shall be permitted to extend through openings in appliance housings.
3. Fireplace inserts that are factory equipped with grommets, sleeves or other means of protection in accordance with the listing of the appliance.
4. Semirigid tubing and listed connectors shall be permitted to extend through an opening in an appliance housing, cabinet or casing where the tubing or connector is protected against damage.

**Commenter's Reason:** This is almost an editorial adjustment. However, it was felt that a public comment is necessary for clarity of intent. Even though Section 409.5.2 is already included as a reference in Section 409.5 that was approved in FG32-06/07, the only pertinent part of Section 409.5 is actually Section 409.5.2. This is a clean up action to further clarify the intent of Section 411.1.3.3.

*Public Comment 2:*

**David C. Delaquila, Gas Appliance Manufacturing Association (GAMA), requests Approval as Modified by the Code Committee as published in the ROH (AM).**

**Commenter's Reason:** GAMA agrees with the original proposals, FG40-06/07 and FG41-06/07, and the supporting reasons of the proponents.

*Public Comment 3:*

**Bryan Popp, Dormont Manufacturing Company, requests Disapproval.**

**Commenter's Reason:** As modified by the committee at the Public Hearings, "Protected against damage" is vague and open to interpretation. The "do-it-yourselfer" is free to determine what is "protected against damage." The appliance and connector should be installed according to the manufacturer's instructions.

Final Action:        AS            AM            AMPC \_\_\_\_\_        D

**FG42-06/07**  
**411.1.4 (New)**

*Proposed Change as Submitted:*

**Proponent:** Richard Sekerchak, Dormont Manufacturing Company

**Add new text as follows:**

**411.1.4 Commercial cooking appliance requirements.** Movable gas appliance connectors complying with ANSI Z21.69 shall be installed in accordance with Items 1 through 4.

1. The end connections of movable gas appliance connectors shall be located not less than 36 inches (914 mm) and not more than 42 inches (1067 mm) above the finished floor.
2. The gas supply manifold branch connections and the connections to the appliances shall both be oriented vertically down.
3. Movable gas appliance connectors shall be configured in a vertical U-shape.
4. The end connections of movable gas appliance connectors shall be horizontally aligned with each other in a line perpendicular to the wall with a horizontal misalignment allowance of not more than 3 inches (76 mm).

**Reason:** Increase safety by:

- Reducing strain on movable appliance gas connector tubes,
- Standardize the connection locations to avoid random locations and configurations depending on installer, and
- Assure manufacturer's instructions are being followed for safe installations.

Low-level connections cause extreme bending of the connector tube at the area behind the end fitting that will lead to premature failure. Extreme bending also causes difficulty with proper connection/latching of a quick disconnect in a reverse orientation due to the inability to achieve proper alignment of the mating parts.

For high-level and low-level connections, the appliance and connector movement is dramatically reduced which allows for added strain to be imparted to the tube during movement of an appliance. With this less than optimum positioning, the restraining device does not properly perform its intended function.

Since, by code, movable appliance connectors can be connected to the gas supply with hard pipe instead of with a movable gas appliance connector, the manifold must be designed to accommodate both methods.

Avoid gas connectors being installed in an upward loop orientation (they flop to the side from their own weight putting bending stress on the tube ends) or laying on floors under appliances and between casters (prevents easy movement of appliance for cleaning and crush potential).

Avoid torquing of the connector tubing at the end connections.

**Cost Impact:** The code change proposal will increase the cost of construction. The cost to follow the proposed installation arrangement is negligible as compared to the cost for a loss, litigation, injury or death.

**Committee Action:**

**Disapproved**

**Committee Reason:** The proposed text is too prescriptive and does not address other possible installation configurations.

**Assembly Action:**

**None**

### *Individual Consideration Agenda*

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

*Public Comment 1:*

**David C. Delaquila, Gas Appliance Manufacturing Association (GAMA), requests Approval as Submitted.**

**Commenter's Reason:** GAMA agrees with the original proposal and the supporting reason of the proponent.

*Public Comment 2:*

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

Replace proposal as follows:

**411.1.1.1. Commercial cooking appliance gas supply orientation.** The building gas supply outlet for a commercial cooking appliance installation shall comply with the following:

1. The gas supply outlet shall be oriented vertically downward.
2. The bottom of the gas supply outlet shall be located not less than 30 inches (762mm) above the finished floor.
3. The gas supply outlet shall be directly behind the appliance it serves and not obstructed.

**Commenter's Reason:** The substantiation for the proposal remains the same as the substantiation provided by the original proponent.

The modification is intended to be better code language that is less prescriptive.

Other possible installation configurations are NOT precluded by this modified proposal.

The proposed language will improve the likelihood that a commercial cooking appliance and its connector will be properly installed by preventing inadequacies in the building fuel gas piping supplying the commercial cooking appliance.

Specific safety improvements include:

1. Reducing dangerous strain on improperly installed Connectors for Movable Gas Appliances.
2. Standardizes the configuration of building gas supply piping in commercial kitchens so that designers, installers, code officials and users have consistent and safe building gas supply arrangements in commercial kitchens.

3. Increases the likelihood that the connector manufacturer's installation and use instructions will be safely followed. This additional language increases safety by reducing the risk of fugitive gas, potential fires and subsequent losses in commercial kitchens.

Final Action: AS AM AMPC \_\_\_\_ D

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## FG43-06/07

### 411.1.4 (New)

*Proposed Change as Submitted:*

**Proponent:** Mike Deegan, Clearwater Gas Systems, representing American Public Gas Association

**Add new text as follows:**

**411.1.4 Outdoor appliance connectors.** Outdoor gas hose connectors shall be permitted to connect only portable outdoor gas-fired appliances. An equipment shutoff valve and a listed quick-disconnect device, or a listed gas convenience outlet shall be installed at the point where the connector is attached to the supply piping and shall be installed so as to prevent the accumulation of foreign matter. Outdoor hose connectors shall not exceed 12 feet (3658 mm) in length and the connection shall be made only in an outdoor area where the appliance is to be used.

**Reason:** In warmer climates on a year round basis and in the summer months, portable cooking equipment such as BBQs are utilized frequently, and are stored indoors away from the location when not in use. Typically some appliance manufacturers have been providing quick disconnects and 12 foot hoses to ensure proper clearances to combustibles are met. Additionally, to meet the storage intention of the outdoor cooking appliance, it is safer to utilize a quick disconnect device and hose rather than mechanically connect and disconnect an appliance connector which could eventually lead to connector failure with potential leakage and/or fire.

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

**Committee Action:**

**Disapproved**

**Committee Reason:** There is no standard to which to list outdoor gas hose connectors. The text "accumulation of foreign matter" is ambiguous.

**Assembly Action:**

**None**

*Individual Consideration Agenda*

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

*Public Comment:*

**David C. Delaquila, Gas Appliance Manufacturing Association (GAMA), requests Approval as Submitted.**

**Commenter's Reason:** GAMA agrees with the original proposal and the supporting reason of the proponent.

Final Action: AS AM AMPC \_\_\_\_ D

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## FG47-06/07

### 502.6.1 (New)

*Proposed Change as Submitted:*

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

**Add new text as follows:**

**502.6.1 Horizontal support of vents.** Vent systems passing through roofs having a slope greater than 12 units vertical in 12 units horizontal shall be supported by a minimum of 3 guy wires or other approved support

devices equally spaced around the vent and securely fastened to the structure. Vent systems in excess of 5-feet in height and passing through flat roofs shall be supported by a minimum of 3 guy wires or other approved support devices, equally spaced around the vent and securely fastened to the structure.

**Reason:** Venting systems whether gas or other types of exhaust terminals are susceptible to wind damage when the vents become too tall through the roof. At a point over 5-feet there will be an exposed joint and unless the vent is secured in place to prevent horizontal movement, the joint could become weakened to the point of failure, thus the pipe becoming dislodged or loosened. Many locations are in high wind areas and type B-vent joints will not hold up to the punishment from high or severe winds. In the case of a flat roof, a B-vent could quite possibly have to be installed higher than 5-feet to clear an intake, parapet, or other obstruction. In this case, 3 wires would be appropriate or other approved means of bracing. 502.6 addresses the hangers for weight, and is generic in nature. This proposal is specifically addressing horizontal movement. It is important that venting systems stay in place during periods of high or severe winds.

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

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

**Committee Reason:** The proposed coverage is redundant with Section 506.3.1, is too prescriptive and limiting and slopes between flat and 12/12 are not addressed.

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

*Individual Consideration Agenda*

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

*Public Comment:*

**Guy McMann, Jefferson County, Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO), requests Approval as Modified by this public comment.**

Replace proposal as follows:

502.6.1 Horizontal support of vents. Vent systems exceeding 5-feet in height above the roof surface shall be supported to limit horizontal movement in accordance with the manufacturers instructions or by other approved means.

**Commenter's Reason:** This is not redundant language as it relates to 502.6. The important factor here is the 5-foot benchmark the manufacturers use to require support for horizontal movement from wind effects. The previous section addresses vertical loads but leaves it up to total interpretation which leads to inconsistent enforcement.

Final Action:      AS                      AM                      AMPC\_\_\_\_\_                      D

**FG48-06/07**

**505.1.1**

*Proposed Change as Submitted:*

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

**Revise as follows:**

**505.1.1 Commercial cooking appliances vented by exhaust hoods.** Where commercial cooking appliances are vented by means of the Type I or II kitchen exhaust hood system that serves such appliances, the exhaust system shall be fan powered and the appliances shall be interlocked with the exhaust hood system to prevent appliance operation when the exhaust hood system is not operating. Where a solenoid valve is installed in the gas piping as part of an interlock system, gas piping shall not be installed to bypass such the valve and such valve shall be controlled so as to require a manual reset operation before re-opening. ~~Dampers shall not be installed in the exhaust system.~~

**Exception:** An interlock between the cooking appliance(s) and the exhaust hood system shall not be required where heat sensors or other approved methods automatically activate the exhaust hood system when cooking operations occur.

**Reason:** If a manual reset type of solenoid valve is installed, the concern as to “what happens after the event of a power failure” is alleviated. If the power fails, the gas will be shutoff and if the employees fail to turn off all appliances, a hazard could result when the power is restored. Gas valves for fire suppression systems must also be manually reset to prevent accidental gas flow. Only a qualified person will be charged to reset the system and at that time the pilots will be re-lit and the flow of gas restored. This arrangement requires that the pilots be re-lit each day. The appliance manufacturing industry needs to take the responsibility to address this major omission in relation to “standing pilot” technology, to achieve hood operation interlock as required by the IMC for any and all fuel sources. This issue could easily be addressed by the appliance manufacturers and appliance standards. They could either incorporate a separately piped pilot assembly or utilize electronic ignition technology. This problem has been avoided by the appliance industry for many years. These type appliances account for the majority of installations in the restaurants today. Lastly there are no dampers that would be installed in the fuel gas piping system, this is a mechanical (hood) issue and it is already covered adequately in the mechanical code.

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

**Committee Action:**

**Disapproved**

**Committee Reason:** The proposed text is an intended fix for the problem created by the interlock requirement. The interlock requirement is the problem that needs to be addressed, thereby eliminating the need for “bandaids” to correct the conditions caused by the interlock.

**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, Virginia, representing Virginia Building and Code Officials Association (VBCOA) and Virginia Plumbing and Mechanical Inspectors Association (VPMIA), requests Approval as Modified by this public comment.**

**Replace proposal as follows:**

**505.1.1 Commercial cooking appliances vented by exhaust hoods.** Where commercial cooking appliances are vented by means of the type I or Type II kitchen hood exhaust system that serves such appliances, the exhaust system shall be fan powered and the appliances shall be interlocked with the exhaust hood system to prevent appliance operation when the exhaust hood system is not operating. Where a solenoid valve is installed in the gas piping as part of an interlock system, gas piping shall not be installed to bypass ~~such~~ the valve and such valve shall be controlled so as to require a manual reset operation before re-opening. Dampers shall not be installed in an exhaust system.

**Commenter's Reason:** The published reason for disapproval was actually only stated by one committee member, who said that this entire section was a problem therefore this good correction was recommended for disapproval. Where is the logic? Is this really justification to disapprove a proposal? If in someone's opinion a code section is not a “good” code section, is the fix to not approve any enhancements and just allow the perceived problem area to remain? This is not a reasonable approach to keeping the codes current, up to date and maintaining the best usable information available today.

The original proposal was designed to correct two issues related to this section. We decided to separate the two issues in hopes to allow the members to decide each issue based on its own merit during the Final Action process. A Floor Action vote to approve this proposal as submitted was successful in FL. This “as modified” proposal is designed to eliminate a perceived issue that may only occur under certain specific conditions when an installation utilizing appliances with “standing pilot” technology exist. Using a solenoid to serve as an interlock has been proven a viable, not to mention a prevalent, solution to assuring exhaust fans are being utilized during commercial cooking operations. This practice has been used successfully for more than a decade in several states with absolutely zero documented or reported incidents. The main issue that this proposal is attempting to prevent is that in the event of a power failure a typical solenoid closes. If no one is in the kitchen when the power is restored, then gas service could be restored and delivered to the appliance open burners and pilot systems without the pilots being lit. If a manually reset type solenoid is used, a qualified staff person must manually reset the solenoid valve to restore gas service to the appliances. This is standard protocol with the fire suppression system solenoid valves. Manual reset may be a procedure as simple as flipping a switch to the “on” position, no different than when an electrical shunt trip may throw a breaker to the off position. In some applications the manual reset type solenoid may actually cost less than the automatic reset type.

Until the appliance manufacturing and the appliance standard or testing industry “step up” and addresses the problems associated with “standing pilot” technology type cooking appliances and hood interlocks, this section must remain in the code. It is not a “bad” code section as the one out of twelve IFGC committee members stated, in fact quite the opposite it provides useful much needed criteria. The appliance manufactures could easily eliminate these problem issues altogether. A separate pilot system or an automatic ignition would take care of all the interlock issues quickly and much more cost effectively if incorporated into each appliance. It is not clear why any type of similar improvements or enhancements are not embraced by the cooking appliance industry. This issue has been brought before this membership for the past several code cycles and the cooking appliance industry chooses to continue to simply ignore this major issue like it does not exist. Unfortunately the AGA continues to speak unfavorably about solenoids year after year. Until industry takes the initiative or incentive to correct this common everyday issue we must rely on solenoid interlock technology. If appliance manufactures would accept responsibility and update the standards to require some alternate type ignition system, then and only then, could this code section be deleted.

Public Comment 2:

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

Replace proposal as follows:

**505.1.1 Commercial cooking appliances vented by exhaust hoods.** Where commercial cooking appliances are vented by means of the type I or Type II kitchen hood exhaust system that serves such appliances, the exhaust system shall be fan powered and the appliances shall be interlocked with the exhaust hood system to prevent appliance operation when the exhaust hood system is not operating. Where a solenoid valve is installed in the gas piping as part of an interlock system, gas piping shall not be installed to bypass such valve. ~~Dampers shall not be installed in an exhaust system.~~

**Commenter's Reason:** The published reason for disapproval was actually only stated by one committee member, who said that this entire section was a problem therefore this good correction was motioned for disapproval. Where is the logic? Is this really justification to disapprove a proposal? If in someone's opinion a code section is not a "good" code section, is the fix to not approve any enhancements and just allow the perceived problem area to remain? This is not a reasonable approach to keeping the codes current, up to date and maintaining the best usable information available today.

A Floor Action vote to approve this proposal as submitted was successful in FL. The original proposal was designed to correct two issues related to this section. We decided to separate the two issues in hopes to allow the members to decide each issue based on their own merit during the Final Action process.

This is nothing more than deleting an item from the IFGC because it is information that is already adequately covered in the *International Mechanical Code (IMC)*. It is not fuel gas information. Hoods are an IMC issue; they have absolutely nothing to do with fuel gas. Hoods do not know what type of fuel is being utilized with the appliances located beneath them. It is not reasonable to have conflicting, different, or additional provisions within the International family of codes. This is an issue that is appropriately covered in the IMC and the listing of hoods. The IFGC should not contain conflicting requirements with the IMC or with nationally recognized Standard(s) (such as UL 710) on a topic that is not fuel gas related.

Public Comment 3:

**David C. Delaquila, Gas Appliance Manufacturing Association (GAMA), requests Disapproval.**

**Commenter's Reason:** Gama disagrees with the proposed revisions.

Final Action: AS AM AMPC\_\_\_ D

**FG51-06/07  
621.2**

*Proposed Change as Submitted:*

**Proponent:** Craig Conner, Building Quality, representing himself

**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 new residence that complies with the air leakage requirements of Section 402.4 of the *International Energy Conservation Code*.

**Reason:** By design unvented room heaters vent their combustion moisture into the interior of a residence. As new homes get progressively tighter, venting water into the residence becomes a worse idea. There are good reasons we vent a "normal" gas furnace, these are the same reasons we should vent any unvented gas heater.

HUD does not allow unvented heaters in new manufactured homes. Those same heaters should not be allowed into existing manufactured homes; homes which were never designed to tolerate the moisture production by unvented heaters.

The unvented room heater trade association is making matters worse by suggesting unvented heaters are the least expensive way to heat, "You can lower the thermostat of your central heating system...", that an unvented heater is "...an answer to your zone or home heating needs", and that unvented heaters "deliver a remarkable 99% efficiency". This bad product design can be cured simply by adding a vent.

**Note:** Quotes are from the Vent-Free Gas Products Alliance brochure entitled, *Consumer Guide to Vent-Free Gas Products. 2004.*

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

**Committee Action:**

**Disapproved**

**Committee Reason:** There is not enough evidence provided to cause an appliance listed to a nationally recognized standard to be banned. New and existing mobile homes would not be allowed to have such heaters installed. Unvented room heaters are required by Section 621.2 to be for supplemental use only.

**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, representing himself, requests Approval as Submitted.**

**Commenter's Reason:** I have been in the hearth industry for 17 years. My company has torn out 350 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 unvented 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.

*Public Comment 2:*

**Craig Conner, Building Quality, representing himself, requests Approval as Submitted.**

**Commenter's Reason:** 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.**"*

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.

<sup>1</sup> 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>

*Public Comment 3:*

**Stephen Klossner, American Lung Association Health House, requests Approval as Submitted.**

**Commenter's Reason:** 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 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.

*Public Comment 4:*

**Chuck Murray, Washington State University Energy Program, representing The Northwest Energy Code Group, requests Approval as Submitted.**

**Commenter's Reason:** As well as the moisture accumulation issues mentioned by the proponent, the occupant exposure to unreasonable levels of Nitrogen Dioxide is of issue. In tight new homes, there is certainly a risk that use of unvented heaters will produce concentrations of Nitrogen Dioxide that are in excess of recognized safety standards.

This opinion is based on the examination of two studies that document tested and simulated evaluation of pollution concentrations that result for the use of unvented gas heating appliances. One study published by the American Gas Association (AGA) and another, by Michael G. Apte with Lawrence Berkeley Laboratory. These test and simulation values can then be compared to existing air quality standards to determine if they pose a risk to occupants.

Study of Indoor Emissions resulting from the use of Unvented Heaters	Nitrogen Dioxide Exposure Level (one hour average) Parts per million
AGA (intermittent operation for 4 hours)	0.22
Apte (steady state operation)	0.59

Air Quality Standards	Nitrogen Dioxide limit Parts per million
Occupational Safety and Health Administration (workplace)	0.50 (one hour average)
Canadian Residential Guideline <sup>1</sup>	0.25 (one hour average)
US. EPA National Ambient Air Quality Standards <sup>2</sup>	0.053 (24 hour limit)

Why prohibit the use of this type of appliance in new homes? New homes constructed to the requirements of the IECC section will have annual average natural ventilation rates below 0.35 air changes per hour. For many hours of the year, the natural ventilation rate may be lower. Because new homes are tight, the use of unvented appliances can result in increased exposure to indoor pollution.

Reporting from the American Gas Association provide nitrogen dioxide concentrations for a simulated home with an unvented space heaters.<sup>3</sup> The AGA simulation is based 11300 cubic foot home with a ventilation rate of 0.35 air changes per hour. The home is already warm, 68 degrees F. A 30,000 Btu unvented heater is cycled on for 4-5 minutes, off for 10-16 minutes to maintain the temperature set point. The unit operates like this for no more than 4 hours. The resulting nitrogen dioxide concentration in the indoor environment is 0.22 parts per million.

In another study, performed by Michael G. Apte, Lawrence Berkeley National Laboratory, calculation of steady state operation of an unvented heater is documented.<sup>4</sup> This study assumes an 11,000 cubic foot home with 0.35 air changes per hour. The operation of a 40,000 Btu unvented gas heater running under steady state conditions results in indoor NO<sub>2</sub> concentrations of 0.59 parts per million.

In actual operation, which of these studies provides a realistic view of the potential for indoor pollution concentrations? Both provide possible views of operation. The AGA study focuses on limited use of the appliance to maintain a specific heating requirement. The steady state study conducted by Apte shows another use pattern. The use pattern described by Apte may be representative of increased reliance on this product as a space heating device. Extended use of the appliance could occur during a power outage, during recovery from thermostat setback. Because many of these appliances provide a decorative flame, continuous use may occur just for aesthetic reasons.

The health standards for exposure to Nitrogen Dioxide vary. The Occupational Safety and Health Administration (OSHA) sets workplace exposure at no greater than 0.50 parts per million for one hour. In Canada, the limit is a one hour average of 0.25 parts per million. The higher limit set by OSHA assumes healthy working adults. The lower limits are set to account for a distribution of the population that includes children, pregnant women, the elderly, or individuals with existing health problems, such as heart disease or asthma.

**Nitrogen dioxide (NO) and sulfur dioxide (SO<sub>2</sub>)** act mainly as irritants, affecting the mucosa of the eyes, nose, throat, and respiratory tract. Acute SO<sub>2</sub>-related bronchial constriction may also occur in people with asthma or as a hypersensitivity reaction. Extremely high-dose exposure (as in a building fire) to NO<sub>2</sub> may result in pulmonary edema and diffuse lung injury. Continued exposure to high NO<sub>2</sub> levels can contribute to the development of acute or chronic bronchitis.

The relatively low water solubility of NO<sub>2</sub> results in minimal mucous membrane irritation of the upper airway. The principal site of toxicity is the lower respiratory tract. Recent studies indicate that low-level NO<sub>2</sub> exposure may cause increased bronchial reactivity in some asthmatics, decreased lung function in patients with chronic obstructive pulmonary disease, and an increased risk of respiratory infections, especially in young children.

U.S. Consumer Products Safety Commission. Indoor Air Pollution: Introduction for Health Professionals, CPS document #455.

<sup>1</sup> Health Canada Exposure Guidelines for Residential Indoor Air Quality  
[http://www.hc-sc.gc.ca/ewh-semt/pubs/air/exposure-exposition/non-carcino\\_e.html](http://www.hc-sc.gc.ca/ewh-semt/pubs/air/exposure-exposition/non-carcino_e.html)

<sup>2</sup> US. EPA National Ambient Air Quality Standards <http://www.epa.gov/iaq/no2.html#Standards%20or%20Guidelines>

<sup>3</sup> Dewerth, Borgeson, Aronov, "The Effect of Properly Sized and Operated Vent-Free Gas Products on Indoor Air Quality (IAQ)", American Gas Association Research Division.

<sup>4</sup> Apte, "Unvented Gas Space Heaters: Drainless Sinks?" Home Energy Magazine, September/October 1996.  
<http://www.homeenergy.org/archive/hem.dis.anl.gov/eehem/96/960905.html>

#### Public Comment 5:

#### Timothy Rethlake, Hearth and Home Technologies, requests Approval as Submitted.

**Commenter's Reason:** Hearth and Home Technologies (HHT) is the largest manufacturer of fireplaces and hearth products in the world. Under our brand names of Heatilator, Heat & Glo and QuadraFire, we manufacture several hundred thousand gas, wood, pellet and electric hearth systems annually. We hold the original patent for sealed combustion direct vent technology in a hearth system, we also hold more design patents than any other company in our industry. HHT is the recognized technology leader in the hearth industry.

HHT does not believe that unvented gas hearth appliances are a viable solution for homeowners in many climate zones and housing types. We do not manufacture, sell or install unvented gas hearth products. This results in several million dollars in lost revenue for us annually, however, we do not want the potential product liability that comes with unvented gas products. More than just the money is at issue here. Not one person on our management team would personally use an unvented gas hearth product in our own home. Therefore, we won't produce them for others.

It's our opinion that unvented gas heaters are problematic for several reasons. First and foremost is the fact that the water vapor from the gas combustion process is exhausted back into the home at a rate of approximately 1 quart/hour. Tightly built homes can't adequately process this additional moisture which results in condensation on windows or other cooler surfaces in the home. Over time, this can lead to mold / mildew growth and an unhealthy IAQ (indoor air quality) environment for the occupants.

The second reason is the claim by manufacturers of unvented heaters that these appliances are "99% efficient". This leads consumers to believe that they should be using these appliances as primary heat sources. Manufacturers clearly state that the unvented heaters are not for primary heat and in fact suggest consumers limit the number of hours they should be used per day. The reality however is that many resellers of these products advise consumers to use them as primary heat since "they're more efficient than your furnace". In addition, the 99% efficiency claim is only attainable if all the water vapor condenses completely within the home.

Virtually all of the largest national homebuilders have ceased using unvented gas hearth products because they don't want the liability that is inherent in this product category.

Many building code jurisdictions ban or severely limit the application of unvented gas heaters. With new housing inventory being built tighter and more efficient every year, we believe this ban should be consistent in all code jurisdictions. There are too many other gas hearth systems available to the market that vent the byproducts of the combustion process outside the home where they belong. Every manufacturer of unvented gas appliances also manufactures vented appliances. It's time to force them to do the right thing for consumers and move away from unvented gas hearth appliances in favor of vented systems. We'll all breathe a little easier.

#### Public Comment 6:

#### David C. Delaquila, Gas Appliance Manufacturing Association (GAMA), requests Disapproval.

**Commenter's Reason:** GAMA disagrees with the proposed revision and supports the Committee Action to disapprove.

Final Action: AS AM AMPC\_\_\_\_ D

