**Supplement to the 6th Edition (2017) Florida Building Code, Fuel Gas**

**Note 1**: Throughout the document, change International Building Code to Florida Building Code, Building; change the International Energy Conservation Code tothe Florida Building Code, Energy Conservation; change the International Existing Building Code to Florida Building Code, Existing Building; change the International Fire code to Florida Fire Prevention Code; change International Fuel Gas Code to Florida Building Code, Fuel Gas; change the International Mechanical Code to Florida Building Code, Mechanical; change the International Plumbing Code to Florida Building Code, Plumbing; change the International Residential Code to Florida Building Code, Residential.

Chapter 1 **SCOPE AND ADMINISTRATION**

No Change

**Chapter 2 DEFINITIONS**

**Revise section 202 definition as follows:**

**[A] LABELED.** Equipment, materials or products to which have been affixed a label, seal, symbol or other identifying mark of a nationally recognized testing laboratory, ~~inspection~~ approved agency or other organization concerned with product evaluation that maintains periodic inspection of the production of the above-labeled items and whose labeling indicates either that the *equipment*, material or product meets identified standards or has been tested and found suitable for a specified purpose.

(ADM16-16 Part I)

**TOILET, GAS-FIRED**. ~~An~~ A packaged and completely assembled appliance~~, comprised of~~ containing a toilet ~~and an incinerator~~ that ~~is manufactured and installed as one complete unit, and is used to reduce human fecal matter to ash~~ incinerates refuse instead of flushing it away with water.

 (FG1-15 AM)

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

(FG3-15)

**FURNACE, CENTRAL**

A self-contained *appliance* for heating air by transfer of heat combustion through metal to the air, and designed to supply heated air through ducts to spaces remote from or adjacent to the *appliance* location.

**~~Downflow furnace.~~** ~~A furnace designed with airflow discharge vertically downward at or near the bottom of the~~ ~~furnace.~~

**~~Forced air furnace with cooling unit~~**~~. A single-package unit, consisting of a gas-fired forced-air furnace of one of~~ ~~the types listed below~~ ~~combined with an electrically or fuel gas-powered summer air-conditioning system, contained~~ ~~in a common casing.~~

**~~Forced-air type~~**~~. A central furnace equipped with a fan or blower that provides the primary means for circulation o~~f ~~air.~~

**~~Gravity furnace with booster fan.~~** ~~A furnace equipped with a booster fan that does not materially restrict free~~ ~~circulation of air by gravity flow~~ ~~when the fan is not in operation.~~

**~~Gravity type.~~** ~~A central furnace depending primarily on circulation of air by gravity.~~

~~Horizontal forced-air type. A furnace with airflow through the~~ *~~appliance~~* ~~essentially in a horizontal path.~~

**~~Multiple-position furnace.~~** ~~A furnace designed so that it can be installed with the airflow discharge in the upflow,~~ ~~horizontal or downflow~~ ~~direction~~.

**~~Upflow furnace.~~** ~~A furnace designed with airflow discharge vertically upward at or near the top of the furnace. This~~ ~~classification includes~~ ~~"highboy" furnaces with the blower mounted below the heating element and "lowboy"~~ ~~furnaces with the blower mounted beside the heating element.~~

(FG4-15)

**[M] PIPING.** Where used in this code, "*piping*" refers to either pipe or tubing, or both.

**Pipe.** A rigid conduit of iron, steel, copper, ~~brass~~ copper-alloy or plastic.

**Tubing**. Semirigid conduit of copper, aluminum, plastic or steel.

(FG5-15/FG43-15)

**REGULATOR, GAS APPLIANCE.** A pressure regulator for controlling pressure to the manifold of the *appliance*. ~~Types of~~ *~~appliance~~* ~~regulators are as~~ ~~follows:~~

**~~Adjustable.~~**

1. ~~Spring type, limited adjustment. A regulator in which the regulating force acting upon the diaphragm is~~ ~~derived principally from a spring, the loading of which is adjustable over a range of not more than 15~~ ~~percent of the outlet pressure at the midpoint of the adjustment range.~~

2. ~~Spring type, standard adjustment. A regulator in which the regulating force acting upon the diaphragm is~~ ~~derived principally from a spring, the loading of which is adjustable. The adjustment means shall be~~ ~~concealed.~~

**~~Multistage.~~** ~~A regulator for use with a single gas whose adjustment means is capable of being positioned manually~~ ~~or~~ ~~automatically to two or more predetermined outlet pressure settings. Each of these settings shall be adjustable or~~ ~~nonadjustable. The regulator may modulate outlet pressures automatically between its maximum and minimum~~ ~~predetermined~~ ~~outlet pressure settings.~~

**~~Nonadjustable.~~**

1. ~~Spring type, nonadjustable. A regulator in which the regulating force acting uponthe diaphragm is~~ ~~derived principally from a spring, the loading of which is not field adjustable.~~

2. ~~Weight type. A regulator in which the regulating force acting upon the diaphragm is derived from a~~ ~~weight or combination of weights~~**~~.~~**

(FG6-15)

**Regulator,** Monitoring. A pressure regulator set in series with another pressure regulator for the purpose of automatically taking control of the pressure downstream of the monitored regulator when that pressure exceeds a set minimum.

(FG7-15)

**Regulator, Series** A pressure regulator in series with one or more other pressure regulators.

(FG8-15)

**UNIT HEATER.**

**~~High-static pressure type.~~** ~~A self-contained, automatically controlled, vented~~ *~~appliance~~* ~~having integral~~ ~~means for~~ ~~circulation of air against 0.2 inch (15 mm H2O) or greater static pressure. Such~~ *~~appliance~~* ~~is~~ equipped with ~~provisions for attaching an outlet air duct and, where the~~ *~~appliance~~* ~~is for indoor installation~~ ~~remote from the space~~ ~~to be heated, is also equipped with provisions for attaching an inlet air duct.~~

**~~Low-static pressure type.~~** ~~A self-contained, automatically controlled, vented~~ *~~appliance~~*~~, intended for~~ ~~installation in~~ ~~the space to be heated without the use of ducts, having integral means for circulation of air.~~ ~~Such units are allowed~~ ~~to be equipped with louvers or face extensions made in accordance with the~~ ~~manufacturer's specifications.~~

A self-contained, automatically controlled, vented, fuel-gas-burning space-heating appliance, intended for installation in the space to be heated and having integral means for circulation of air.

(FG10-15 AMPC2)

**CHAPTER 3 GENERAL REGULATIONS**

***Revise as follows:***

**303.3 Prohibited locations.** Appliances shall not be located in sleeping rooms, bathrooms, toilet rooms, storage closets or surgical rooms, or in a space that opens only into such rooms or spaces, except where the installation complies with one of the following**:**

1. The *appliance* is a direct-vent *appliance* installed in accordance with the conditions of the listing and the manufacturer's instructions.

2. Vented room heaters, wall furnaces, vented decorative appliances, vented gas fireplaces, vented gas fireplace heaters and decorative appliances for installation in vented solid fuel- burning fireplaces are installed in rooms that meet the required volume criteria of Section 304.5.

3. A single wall-mounted unvented room heater is installed in a bathroom and such unvented room heater is equipped as specified in Section 621.6 and has an input rating not greater than 6,000 Btu/h (1.76 kW). The bathroom shall meet the required volume criteria of Section 304.5.

4. A single wall-mounted unvented room heater is installed in a bedroom and such unvented room heater is equipped as specified in Section 621.6 and has an input rating not greater than 10,000 Btu/h (2.93 kW). The bedroom shall meet the required volume criteria of Section 304.5.

5. The *appliance* is installed in a room or space that opens only into a bedroom or bathroom, and such room or space is used for no other purpose and is provided with a solid weather-stripped door equipped with an *approved* self-closing device. All *combustion air* shall be taken directly from the outdoors in accordance with Section 304.6.

6. A clothes dryer is installed in a residential bathroom or toilet room having a permanent opening with an area of not less than 100 square inches (0.06 m2) that communicates with a space outside of a sleeping room, bathroom, toilet room or storage closet.

(FG11-15 AM)

***Add new text as follows:***

**303.3.1 Fireplaces and decorative appliances in Group I-2, Condition 2 occupancies.** Gas fireplace appliances and decorative gas appliances shall be prohibited in Group I-2, Condition 2 occupancies except where such appliances are direct-vent appliances installed in public lobby and waiting areas that are not within smoke compartments containing patient sleeping areas. The appliance controls shall be located where they can be accessed only by facility staff. Such fireplaces shall comply with Sections 501.2 and 604.1 and Section 915 of the *Florida Fire Prevention Code*.

(FG12-15 AMPC1)

**304.5.3 Indoor opening size and location.** Openings used to connect indoor spaces shall be sized and located in accordance with Sections 304.5.3.1 and 304.5.3.2 (see Figure 304.5.3).

Correlation with NFPA – 304.5.3.1

 **304.5.3.1 Combining spaces on the same story.** Where combining spaces on the same story, each opening shall have a minimum free area of 1 square inch per ducts with the outdoors or spaces that freely communicate with the outdoors. 1,000 Btu/h (2200 mm2/kW) of the total input rating of all appliances in the space, but not less than 100 square inches (0.06 m2). One permanent opening shall commence within 12 inches (305 mm) of the top and one permanent opening shall commence within 12 inches (305 mm) of the bottom of the enclosure. The mini- mum dimension of air openings shall be not less than 3 inches (76 mm).

**(Correlation with NFPA)**

 **304.5.3.2 Combining spaces in different stories.** The volumes of spaces in different stories shall be considered to be communicating spaces where such spaces are connected by one or more permanent openings in doors or floors having a total minimum free area of 2 square inches per 1,000 Btu/h (4402 mm2/kW) of total input rating of all appliances.

Correlation with NFPA – 304.5.3.2

 **(Correlation with NFPA)**

**310.2 CSST.** This section applies to corrugated stainless steel tubing (CSST) that is not listed with an arc-resistant jacket or coating system in accordance with ANSI LC 1/CSA 6.26. CSST gas *piping* systems and piping systems containing one or more segments of CSST shall be electrically continuous and bonded to the electrical service grounding electrode sys- tem or, where provided, the lightning protection grounding electrode system.

Correlation with NFPA – 310.2

**310.2.1 Point of connection.** The bonding jumper shall connect to a metallic pipe, pipe fitting or CSST fitting.

**310.2.2 Size and material of jumper.** The bonding jumper shall be not smaller than 6 AWG copper wire or equivalent.

**(Correlation with NFPA)**

**310.2.3 Bonding jumper length.** The length of the bond- ing jumper between the connection to a gas piping system and the connection to a grounding electrode system shall not exceed 75 feet (22 860 mm). Any additional grounding electrodes installed to meet this requirement shall be bonded to the electrical service grounding electrode sys- tem or, where provided, the lightning protection grounding electrode system.

Correlation with NFPA – 310.2.3

**310.2.4 Bonding connections.** Bonding connections shall be in accordance with NFPA 70.

**310.2.5 Connection devices.** Devices used for making the bonding connections shall be listed for the application in accordance with UL 467.

**(Correlation with NFPA)**

**310.3 Arc-resistant CSST.** This section applies to corru- gated stainless steel tubing (CSST) that is listed with an arc- resistant jacket or coating system in accordance with ANSI LC 1/CSA 6.26. The CSST shall be electrically continuous and bonded to an effective ground fault current path. Where any CSST component of a piping system does not have an arc-resistant jacket or coating system, the bonding require- ments of Section 310.2 shall apply. Arc-resistant-jacketed CSST shall be considered to be bonded where it is connected to an appliance that is connected to the appliance grounding conductor of the circuit that supplies that appliance.

Correlation with NFPA – 310.3

**(Correlation with NFPA)**

Chapter 4 **GAS PIPING INSTALLATIONS**

**402.3 Sizing.** Gas *piping* shall be sized in accordance with one of the following:

1. Pipe sizing tables or sizing equations in accordance with Section 402.4 or 402.5 as applicable.

2. The sizing tables included in a *listed piping* system’s manufacturer’s installation instructions.

3. Other *approved* engineering methods.

Correlation with NFPA – 402.4

**402.4 Sizing tables and equations.** This section applies to piping materials other than noncorrugated stainless steel tub- ing. Where Tables 402.4(1) through 402.4(37) are used to size *piping* or tubing, the pipe length shall be determined in accordance with Section 402.4.1, 402.4.2 or 402.4.3.

Where Equations 4-1 and 4-2 are used to size *piping* or tubing, the pipe or tubing shall have smooth inside walls and the pipe length shall be determined in accordance with Sec- tion 402.4.1, 402.4.2 or 402.4.3.

 No change to the remaining text

**(Correlation with NFPA)**

**402.5 Noncorrugated stainless steel tubing.** Noncorrugated stainless steel tubing shall be sized in accordance with Equations 4-1 and 4-2 of Section 402.4 in conjunction with Section 402.4.1, 402.4.2 or 402.4.3.

Correlation with NFPA – 402.5

**(Correlation with NFPA)**

**402.7 Maximum operating pressure.** The maximum operating pressure for *piping* systems located inside buildings shall not exceed 5 pounds per square inch gauge (psig) (34 kPa gauge) except where one or more of the following conditions are met:

Correlation with NFPA – 402.7 (1) and (2)

1. The *piping* joints are welded or brazed.

2. The piping joints are flanged and pipe-to-flange connections are made by welding or brazing.

3. The *piping* is located in a ventilated chase or otherwise enclosed for protection against accidental gas accumulation.

**(Correlation with NFPA)**

**402.7.1 Operation below -5°F (-21°C).** LP-gas systems designed to operate below -5°F (-21°C) or with butane or a propane-butane mix shall be designed to either accommodate liquid LP-gas or prevent LP-gas vapor from condens- ing into a liquid

Correlation with NFPA – 402.7.1

**(Correlation with NFPA)**

|  |  |
| --- | --- |
| **Gas** | Natural |
| **Inlet Pressure** | Less than 2 psi |
| **Pressure Drop** | 3.0 in. w.c. |
| **Specific Gravity** | 0.60 |

 **Table 402.4(16)**

Correlation with NFPA – Table 402.4(16)

 **Corrugated Stainless Steel Tubing**

|  |
| --- |
| **INTENDED USE: INITIAL SUPPLY PRESSURE OF 8.0-INCH W.C. OR GREATER** |
| **TUBE SIZE (EHD)** |
| **Flow****Designation** | **13** | **15** | **18** | **19** | **23** | **25** | **30** | **31** | **37** | **39** | **46** | **48** | **60** | **62** |
| **Length (ft)** | **Capacity in Cubic Feet of Gas Per Hour** |
| 5 | 120 | 160 | 277 | 327 | 529 | 649 | 1,180 | 1,370 | 2,140 | 2,423 | 4,430 | 5,010 | 8,800 | 10,100 |
| 10 | 83 | 112 | 197 | 231 | 380 | 462 | 828 | 958 | 1,530 | 1,740 | 3,200 | 3,560 | 6,270 | 7,160 |
| 15 | 67 | 90 | 161 | 189 | 313 | 379 | 673 | 778 | 1,250 | 1,433 | 2,540 | 2,910 | 5,140 | 5,850 |
| 20 | 57 | 78 | 140 | 164 | 273 | 329 | 580 | 672 | 1,090 | 1,249 | 2,200 | 2,530 | 4,460 | 5,070 |
| 25 | 51 | 69 | 125 | 147 | 245 | 295 | 518 | 599 | 978 | 1,123 | 1,960 | 2,270 | 4,000 | 4,540 |
| 30 | 46 | 63 | 115 | 134 | 225 | 270 | 471 | 546 | 895 | 1,029 | 1,790 | 2,070 | 3,660 | 4,140 |
| 40 | 39 | 54 | 100 | 116 | 196 | 234 | 407 | 471 | 778 | 897 | 1,550 | 1,800 | 3,180 | 3,590 |
| 50 | 35 | 48 | 89 | 104 | 176 | 210 | 363 | 421 | 698 | 806 | 1,380 | 1,610 | 2,850 | 3,210 |
| 60 | 32 | 44 | 82 | 95 | 161 | 192 | 330 | 383 | 639 | 739 | 1,260 | 1,470 | 2,600 | 2,930 |
| 70 | 29 | 41 | 76 | 88 | 150 | 178 | 306 | 355 | 593 | 686 | 1,170 | 1,360 | 2,420 | 2,720 |
| 80 | 27 | 38 | 71 | 82 | 141 | 167 | 285 | 331 | 555 | 644 | 1,090 | 1,280 | 2,260 | 2,540 |
| 90 | 26 | 36 | 67 | 77 | 133 | 157 | 268 | 311 | 524 | 609 | 1,030 | 1,200 | 2,140 | 2,400 |
| 100 | 24 | 34 | 63 | 73 | 126 | 149 | 254 | 295 | 498 | 579 | 974 | 1,140 | 2,030 | 2,280 |
| 150 | 19 | 27 | 52 | 60 | 104 | 122 | 206 | 240 | 409 | 477 | 793 | 936 | 1,660 | 1,860 |
| 200 | 17 | 23 | 45 | 52 | 91 | 106 | 178 | 207 | 355 | 415 | 686 | 812 | 1,440 | 1,610 |
| 250 | 15 | 21 | 40 | 46 | 82 | 95 | 159 | 184 | 319 | 373 | 613 | 728 | 1,290 | 1,440 |
| 300 | 13 | 19 | 37 | 42 | 75 | 87 | 144 | 168 | 234 | 342 | 559 | 665 | 1,180 | 1,320 |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square inch = 6.895 kPa, 1-inch water column = 0.2488 kPa, 1 British thermal unit per hour = 0.2931 W, 1 cubic foot per hour = 0.0283 m3/h, 1 degree = 0.01745 rad.

**Notes:**

1. Table includes losses for four 90-degree bends and two end fittings. Tubing runs with larger numbers of bends or fittings shall be increased by an equivalent length of tubing to the following equation:

*L* = 1.3*n* where *L* is additional length (feet) of tubing and *n* is the number of additional fittings or bends.

2. EHD—Equivalent Hydraulic Diameter, which is a measure of the relative hydraulic efficiency between different tubing sizes. The greater the value of EHD, the greater the gas capacity of the tubing.

3. Table entries have been rounded to three significant digits.

**(Correlation with NFPA)**

|  |  |
| --- | --- |
| **Gas** | Natural |
| **Inlet Pressure** | Less than 2 psi |
| **Pressure Drop** | 6.0 in. w.c. |
| **Specific Gravity**Correlation with NFPA – Table 402.4(17) | 0.60 |

 **GAS PIPING INSTALLATIONS**

 **Table 402.4(17)**

 **Corrugated Stainless Steel Tubing**

|  |
| --- |
| **INTENDED USE: INITIAL SUPPLY PRESSURE OF 11.0-INCH W.C. OR GREATER** |
| **TUBE SIZE (EHD)** |
| **Flow****Designation** | **13** | **15** | **18** | **19** | **23** | **25** | **30** | **31** | **37** | **39** | **46** | **48** | **60** | **62** |
| **Length (ft)** | **Capacity in Cubic Feet of Gas Per Hour** |
| 5 | 173 | 229 | 389 | 461 | 737 | 911 | 1,690 | 1,950 | 3,000 | 3,375 | 6,280 | 7,050 | 12,400 | 14,260 |
| 10 | 120 | 160 | 277 | 327 | 529 | 649 | 1,180 | 1,370 | 2,140 | 2,423 | 4,430 | 5,010 | 8,800 | 10,100 |
| 15 | 96 | 130 | 227 | 267 | 436 | 532 | 960 | 1,110 | 1,760 | 1,996 | 3,610 | 4,100 | 7,210 | 8,260 |
| 20 | 83 | 112 | 197 | 231 | 380 | 462 | 828 | 958 | 1,530 | 1,740 | 3,120 | 3,560 | 6,270 | 7,160 |
| 25 | 74 | 99 | 176 | 207 | 342 | 414 | 739 | 855 | 1,370 | 1,564 | 2,790 | 3,190 | 5,620 | 6,400 |
| 30 | 67 | 90 | 161 | 189 | 313 | 379 | 673 | 778 | 1,250 | 1,433 | 2,540 | 2,910 | 5,140 | 5,850 |
| 40 | 57 | 78 | 140 | 164 | 273 | 329 | 580 | 672 | 1,090 | 1,249 | 2,200 | 2,530 | 4,460 | 5,070 |
| 50 | 51 | 69 | 125 | 147 | 245 | 295 | 518 | 599 | 978 | 1,123 | 1,960 | 2,270 | 4,000 | 4,540 |
| 60 | 46 | 63 | 115 | 134 | 225 | 270 | 471 | 546 | 895 | 1,029 | 1,790 | 2,070 | 3,660 | 4,140 |
| 70 | 42 | 58 | 106 | 124 | 209 | 250 | 435 | 505 | 830 | 956 | 1,660 | 1,920 | 3,390 | 3,840 |
| 80 | 39 | 54 | 100 | 116 | 196 | 234 | 407 | 471 | 778 | 897 | 1,550 | 1,800 | 3,180 | 3,590 |
| 90 | 37 | 51 | 94 | 109 | 185 | 221 | 383 | 444 | 735 | 848 | 1,460 | 1,700 | 3,000 | 3,390 |
| 100 | 35 | 48 | 89 | 104 | 176 | 210 | 363 | 421 | 698 | 806 | 1,380 | 1,610 | 2,850 | 3,210 |
| 150 | 28 | 39 | 73 | 85 | 145 | 172 | 294 | 342 | 573 | 664 | 1,130 | 1,320 | 2,340 | 2,630 |
| 200 | 24 | 34 | 63 | 73 | 126 | 149 | 254 | 295 | 498 | 579 | 974 | 1,140 | 2,030 | 2,280 |
| 250 | 21 | 30 | 57 | 66 | 114 | 134 | 226 | 263 | 447 | 520 | 870 | 1,020 | 1,820 | 2,040 |
| 300 | 19 | 27 | 52 | 60 | 104 | 122 | 206 | 240 | 409 | 477 | 793 | 936 | 1,660 | 1,860 |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square inch = 6.895 kPa, 1-inch water column = 0.2488 kPa, 1 British thermal unit per hour = 0.2931 W, 1 cubic foot per hour = 0.0283 m3/h, 1 degree = 0.01745 rad.

**Notes:**

1. Table includes losses for four 90-degree bends and two end fittings. Tubing runs with larger numbers of bends or fittings shall be increased by an equivalent length of tubing to the following equation:

*L* = 1.3*n* where *L* is additional length (feet) of tubing and *n* is the number of additional fittings or bends.

2. EHD—Equivalent Hydraulic Diameter, which is a measure of the relative hydraulic efficiency between different tubing sizes. The greater the value of EHD, the greater the gas capacity of the tubing.

3. Table entries have been rounded to three significant digits.

**(Correlation with NFPA)**

**403.4 Metallic pipe.** Metallic pipe shall comply with Sec- tions 403.4.1 through 403.4.4.

Correlation with NFPA – 403.4.2 and (1)-(3)

**403.4.1 Cast iron.** Cast-iron pipe shall not be used.

**403.4.2 Steel**. Steel, stainless steel and wrought-iron pipe shall be not lighter than Schedule 10 and shall comply with the dimensional standards of ASME B36.10M and one of the following standards:

 1. ASTM A53/A53M.

 2. ASTM A106.

 3. ASTM A312.

**(Correlation with NFPA)**

Correlation with NFPA – Table 403.5.2

**403.5 Metallic tubing.** Tubing shall not be used with gases corrosive to the tubing material.

**403.5.1 Steel tubing.** Steel tubing shall comply with ASTM A254.

**403.5.2 Stainless steel.** Stainless steel tubing shall comply with ASTM A268 or ASTM A269.

**403.5.3 Copper and copper alloy tubing.** Copper tubing shall comply with Standard Type K or L of ASTM B88 or ASTM B280.

Copper and copper alloy tubing shall not be used if the gas contains more than an average of 0.3 grains of hydro- gen sulfide per 100 standard cubic feet of gas (0.7 milli- grams per 100 liters).

**(Correlation with NFPA)**

Correlation with NFPA – Table 403.6

**403.6 Plastic pipe, tubing and fittings.** Polyethylene plastic pipe, tubing and fittings used to supply fuel gas shall conform to ASTM D2513. Such pipe shall be marked “Gas” and “ASTM D2513.”

Polyamide pipe, tubing and fittings shall be identified and conform to ASTM F2945. Such pipe shall be marked “Gas” and “ASTM F2945.”

Polyvinyl chloride (PVC) and chlorinated polyvinyl chlo- ride (CPVC) plastic pipe, tubing and fittings shall not be used to supply fuel gas.

**(Correlation with NFPA)**

**403.10 Metallic piping joints and fittings.** The type of *pip- ing* joint used shall be suitable for the pressure-temperature conditions and shall be selected giving consideration to joint tightness and mechanical strength under the service conditions. The joint shall be able to sustain the maximum end force caused by the internal pressure and any additional forces caused by temperature expansion or contraction, vibration, fatigue or the weight of the pipe and its contents.

Correlation with NFPA – 403.10

 **403.10.1 Pipe joints.** Schedule 40 and heavier pipe joints shall be threaded, flanged, brazed, welded or assembled with press-connect fittings listed in accordance with ANSI LC4/CSA 6.32. Pipe lighter than Schedule 40 shall be connected using press-connect fittings, flanges, brazing or welding. Where nonferrous pipe is brazed, the brazing materials shall have a melting point in excess of 1,000°F (538°C). Brazing alloys shall not contain more than 0.05- percent phosphorus.

 **403.10.2 Copper tubing joints.** Copper tubing joints shall be assembled with *approved* gas tubing fittings, shall be brazed with a material having a melting point in excess of 1,000°F (538°C) or assembled with press-connect fittings listed in accordance with ANSI LC-4/CSA 6.32. Brazing alloys shall not contain more than 0.05-percent phosphorus.

 **403.10.3 Stainless steel tubing joints.** Stainless steel tub- ing joints shall be welded, assembled with approved tub- ing fittings, brazed with a material having a melting point in excess of 1,000°F (578°C), or assembled with press- connect fittings listed in accordance with ANSI LC4/CSA 6.32.

**(Correlation with NFPA)**

***Revise as follows:***

**404.11 Protection against corrosion. ~~Metallic~~**

Steel pipe or tubing exposed to corrosive action, such as soil condition or moisture, shall be protected in ~~an~~ *~~approved~~* ~~manner. Zinc coatings (galvanizing) shall not be deemed adequate protection for gas~~ *~~piping~~* ~~underground. Where~~ ~~dissimilar metals are joined underground, an insulating coupling or fitting shall be used.~~ *~~Piping~~* ~~shall not be laid in~~ ~~contact~~ accordance with ~~cinders~~ Sections 404.11.1 through 404.11.5.

**Add new text as follows:**

404.11.1 Galvanizing Zinc coating shall not be deemed adequate protection for underground gas piping.

404.11.2 Protection methods. Underground piping shall comply with one or more of the following:

1. The piping shall be made of corrosion-resistant material that is suitable for the environment in which it will be installed.

2. Pipe shall have a factory-applied, electrically-insulating coating. Fittings and joints between sections of coated pipe shall be coated in accordance with the coating manufacturer's instructions.

3. The piping shall have a cathodic protection system installed and the system shall be monitored and maintained in accordance with an approved program.

***Delete without substitution:***

~~404.11.2~~ **~~Protective coatings and wrapping.~~** ~~Pipe protective coatings and wrappings shall be~~ *~~approved~~* ~~for the~~ ~~application and shall be factory applied.~~

**~~Exception:~~** ~~Where installed in accordance with the manufacturer's instructions, field application of coatings~~ ~~and~~ ~~wrappings shall be permitted for pipe nipples, fittings and locations where the factory coating or wrapping~~ ~~has~~ ~~been damaged or necessarily removed at joints.~~

***Add new text as follows:***

**~~404.11.3~~ Dissimilar metals.** Where dissimilar metals are joined underground, an insulating coupling or fitting shall be used.

**~~404.11.4~~ Protection of risers.** Steel risers connected to plastic piping shall be cathodically protected by means of a welded anode, except where such risers are anodeless risers.

***Revise as follows*:**

**~~404.11.1~~404.11.5 Prohibited use.** *No change to text.*

(FG24-15)

***Revise as follows:***

**404.14 Piping underground beneath buildings.** *Piping* installed underground beneath buildings is prohibited except where the *piping* is encased in a conduit of wrought iron, plastic pipe, steel pipe, a piping or encasement system listed ~~or~~ for installation beneath buildings, or other *approved* conduit material designed to withstand the superimposed loads. The conduit shall be protected from corrosion in accordance with Section 404.11 and shall be installed in accordance with Section 404.14.1 or

404.14.2.

(FG25-15 AM)

**404.17.3 Tracer.** A yellow insulated copper tracer wire or other *approved* conductor, or a product specifically designed for that purpose, shall be installed adjacent to underground nonmetallic *piping*. *Access* shall be provided above ground at each end of the nonmetallic *piping*. The tracer wire size shall be not less than 18 AWG and the insulation type shall be suitable for direct burial.

(FG26-15)

**406.2 Test medium.** The test medium shall be air, nitrogen, carbon dioxide or an inert gas. Oxygen shall not be used as a test medium.

Correlation with NFPA – 406.2

**(Correlation with NFPA)**

**409.5.1 Located within same room.** The shutoff valve 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*. Shutoff valves serving movable appliances, such as cooking appliances and clothes dryers, shall be considered to be provided with access where installed behind such appliances. *Appliance* shutoff valves located in the firebox of a *fireplace* shall be installed in accordance with the *appliance* manufacturer's instructions.

(FG29-15)

**409.7 Shutoff valves in tubing systems.** Shutoff valves installed in tubing systems shall be rigidly and securely supported independently of the tubing.

(FG31-15)

***Revise as follows:***

**410.2 MP regulators.** MP pressure regulators shall comply with the following:

1. The MP regulator shall be *approved* and shall be suitable for the inlet and outlet gas pressures for the application.

2. The MP regulator shall maintain a reduced outlet pressure under lock-up (no-flow) conditions.

3. The capacity of the MP regulator, determined by published ratings of its manufacturer, shall be adequate to supply the *appliances* served.

4. The MP pressure regulator shall be provided with *access.* Where located indoors, the regulator shall be vented to the outdoors or shall be equipped with a leaklimiting device, in either case complying with Section 410.3.

5. A tee fitting with one opening capped or plugged shall be installed between the MP regulator and its upstream shutoff valve. Such tee fitting shall be positioned to allow connection of a pressure- measuring instrument and to serve as a sediment trap.

6.A tee fitting with one opening capped or plugged shall be installed not less than 10 pipe diameters downstream of the MP regulator outlet. Such tee fitting shall be positioned to allow connection of a pressure-measuring instrument. The tee fitting is not required where the MP regulator serves an appliance that has a pressure test port on the gas control inlet side and the appliance is located in the same room as the MP regulator.

7. Where connected to rigid piping, a union shall be installed within 1 foot(304mm) of either side of the MP regulator.

(FG32-15 AM)

**410.4 Excess flow valves**. Where automatic *excess flow valves* are installed, they shall be listed ~~for the application~~ in accordance with ANSI Z21.93/CSA 6.30, and shall be sized and installed in accordance with the

manufacturer's instructions.

(FG33-15)

**411.1 Except as required by Section 411.1.1, *appliances* shall be connected to *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 *applianc*e 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 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* outdoor *appliance* connectors in compliance with ANSI Z21.75/CSA 6.27 and installed in accordance with the manufacturer's instructions.

8. Listed outdoor gas hose connectors in compliance with ANSI Z21.54 used to connect portable outdoor appliances. The gas hose connection shall be made only in the outdoor area where the appliance is used, and shall be to the gas *piping* supply at an appliance shutoff valve, a listed quick- disconnect device or listed gas convenience outlet.

9. Gas hose connectors for use in laboratories and educational facilities in accordance with Section 411.4

***Add new text as follows:***

**411.4 Injection Bunsen-type burners Injection** Bunsen-type burners used in laboratories and educational

facilities shall be connected to the gas supply system by either a listed or unlisted hose.

(FG34-15)

**[F] 413.2.3 General.** Residential fueling *appliance*s shall be in accordance with Section 413.4.

Correlation with NFPA – 413.2.3

**(Correlation with NFPA)**

**[F] 413.3 Location of dispensing operations and equipment.** Compression, storage and dispensing *equipment* shall be located outdoors, above ground.

Correlation with NFPA – 413.3, Exception (1),(2)

**Exceptions:**

1. Compression, storage or dispensing *equipment* is not prohibited in buildings where such buildings are of noncombustible construction as set forth in the *International Building Code* and are unenclosed for not less than three-quarters of their perimeter.

2. Compression, storage and dispensing *equipment* is allowed to be located indoors or in vaults in accordance with the *International Fire Code*.

**(Correlation with NFPA)**

**[F] 413.4.1 Listing and installation.** Residential fueling appliances shall be listed in accordance with ANSI NGV 5.1. Residential fueling appliances shall be installed in accordance with the appliance manufacturer’s installation instructions.

Correlation with NFPA – 413.4.1, 413.4.2, 413.4.3

**[F] 413.4.2 Gas connection.** Residential fueling appliances shall not be rigidly connected to the gas supply pip- ing.

**[F] 413.4.3 Indoor installation.** A residential fueling appliance installed indoors or used for indoor fueling shall comply with all of the following:

1. The capacity shall not exceed 5 cubic feet per minute (0.14 m3/min) of natural gas.

2. Fuel gas from the pressure relief and blowdown systems shall be vented to the outdoors.

3. A methane gas detector shall be installed in the room or space containing the appliance or where fueling occurs and shall be located not lower than 6 inches (152 mm) from the highest point in the room or space. The detector shall be set to activate at one- fifth of the lower limit of flammability of natural gas and shall be interlocked with the residential fuel appliance to stop or prevent its operation upon activation. The detector shall have an audible or visible alarm.

4. The capacity of a residential fueling appliance installed outdoors for outdoor fueling shall not exceed 10 feet cubic per minute (0.28 m3/min) of natural gas. Residential fueling appliances located outdoors shall be installed on a firm, noncombustible base.

**(Correlation with NFPA)**

**416.3 Overpressure protection devices.** Overpressure protection devices shall be one of the following:

Correlation with NFPA – 416.3

 1. Pressure relief valve.

 2. Monitoring regulator.

3. Series regulator installed upstream from the line regulator and set to continuously limit the pressure on the inlet of the line regulator to the maximum values specified by Section 416.2.1.

 4. Automatic shutoff device installed in series with the line pressure regulator and set to shut off when the pressure on the downstream *piping* system reaches the maximum values specified by Section 416.2.1. This device shall be designed so that it will remain closed until manually reset.

 The devices specified in this section shall be installed either as an integral part of the service or line pressure regulator or as separate units. Where separate overpressure protection devices are installed, they shall comply with Sections

416.3.1 through 416.3.6.

**(Correlation with NFPA)**

**416.3.1 Construction and installation.** Overpressure protection devices shall be constructed of materials so that the operation of the devices will not be impaired by corrosion of external parts by the atmosphere or of internal parts by the gas. Overpressure protection devices shall be designed and installed so that they can be operated to determine whether the valve is free. The devices shall be designed and installed so that they can be tested to determine the pressure at which they will operate and examined for leak- age when in the closed position.

Correlation with NFPA – 416.3.1, 416.3.3, 416.3.4, 416.3.5

**416.3.2 External control piping.** External control *piping* shall be designed and installed so that damage to the control *piping* of one device will not render both the regulator and the overpressure protection device inoperative.

**416.3.3 Setting.** Each overpressure protection device shall be set so that the gas pressure supplied to the connected appliances does not exceed the limits specified in Sections

416.2.1 and 416.2.2.

**416.3.4 Unauthorized operation.** Where unauthorized operation of any shutoff valve could render an overpressure protection device inoperative, one of the following shall be accomplished:

 1. The valve shall be locked in the open position. Authorized personnel shall be instructed in the importance of leaving the shutoff valve open and of being present while the shutoff valve is closed so that it can be locked in the open position before leaving the premises.

 2. Duplicate relief valves shall be installed, each having adequate capacity to protect the system, and the isolating valves and three-way valves shall be arranged so that only one relief valve can be rendered inoperative at a time.

**416.3.5 Vents.** The discharge stacks, vents and outlet parts of all overpressure protection devices shall be located so that gas is safely discharged to the outdoors. Discharge stacks and vents shall be designed to prevent the entry of water, insects and other foreign material that could cause blockage. The discharge stack or vent line shall be not less than the same size as the outlet of the pressure-relieving device.

**(Correlation with NFPA)**

Chapter 5 **CHIMNEYS AND VENTS**

**503.2 Venting systems required.** Except as permitted in Sections 501.8 and 503.2.1 through 503.2.4, all appliances shall be connected to venting systems.

Correlation with NFPA – 503.2.1, 503.2.2

**503.2.1 Ventilating hoods.** The use of ventilating hoods and exhaust systems to vent appliances shall be limited to industrial appliances and appliances installed in commercial applications.

**503.2.2 Well-ventilated spaces.** The flue gases from industrial-type appliances shall not be required to be vented to the outdoors where such gases are discharged into a large and well-ventilated industrial space.

**(Correlation with NFPA)**

**503.3.3 Mechanical draft systems.** Mechanical draft systems shall comply with the following:

Correlation with NFPA – 503.3.3

1. Mechanical draft systems shall be *listed* in accordance with UL 378 and shall be installed in accordance with the manufacturer’s instructions for both the *appliance* and the mechanical draft system.

**(Correlation with NFPA)**

**503.3.4 Ventilating hoods and exhaust systems.** Where automatically operated appliances, other than commercial cooking appliances, are vented through a ventilating hood or exhaust system equipped with a damper or with a power means of exhaust, provisions shall be made to allow the flow of gas to the main burners only when the damper is open to a position to properly vent the *appliance* and when the power means of exhaust is in operation.

Correlation with NFPA – 503.3.4

**(Correlation with NFPA)**

**503.4.1 Plastic piping.** Where plastic piping is used to vent an appliance, the appliance shall be listed for use with such venting materials and the appliance manufacturer’s installation instructions shall identify the specific plastic piping material. The plastic pipe venting materials shall be labeled in accordance with the product standards specified by the appliance manufacturer or shall be listed and labeled in accordance with UL 1738.

Correlation with NFPA – 503.3.4.1, 503.4.2

**503.4.1.1 Plastic vent joints.** Plastic pipe and fittings used to vent appliances shall be installed in accordance with the *appliance* manufacturer’s instructions. Plastic pipe venting materials *listed* and labeled in accordance with UL 1738 shall be installed in accordance with the vent manufacturer’s instructions. Where a primer is required, it shall be of a contrasting color.

**503.4.2 Special gas vent.** Special gas vent shall be *listed* and labeled in accordance with UL 1738 and installed in accordance with the special gas vent manufacturer’s instructions.

**503.5.1 Factory-built chimneys.** Factory-built chimneys shall be *listed* in accordance with UL 103 and installed in accordance with the manufacturer’s instructions. Factory- built chimneys used to vent appliances that operate at a positive vent pressure shall be *listed* for such application.

Correlation with NFPA – 503.5.1

**(Correlation with NFPA)**

**503.5.3 Masonry chimneys.** Masonry chimneys shall be built and installed in accordance with NFPA 211 and shall be lined with an *approved* clay flue lining, a chimney lining system *listed* and labeled in accordance with UL 1777 or other *approved* material that will resist corrosion, erosion, softening or cracking from vent gases at temperatures up to 1,800°F (982°C).

Correlation with NFPA – 503.5.3

**(Correlation with NFPA)**

**TABLE 503.4**

**TYPE OF VENTING SYSTEM TO BE USED**

Correlation with NFPA – Table 503.4

|  |  |
| --- | --- |
| **APPLIANCES** | **TYPE OF VENTING SYSTEM** |
| Listed Category I appliancesListed appliances equipped with draft hood Appliances listed for use with Type B gas vent | Type B gas vent (Section 503.6) Chimney (Section 503.5)Single-wall metal pipe (Section 503.7)Listed chimney lining system for gas venting (Section 503.5.3) Special gas vent listed for these appliances (Section 503.4.2) |
| Listed vented wall furnaces | Type B-W gas vent (Sections 503.6, 608) |
| Category II, Category III and Category IV appliances | As specified or furnished by manufacturers of listed appliances (Sections 503.4.1, 503.4.2) |
| Incinerators | In accordance with NFPA 82 |
| Appliances that can be converted for use with solid fuel | Chimney (Section 503.5) |
| Unlisted combination gas and oil-burning appliances | Chimney (Section 503.5) |
| Listed combination gas and oil-burning appliances | Type L vent (Section 503.6) or chimney (Section 503.5) |
| Combination gas and solid fuel-burning appliances | Chimney (Section 503.5) |
| Appliances listed for use with chimneys only | Chimney (Section 503.5) |
| Unlisted appliances | Chimney (Section 503.5) |
| Decorative appliances in vented fireplaces | Chimney |
| Gas-fired toilets | Single-wall metal pipe (Section 626) |
| Direct-vent appliances | See Section 503.2.3 |
| Appliances with integral vent | See Section 503.2.4 |

**(Correlation with NFPA)**

**503.5.6.2 Cleanouts.** Cleanouts shall be examined and where they do not remain tightly closed when not in use, they shall be repaired or replaced.

Correlation with NFPA – 503.5.6.2

**(Correlation with NFPA)**

**503.5.7.4 Combination gas- and oil fuel-burning appliances.** Where a single chimney flue serves a *listed* combination gas- and oil fuel-burning *appliance,* such flue shall be sized in accordance with appliance manufacturer’s instructions

Correlation with NFPA – 503.5.7.4

**(Correlation with NFPA)**

**503.5.11 Insulation shield.** Where a factory-built chimney passes through insulated assemblies, an insulation shield constructed of steel having a thickness of not less than 0.0187 inch (0.475 mm) shall be installed to provide clearance between the chimney and the insulation material. The clearance shall be not less than the clearance to combustibles specified by the chimney manufacturer’s installation instructions. Where chimneys pass through attic space, the shield shall terminate not less than 2 inches (51 mm) above the installation materials and shall be secured in place to prevent displacement. Insulation shields provided as part of a listed chimney system shall be installed in accordance with the manufacturer’s installation instructions.

Correlation with NFPA – 503.5.11

**(Correlation with NFPA)**

**503.6.1 Materials.** Type B and BW gas vents shall be listed in accordance with UL 441. Vents for listed combination gas- and oil-burning appliances shall be listed in accordance with UL 641.

Correlation with NFPA – 503.6.1

**(Correlation with NFPA)**

**503.7.7 Single-wall penetrations of combustible walls.** A single-wall metal pipe shall not pass through a combustible exterior wall unless guarded at the point of passage by a ventilated metal thimble not smaller than the following:

Correlation with NFPA – 503.7.7 Exception

1. For *listed* appliances with draft hoods and appliances *listed* for use with Type B gas vents, the thimble shall be not less than 4 inches (102 mm) larger in diameter than the metal pipe. Where there is a run of not less than 6 feet (1829 mm) of metal pipe in the open between the draft hood outlet and the thimble, the thimble shall be permitted to be not less than 2 inches (51 mm) larger in diameter than the metal pipe.

2. For unlisted appliances having draft hoods, the thimble shall be not less than 6 inches (152 mm) larger in diameter than the metal pipe.

3. For residential and low-heat appliances, the thimble shall be not less than 12 inches (305 mm) larger in diameter than the metal pipe.

**Exception:** In lieu of thimble protection, all *combustible material* in the wall shall be removed a sufficient distance from the metal pipe to provide the specified *clearance* from such metal pipe to *combustible material*. Any material used to close up such opening shall be noncombustible.

**(Correlation with NFPA)**

**503.8 Venting system termination location.** The location of venting system terminations shall comply with the following (see Appendix C):

Correlation with NFPA – 503.8

1. A mechanical draft venting system shall terminate not less than 3 feet (914 mm) above any forced-air inlet

located within 10 feet (3048 mm).

**Exceptions:**

1. This provision shall not apply to the *combustion air* intake of a direct-vent *appliance*.

2. This provision shall not apply to the separation of the integral outdoor air inlet and flue

gas discharge of *listed* outdoor appliances.

2. A mechanical draft venting system, excluding *direct-vent appliances*, shall terminate not less than 4 feet

(1219 mm) below, 4 feet (1219 mm) horizontally from, or 1 foot (305 mm) above any door, operable window

or gravity air inlet into any building. The bottom of the vent terminal shall be located not less than 12 inches

(305 mm) above finished ground level. 3. The clearances for through-the-wall, direct-vent terminals

shall be in accordance with Table 503.8. The bottom of the vent terminal and the air intake shall be

located not less than 12 inches (305 mm) above finished ground level.

4. Through-the-wall vents for Category II and IV appliances and noncategorized condensing appliances shall

not terminate over public walkways or over an area where condensate or vapor could create a nuisance or

hazard or could be detrimental to the operation of regulators, relief valves or other *equipment*. Where local

experience indicates that condensate is a problem with Category I and III appliances, this provision shall also

apply. Drains for condensate shall be installed in accordance with the appliance and vent manufacturers’

instructions.

5. Vent systems for Category IV appliances that terminate through an outside wall of a building and discharge flue gases perpendicular to the adjacent wall shall be located not less than 10 feet (3048 mm) horizontally

from an operable opening in an adjacent building. This requirement shall not apply to vent terminals that are 2

feet (607 mm) or more above or 25 feet (7620 mm) or more below operable openings.

**(Correlation with NFPA)**

**TABLE 503.8 THROUGH-THE-WALL,**

**DIRECT-VENT TERMINATION CLEARANCES**

|  |  |
| --- | --- |
| **DIRECT-VENT APPLIANCE INPUT RATING**Correlation with NFPA – Table 503.8**(Btu/hr)** | **THROUGH-THE-WALL VENT TERMINAL CLEARANCE FROM ANY AIR OPENING INTO THE BUILDING****(inches)** |
| < 10,000 | 6 |
|  10,000  50,000 | 9 |
| > 50,000  150,000 | 12 |
| > 150,000 | In accordance with the appliance manufacturer’s instructions and not less than the clearances specified in Section 503.8, Item 2 |

 For SI: 1 inch = 25.4 mm, 1 Btu/h = 0.2931 W.

**(Correlation with NFPA)**

**[M] 614.4 Exhaust installation.** Exhaust ducts for clothes dryers shall terminate on the outside of the building and shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination. Ducts shall not be connected or installed with sheet metal screws or other fasteners that will obstruct the flow. Clothes dryer exhaust ducts shall not be connected to a vent connector, vent or chimney. Clothes dryer exhaust ducts shall not extend into or through ducts or plenums. Clothes dryer exhaust ducts shall be sealed in accordance with Section 603.9 of the *International Mechanical Code*.

Correlation with NFPA – 614.4

 **614.4.1 Exhaust termination outlet and passageway.** The passageway of dryer exhaust duct terminals shall be undiminished in size and shall provide an open area of not less than 12.5 square inches (8065 mm2).

**(Correlation with NFPA)**

**[M] 614.8.2 Duct installation.** Exhaust ducts shall be sup- ported at 4-foot (1219 mm) intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude more than 1/8 inch (3.2 mm) into the inside of the duct. Where dryer exhaust ducts are enclosed in wall or ceiling cavities, such cavities shall allow the installation of the duct without deformation.

Correlation with NFPA – 614.8.2

**(Correlation with NFPA)**

Chapter 6 **SPECIFIC APPLIANCES**

**Revise as follows:**

**[M] 614.10 Common exhaust systems for clothes dryers located in multistory structures.** Where a common multistory duct system is designed and installed to convey exhaust from multiple clothes dryers, the construction of such system shall be in accordance with all of the following:

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

2. Dampers shall be prohibited in the exhaust duct. Penetrations of the shaft and ductwork shall be protected in accordance with Section 607.5.5, Exception 2, of the *International Mechanical Code*.

3. Rigid metal ductwork shall be installed within the shaft to convey the exhaust. The ductwork shall be constructed of sheet steel having a minimum thickness of 0.0187 inch (0.471 mm) (No. 26 gage) and in accordance with SMACNA *Duct Construction Standards*.

4. The ductwork within the shaft shall be designed and installed without offsets.

5. The exhaust fan motor design shall be in accordance with Section 503.2 of the *International Mechanical Code*.

6. The exhaust fan motor shall be located outside of the airstream.

7. The exhaust fan shall run continuously, and shall be connected to a standby power source in accordance with Section 2702 of the *International Building Code*.

8. The exhaust fan operation shall be monitored in an *approved* location and shall initiate an audible or visual signal when the fan is not in operation.

9. Makeup air shall be provided for the exhaust system.

10. A cleanout opening shall be located at the base of the shaft to provide *access* to the duct to allow for cleaning and inspection. The finished opening shall be not less than 12 inches by 12 inches (305 mm by 305 mm).

11. Screens shall not be installed at the termination.

**(G36-16) (Check)**

***Delete without substitution:***

**~~618.2 Forced-air furnaces.~~** ~~The minimum unobstructed total area of outdoor and return air ducts or openings to a forced air warm-air furnace shall be not less than 2 square inches for each 1,000 Btu/h (4402 mm~~2/W) output rating ~~capacity of the furnace and not less than that specified in the furnace manufacturer's installation instructions. The minimum unobstructed total area of supply ducts from a forced-air warm-air furnace shall be not less than 2 square inches for each 1,000 Btu/h (4402 mm2/W) output rating capacity of the furnace and not less than that specified in the furnace manufacturer's installation instructions.~~

**~~Exception:~~** ~~The total area of supply air ducts and outdoor and return air ducts shall not be required to be~~

~~larger~~ ~~than the minimum size required by the furnace manufacturer's installation instructions.~~

(FG37-15)

**623.2 Prohibited location.** Cooking appliances designed, tested, *listed* and *labeled* for use in commercial occupancies shall not be installed within dwelling units orwithin any area where domestic cooking operations occur.

**~~Exception~~ Exceptions:**

1. **Appliances that are also listed as domestic cooking appliances.**

2.Where the installation is designed by a licensed Professional Engineer, in compliance with the manufacturer’s installation instructions.

(FG40-15 AM)

**CHAPTER 7 GASEOUS HYDROGEN SYSTEMS**

Revise as follows:

**703.1 Hydrogen-generating and refueling operations.** Hydrogen-generating and refueling appliances shall be installed and located in accordance with their listing and the manufacturer's

instructions. ~~Ventilation~~ Exhaust ventilation shall be required in ~~accordance with Section 703.1.1, 703.1.2~~ ~~or 703.1.3 in~~ public garages, private garages, repair garages, automotive motor fuel-dispensing facilities and parking garages that contain hydrogen-generating appliances or refueling systems in accordance with NFPA 2. For the purpose of this section, rooms or spaces that are not part of the living space of a dwelling unit and that communicate directly with a private garage through openings shall be considered to be part of the private garage.

***Delete without substitution:***

**~~703.1.1 Natural ventilation.~~** ~~Indoor locations intended for hydrogen-generating or refueling operations~~ shall be limited to a maximum floor area of 850 square feet (79 m2) and shall communicate with the ~~outdoors in accordance with Sections 703.1.1.1 and 703.1.1.2. The maximum rated output capacity of~~ hydrogen generating appliances shall not exceed 4 standard cubic feet per minute (0.00189 m3/s) of hydrogen for each 250 square feet (23.2 m2) of floor area in such spaces. The minimum cross-sectional ~~dimension of air openings shall be 3 inches (76 mm). Where ducts are used, they shall be of the same cross-sectional area as the free area of the openings to which they connect. In such locations, equipment and appliances having an ignition source shall be located such that the source of ignition is not within 12 inches (305 mm) of the ceiling.~~

**~~703.1.1.1 Two openings.~~** ~~Two permanent openings shall be provided within the garage. The upper opening shall be located entirely within 12 inches (305 mm) of the ceiling of the garage. The lower opening shall be located entirely within 12 inches (305 mm) of the floor of the garage. Both openings shall be provided in the same exterior wall. The openings shall communicate directly with the outdoors and~~ shall have a minimum free area of 1/2 square foot per 1,000 cubic feet (1 m2/ 610 m3) of garage volume.

**~~703.1.1.2 Louvers and grilles.~~** ~~In calculating the free area required by Section 703.1.1.1, the required size of openings shall be based on the net free area of each opening. If the free area through a design of louver or grille is known, it shall be used in calculating the size opening required to provide the free area specified. If the design and free area are not known, it shall be assumed that wood louvers will have 25- percent free area and metal louvers and grilles will have 75-percent free area. Louvers and grilles shall be fixed in the open position.~~

**~~703.1.2 Mechanical ventilation.~~** ~~Indoor locations intended for hydrogen-generating or refueling operations shall be ventilated in accordance with Section 502.16 of the~~ *~~International Mechanical Code~~*~~. In such locations,~~ *~~equipment~~* ~~and appliances having an~~ *~~ignition source~~* ~~shall be located such that the source of ignition is below the mechanical ventilation~~ *~~outlet~~*~~(s).~~

**703.1.~~3 Specially engineered installations.~~** ~~As an alternative to the provisions of Sections 703.1.1 and 703.1.2, the necessary supply of air for ventilation and dilution of flammable gases shall be provided by an~~ *~~approved~~* ~~engineered system.~~

(F274-16)

**IFGC/IFGS CHAPTER 8**

**REFERENCED STANDARDS**

***Reference standards type:*** This is an update to reference standard(s) already in the ICC Code Books

**Add new standard(s) as follows:**

**See attached**