

2006 – 2009 IFGC Code Review

301.1 Scope. This chapter shall govern the approval and installation of all equipment and appliances that comprise parts of the installations regulated by this code in accordance with Section 101.2.

REBUTAL, it is not necessary to delete and replace this section because it references chapter 1. We do not adopt chapter 1 which will trump the reference, plus the reference helps understand the intent.

301.3 Listed and labeled. Appliances regulated by this code shall be listed and labeled for the application in which they are used unless otherwise approved in accordance with Section 105. The approval of unlisted appliances in accordance with Section 105 shall be based upon approved engineering evaluation.

REBUTAL, it is not necessary to delete and replace this section because it references chapter 1. We do not adopt chapter 1 which will trump the reference, plus the reference helps understand the intent.

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.

2006 REVIEW is to delete items 3, and 4. In addition, I would like to rewrite the last sentence in item 5, and add item 6. Rewrite item 5) reads: All combustion air shall be taken directly from outdoors in accordance with Section 304.6, or other adjacent spaces meeting indoor combustion air requirements in Section 304.5.

6) 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, the door to the bedroom or bathroom is fully louvered, the door to the appliance room is fully louvered, all combustion air may be taken from indoors in accordance with Section 304.5.

RBC Section 303.3.1. Insert a new section as follows:

303.3.1 Commercial Kitchens. Vented fuel gas fired appliances shall not be located in the same room or space with a Type I or Type II hood.

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

1. Direct-vent appliances that obtain all combustion air directly from the outdoors.
2. Fuel gas-fired appliances, provided that the room is not a confined space and the building is not of unusually tight construction.
3. Fuel gas-fired appliances installed in a dedicated enclosure in which all combustion air is taken directly from the outdoors, in accordance with Section 304.6 of the International Fuel Gas Code, 2003 Edition. Access to the enclosure shall be through a solid door, weather-stripped in accordance with the exterior door air leakage requirements of the International Energy Conservation Code and equipped with an approved self-closing device.

REBUTAL, this is covered in section 503.3, and is addressed in the IMC section 507.3.

RBC Section 303.8. Insert a new section as follows:

303.8 Elevator shafts. Fuel Gas Systems shall not be located in an elevator shaft.

REBUTAL, this is covered in section 404.1.

304.1 General. Air for combustion, ventilation and dilution of flue gases for appliances installed in buildings shall be provided by application of one of the methods prescribed in Sections 304.5 through 304.9. Where the requirements of Section 304.5 are not met, outdoor air shall be introduced in accordance with one of the methods prescribed in Sections 304.6 through 304.9. Direct-vent appliances, gas appliances of other than natural draft design and vented gas appliances other than Category I shall be provided with combustion, ventilation and dilution air in accordance with the appliance manufacturer's instructions.

Exception: Type 1 clothes dryers that are provided with makeup air in accordance with Section 614.5.

REBUTAL, the amendment addresses direct vent appliances as well as dryer and cooking appliances.

These are covered in this section and section 623.

304.5 Indoor combustion air. The required volume of indoor air shall be determined in accordance with Section 304.5.1 or 304.5.2, except that where the air infiltration rate is known to be less than 0.40 air changes per hour (ACH), Section 304.5.2 shall be used. The total required volume shall be the sum of the required volume calculated for all appliances located within the space. Rooms communicating directly with the space in which the appliances are installed through openings not furnished with doors, and through combustion air openings sized

and located in accordance with Section 304.5.3, are considered to be part of the required volume.

REBUTAL, the code bases the standard method of 50 cubic feet per 1000 Btu on 4 air changes per hour (ACH). If we change this to 2 (ACH) we have increased the need for combustion air (standard method) of 50/1 now to 100/1.

304.5.2 Known air-infiltration-rate method. Where the air infiltration rate of a structure is known, the minimum required volume shall be determined as follows: For appliances other than fan-assisted, calculate volume using equation 3-1. For fan assisted appliances, calculate volume using equation 3-2. For purposes of this calculation, an infiltration rate greater than 0.60 ACH shall not be used in Equations 3-1 and 3-2.

REBUTAL, again, changing the ACH to 2, means tighter construction, and increases the amount of combustion air requirement.

304.10 Louvers and grilles. The required size of openings for combustion, ventilation and dilution air shall be based on the net free area of each opening. Where the free area through a design of louver, grille or screen is known, it shall be used in calculating the size opening required to provide the free area specified. Where the design and free area of louvers and grilles 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. Screens shall have a mesh size not smaller than 1/4 inch (6.4 mm). Non-motorized louvers and grilles shall be fixed in the open position. Motorized louvers shall be interlocked with the appliance so that they are proven to be in the full open position prior to main burner ignition and during main burner operation. Means shall be provided to prevent the main burner from igniting if the louvers fail to open during burner start-up and to shut down the main burner if the louvers close during operation.

REBUTAL, the added amendment in my opinion is already covered in 304.10.

RBC Section 304.13. Insert a new section as follows:

304.13 Prohibited sources. Openings and ducts shall not connect appliance enclosures with a space in which the operation of a fan will adversely affect the flow of the combustion air. Combustion air shall not be obtained from a hazardous location, except where the fuel-fired appliances are located within the hazardous location and are installed in accordance with this code. Combustion air shall not be taken from a refrigeration machinery room, except where a refrigerant vapor detector system is installed to automatically shut off the combustion process in the event of refrigerant leakage. Combustion air shall not be obtained from any location below the design flood elevation.

REBUTAL, the amendment is covered in other areas of the code. Section 304.11 item 2, 303.2, 304.2, 304.12.

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

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

REBUTAL, 2009 code section has been rewritten with sub-categories that discuss residential garages and parking garages.

305.4 Public garages. Appliances located in public garages, motor fuel-dispensing facilities, repair garages or other areas frequented by motor vehicles shall be installed a minimum of 8 feet (2438 mm) above the floor. Where motor vehicles exceed 6 feet (1829 mm) in height and are capable of passing under an appliance, appliances shall be installed a minimum of 2 feet (610 mm) higher above the floor than the height of the tallest vehicle.

Exception: The requirements of this section shall not apply where the appliances are protected from motor vehicle impact and installed in accordance with Section 305.3 and NFPA 30A.

REBUTAL, the amendment is only in place to delete the reference to NFPA 30A, this is not necessary.

305.7 Clearances from grade. Equipment and appliances installed at grade level shall be supported on a level concrete slab or other approved material extending above adjoining grade or shall be suspended a minimum of 6 inches (152 mm) above adjoining grade.

REBUTAL, 2009 code section has been rewritten , no need for amendment.

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

REBUTAL, 2009 code section has been rewritten, no need for amendment.

RBC Section 306.1.1. Insert a new section as follows:

306.1.1. Clearance for maintenance and replacement. Replacement appliances may be installed in an existing compartment, alcove or room with lesser width and depth when approved by the code official and provided that the width and depth are adequate to service or replace the unit and are in compliance with conditions of listing.

REBUTAL, this amendment makes reference to the administrative code section (as approved by the code official). This interpretation is always open to inspector discretion.

310.1 Gas pipe bonding. Each above ground portion of a gas piping system that is likely to become energized shall be electrically continuous and bonded to an effective ground-fault current path. Gas piping shall be considered to be bonded where it is connected to appliances that are connected to the equipment grounding conductor of the circuit supplying that appliance.

REBUTAL, 2009 code section has been rewritten to include CSST gas piping in the bonding requirements, which was the initial concern for this new amendment.

402.6 Maximum design operating pressure. The maximum design 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:

1. The piping system is welded.
2. The piping is located in a ventilated chase or otherwise enclosed for protection against accidental gas accumulation.
3. The piping is located inside buildings or separate areas of buildings used exclusively for:
 - 3.1. Industrial processing or heating;
 - 3.2. Research;
 - 3.3. Warehousing; or
 - 3.4. Boiler or mechanical rooms.
4. The piping is a temporary installation for buildings under construction.

REBUTAL, the amendment is to delete item 2, not necessary because we rarely if ever deal with gas pressures above 5 pounds unless it is industrial.

403.4.3 Copper and brass. Copper and brass pipe shall not be used if the gas contains more than an average of 0.3 grains of hydrogen sulfide per 100 standard cubic feet of gas (0.7 milligrams per 100 liters). Threaded copper, brass and aluminum-alloy pipe shall not be used with gases corrosive to such materials.

REBUTAL, delete this section and replace with: Copper and Brass piping shall not be used for natural gas piping.

403.5.2 Copper and brass tubing. Copper tubing shall comply with Standard Type K or L of ASTM B88 or ASTM B280.

REBUTAL, delete this section and replace with: Copper and Brass tubing shall not be used for natural gas piping.

404.1 Prohibited locations. Piping shall not be installed in or through a circulating air 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.

REBUTAL, 2009 code section has been rewritten to include townhouses.

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.

REBUTAL, the amendment is in place to reinforce the shut-off valve location within 6' of the appliance gas valve. Further review of the code commentary supports this interpretation, no need for amendment.

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.

REBUTAL, not necessary to amend for these outdoor appliances, they are covered in the definition of (appliance). The 6' rule has been supported in the commentary, piping materials on the discharge side of the appliance control valve belong to the mfg.

411.1.1 Commercial cooking appliances. Commercial cooking appliances installed on casters and appliances that are moved for cleaning and sanitation purposes shall be connected to the *piping* system with an *appliance* connector *listed* as complying with ANSI Z21.69 or in accordance with Item 1 or 3 of Section 411.1.

REBUTAL, at the end of the sentence, remove (or in accordance with item 1 or 3 of section 411.1) We do not want mobile appliances rigidly connected to the gas supply, or connected with semi-rigid metallic tubing.

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 Section 409.5.2 or 409.5.3.
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. Semi-rigid 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.

REBUTAL, delete exception 1. Do not want appliance connectors penetrating walls, floors, ceilings.

RBC Sections 412.2 through 412.8. Delete.

REBUTAL, 2009 code sections have been rewritten to clarify these sections as Fire Code.

RBC Sections 413.2 through 413.9 Delete.

REBUTAL, 2009 code sections have been rewritten to clarify these sections as Fire Code.

RBC Section 417. Insert a new section as follows:

SECTION 417

Liquefied Petroleum Gas Facilities and Piping.

417.1 General. In addition to the requirements of this chapter for gas piping, the facilities and piping for use with liquefied petroleum gas (LPG) shall meet the following requirements:

1. LPG facilities shall conform to approved standards. Liquefied petroleum gas facilities and their locations shall be approved by the code official and shall conform to state and local fire prevention regulations.
2. When LPG facilities serve more than one customer through separate piping systems, each system shall be identified in a manner satisfactory to the Building Official.
3. LPG facilities shall be placed to be readily accessible for inspection, reading, testing and shutting off the gas supply. Service piping and main supply shutoff valves shall be outside of the building. Main supply valves shall be of approved type and readily accessible.
4. Gas piping inlets shall be located in respect to the proposed LPG facility location in accordance with the requirements of this section.
5. LPG facilities shall not be located in a pit or basement, under show windows or interior stairways, or in engine, boiler, heater or electric meter rooms. When not prohibited by another regulation, approved liquefied petroleum gas metering devices may be located in the open under exterior stairways.
6. Containers shall be located with respect to buildings or lines of adjoining property which may be built upon in accordance with the following:

Container Capacity (U.S. Gallons)	Minimum Distance (Feet)
Less than 125	0
125 to 500	10
501 to 2000	25

For SI: 1 gallon = 3.785 L, 1 foot = 304.8 mm

Containers shall be located no closer than 10 feet (3,048 mm) from the nearest street line or sidewalk. Containers located in areas such as alleys, driveways, or other areas where they may be subject to physical damage by vehicles shall be protected.

7. Pipe-joint compounds used on threaded connections shall be insoluble in LPG. Systems shall be designed and approved for use with LPG.
8. Valves and appurtenances used in LPG systems shall be designed and approved for use with liquefied petroleum gas.
9. Discharge from relief valves shall be into open air and shall be at least 5 feet (1,524 mm) measured horizontally from an opening into a building which is below the discharge.

REBUTAL, the code makes no distinction in fuel types for the installation of piping. LPG facilities and storage are addressed in the Fire Code and NFPA 58.

501.6 Positive pressure. Where an appliance equipped with a mechanical forced draft system creates a positive pressure in the venting system, the venting system shall be designed for positive pressure applications.

REBUTAL, the amendment makes reference of the designed system to be listed for positive pressure. The manufacturers installation instructions and product application would take care of the listing.

Section 502.6.1. Insert a new section as follows:

502.6.1 Vent Enclosure. Portions of venting systems which extend through occupied and storage spaces shall be enclosed to avoid contact with or damage to the installation.

REBUTAL, the vent pipe manufacturer's installation instructions and listings provide the necessary information.

503.2.2 Well-ventilated spaces. Where located in a large and well-ventilated space, industrial appliances shall be permitted to be operated by discharging the flue gases directly into the space.

REBUTAL, the code allows for this type of installation with direct-fired equipment, not necessary to amend.

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

1. Mechanical draft systems shall be listed and shall be installed in accordance with the manufacturer's installation instructions for both the appliance and the mechanical draft system
2. Appliances, except incinerators, requiring venting shall be permitted to be vented by means of mechanical draft systems of either forced or induced draft design.
3. Forced draft systems and all portions of induced draft systems under positive pressure during operation shall be designed and installed so as to prevent leakage of flue or vent gases into a building.
4. Vent connectors serving appliances vented by natural draft shall not be connected into any portion of mechanical draft systems operating under positive pressure.
5. Where a mechanical draft system is employed, provisions shall be made to prevent the flow of gas to the main burners when the draft system is not performing so as to satisfy the operating requirements of the appliance for safe performance.
6. The exit terminals of mechanical draft systems shall be not less than 7 feet (2134 mm) above grade where located adjacent to public walkways and shall be located as specified in Section 503.8, Items 1&2.

REBUTAL, this amendment would delete item 3 for alternate wording that would include (listed) in the sentence. Not necessary, appliance installation instructions would reference listed equipment.

503.5.7.3 Combination gas and solid fuel-burning appliances. A combination gas- and solid fuel-burning *appliance* shall be permitted to be connected to a single chimney flue where equipped with a manual reset device to shut off gas to the main burner in the event of sustained backdraft or flue gas spillage. The chimney flue shall be sized to properly vent the *appliance*.

REBUTAL, the amendment would add (listed) to the wording, not needed.

503.6.4 Gas vent terminations. A gas vent shall terminate in accordance with one of the following:

1. Gas vents that are 12 inches (305 mm) or less in size and located not less than 8 feet (2438 mm) from a vertical wall or similar obstruction shall terminate above the roof in accordance with Figure 503.6.4.2. Gas vents that are over 12 inches (305 mm) in size or are located less than 8 feet (2438 mm) from a vertical wall or similar obstruction shall terminate not less than 2 feet (610 mm) above the highest point where they pass through the roof and not less than 2 feet (610 mm) above any portion of a building within 10 feet (3048 mm) horizontally.
3. As provided for industrial appliances in Section 503.2.2.
4. As provided for direct-vent systems in Section 503.2.3.
5. As provided for appliances with integral vents in Section 503.2.4.
6. As provided for mechanical draft systems in Section 503.3.3.
7. As provided for ventilating hoods and exhaust systems in Section 503.3.4.

REBUTAL, the amendment deletes item 3, not necessary because industrial type applications are addressed in chapter 6 with direct-fired appliances.

503.6.9.1 Category I appliances. The sizing of natural draft venting systems serving one or more listed appliances equipped with a draft hood or appliances listed for use with Type B gas vent, installed in a single story of a building, shall be in accordance with one of the following methods:

1. The provisions of Section 504.
2. For sizing an individual gas vent for a single, draft-hood-equipped appliance, the effective area of the vent connector and the gas vent shall be not less than the area of the appliance draft hood outlet, nor greater than seven times the draft hood outlet area.
3. For sizing a gas vent connected to two appliances with draft hoods, the effective area of the vent shall be not less than the area of the larger draft hood outlet plus 50 percent of the area of the smaller draft hood outlet, nor greater than seven times the smaller draft hood outlet area.
4. Approved engineering practices.

REBUTAL, amendment is to delete (single story) from the first paragraph. Not necessary because the code has a section to address multi-story venting.

RBC Section 503.10.4. Delete the first paragraph and replace with the following:

Where two or more vent connectors enter a common gas vent or a listed chimney flue liner, the smaller connector shall enter at the highest level consistent with the available headroom or clearance to combustible material.

REBUTAL, 2009 code section has been rewritten, amendment not needed.

503.10.15 Single-wall connector penetrations of combustible walls. A vent connector made of 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:

1. For listed appliances equipped 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 vent connector. Where there is a run of not less than 6 feet (1829 mm) of vent connector 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 vent connector.
2. For unlisted appliances having draft hoods, the thimble shall be not less than 6 inches (152 mm) larger in diameter than the vent connector.
3. For residential and low-heat appliances, the thimble shall be not less than 12 inches (305 mm) larger in diameter than the vent connector.

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

REBUTAL, 2009 code section has been rewritten, amendment not needed.

611.2 Installation. Non-recirculating direct-fired industrial air heaters shall not be used to supply any area containing sleeping quarters. Non-recirculating direct-fired industrial air heaters shall be installed only in industrial or commercial occupancies. Non-recirculating direct-fired industrial air heaters shall be permitted to provide ventilation air.

REBUTAL, the amendment would reword the last sentence to provide ventilation air and make up air. The code allows direct-fired equipment to ventilation a space, certainly make up air would be acceptable, amendment not needed.

Section 612.8. Insert a new section as follows:

612.8 Access. Recirculating direct-fired industrial air heaters shall be provided with access for removal of burners; replacement of motors, controls, filters and other working parts; and for adjustment and lubrication of parts requiring maintenance.

REBUTAL, access for this equipment is addressed in the previous section 611, and in chapter 3.