

2006 IFGC Committee Code Review

RBC101.1 SHORT TITLE. This section will be known and cited as the Fuel Gas Code.

RBC101.2 SCOPE. The Fuel Gas Code shall apply to the installation of fuel-gas piping systems, fuel-gas utilization equipment and related accessories in accordance with Sections RBC305.2.1 through RBC305.2.4 of this Code.

RBC101.2.1 Piping systems. These regulations cover piping systems for natural gas with an operating pressure of 125 pounds per square inch gauge (psig) (862 kPa gauge) or less, and for LP-gas with an operating pressure of 20 pounds per square inch (psig) (140 kPa gauge) or less, except as provided in Section 402.6.1 of the International Fuel Gas Code, 2006 Edition. Coverage shall extend from the point of delivery to the outlet of the equipment shutoff valves. Piping systems requirements shall include design, materials, components, fabrication, assembly, installation, testing, inspection, operation and maintenance.

RBC101.2.2 Gas Utilization Equipment. Requirements for gas utilization equipment and related accessories shall include installation, combustion and ventilation air and venting and connections to piping systems.

RBC101.2.3 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. Installation of LP-gas systems for railroad switch heating.
14. Installation of hydrogen gas, LP-gas and compressed natural gas (CNG) systems on vehicles.
15. Except as provided in Section 401.1.1 of the International Fuel Gas Code, 2003 Edition, 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.
16. Building design and construction, except as specified herein.
17. Piping systems for mixtures of gas and air within the flammable range with an operating pressure greater than 10 pounds per square inch gage (psig) (69 kPa gauge).
18. Portable fuel cell appliances that are neither connected to a fixed piping system nor interconnected to a power grid.

RBC101.2.4 Other fuels. The requirements for the design, installation, maintenance, alteration and inspection of mechanical systems operating with fuels other than fuel gas shall be regulated by the International Mechanical Code, 2006 Edition.

RBC101.3 CODE ADOPTED BY REFERENCE. There is hereby adopted by reference the International Fuel Gas Code of the International Code Council, 4051 West Flossmore Road, Country Club Hills, IL 60478-5795, 2006 Edition. Three (3) copies of the Code are now filed in the office of the Clerk of the Jurisdiction and may be inspected during regular business hours. The above Code is being adopted as if set out at length except the following sections, which are declared to be inapplicable and are therefore expressly deleted.

1. Chapter 1, Administration
2. Chapter 7, Gaseous Hydrogen Systems

RBC101.4 ADDITIONS AND MODIFICATIONS. The adopted Code is subject to the following additions and modifications:

RBC101.3.1 Section 202. Insert the following definition:

FIRE PIT. A fire chamber and appendage constructed of noncombustible material designed to be located external and unattached to the structure for the

purpose of housing an unvented appliance that is connected to a non-portable fuel source. ~~between the equipment shut-off valve and the fuel burning appliance gas valve.~~

~~**Gas Piping.** Gas piping is an installation of pipe, valves or fittings used to convey fuel gas, installed on a premises or in a building, but shall not include: Portions of the service piping.~~

~~Appliance fuel connectors 6 feet (1,828.8 mm) or less in length between an equipment shutoff valve and a fuel burning gas valve.~~

Liquefied Petroleum Gas Facilities. Liquefied petroleum gas facilities are tanks, containers, container valves, regulating equipment, meters and appurtenances for the storage and supply of liquid petroleum gas for a building or premises.

RBC101.3.2 Section 301.1. Delete and replace with the following:

301.1 Scope. This chapter shall govern the approval and installation of all equipment and appliances that comprise parts of the building mechanical systems regulated by this code.

RBC101.3.3 Section 301.3. Delete and replace with the following:

301.3 Listed and Labeled. Appliances regulated by this code shall be listed and labeled, unless otherwise approved.

~~**RBC101.3.4 Section 301.5.** Delete "testing agency" and replace with "approved agency" at the end of the first sentence.~~

RBC101.4.5 Section 303.3. Delete items 3 and 4. Delete all the exceptions and replace with the following:

~~**Exceptions.** Appliances may be located in the areas listed above provided they comply with one of the following conditions:~~

- ~~1. Direct vent appliances.~~
- ~~2. Vented fuel gas-fired appliances, provided that the room meets the required volume criteria of Section 304.5 of the International Fuel Gas Code, 2003 Edition.~~
- ~~3. 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.~~

RBC101.3.5 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.

RBC101.3.6 Section 303.4. Delete and replace with the following:

303.4 Protection from damage. Appliances shall not be installed in a location where subject to mechanical damage unless protected by approved barriers.

~~**RBC101.3.7 Section 303.5.** Delete and replace with the following:~~

~~**303.5 Indoor locations.** Fuel-fired furnaces and boilers installed in closets and alcoves shall be listed for such installation. For purposes of this section, a closet or alcove shall be defined as a room or space having a volume less than 12 times the total volume of fuel-fired appliances other than boilers and less than 16 times the total volume of boilers. Room volume shall be computed using the gross floor area and the actual ceiling height up to a maximum computation height of 8 feet (2,438.4 mm).~~

~~**RBC101.3.8 Section 303.6.** Delete and replace with the following:~~

~~**303.6 Outdoor locations.** Appliances installed in other than indoor locations shall be listed and labeled for outdoor installation.~~

RBC101.3.9 Section 303.8. Insert a new section as follows:

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

RBC101.3.10 Section 304.1. Delete the exception and replace with the following:

Exception: The methods of providing combustion air in this chapter do not apply to appliances listed as having separated combustion systems, listed

cooking appliances, refrigerators and domestic clothes dryers.

RBC101.3.11 ~~Section 304.4.~~ Add the following:

Gas utilization equipment shall not be located in the same enclosed room as a clothes dryer unless the enclosed room is provided with make-up air per Section 614.5 of the International Fuel Gas Code, 2003 Edition.

RBC101.4.13 **Section 304.5.** In the first sentence, change (.40) air changes per hour, to (.20) air changes per hour. ~~Delete the first sentence and replace with the following:~~

~~The required volume of indoor air shall be determined in accordance with Section 304.5.1 of the International Fuel Gas Code, 2003 Edition.~~

RBC101.3.12 ~~Section 304.5.1.~~ Delete and replace with the following:

~~**304.5.1 Standard method.** The minimum required volume shall be 100 cubic feet per 1,000 BTU/hr (9.6 L per W) of the appliance input rating.~~

~~**Exception:** For required volume shall be 50 cubic feet per 1,000 BTU/hr (4.8 L per W) of the appliance input rating for draft hood appliances and 30 cubic feet per 1,000 BTU/hr (2.9 L per W) of the appliance input rating for fan-assisted appliances. Structures constructed prior to the adoption of this Code, the minimum~~

RBC101.3.11 **Section 304.5.2** In the last sentence, change (.60 ACH) to (.20 ACH).

RBC101.3.13 ~~Section 304.5.3.2.~~ Add the following:

~~The minimum net free opening shall not be less than 200 square inches (1,290 cm²).~~

RBC101.3.14 ~~Section 304.6.3.~~ Insert a new section as follows:

~~**304.6.3 Crawl space and attic space.** For the purpose of this Chapter, an opening to a naturally ventilated crawl space or attic space shall be considered equivalent to an opening to the outdoors.~~

~~**304.6.3.1 Crawl space.** Where combustion air openings connect with crawl spaces, these spaces shall have unobstructed openings to the outdoors at least twice that required for the combustion air openings. The height of the crawl space shall comply with the requirements of the Building Code and shall be without obstruction to the free flow of air.~~

~~**304.6.3.2 Attic space.** Where combustion air is obtained from an attic area, the attic ventilating openings shall not be subject to ice or snow blockage, and the attic shall have not less~~

~~than 30 inches (762 mm) vertical clear height at its maximum point. Attic ventilation openings shall be sufficient to provide the required by the International Building Code. The combustion air openings shall be provided with a sleeve of not less than 0.019-inch (482.6 μm) galvanized steel or other approved material extending from the appliance enclosure to at least 6 inches (152.4 mm) above the top of the ceiling joists and insulation. The ducts shall not be screened.~~

RBC101.3.15 **Section 304.7.3.** Add item 4 as follows:

4. The outdoor opening may connect to the cold air return plenum if it is located within 12 feet (3,657.6 mm) of the furnace blower when sized at 1 square inch per 5,000 BTU/hr (1 cm² per 227 W) of the total input rating of all gas utilization equipment.

RBC101.3.16 ~~Section 304.9.~~ Add the following:

~~For appliances other than fuel gas-fired appliances, combustion air shall be supplied at a rate of 0.42 cubic feet per minute per 1,000 BTU/hr (40.6 L per minute per kW).~~

RBC101.3.17 **Section 304.10.** Add the following:

Where the combustion air openings are provided with volume, smoke or fire dampers, the dampers shall be electrically interlocked with the firing cycle of the appliances served, so as to prevent operation of any appliance that draws combustion and dilution air from the room when any of the dampers are closed. Manually operated dampers shall not be installed in combustion air openings.

RBC101.3.18 **Section 304.11.** Delete item 1 and the exception and replace with the following:

1. Ducts shall comply with Chapter 6 of the International Mechanical Code, 2006 Edition.

RBC101.3.19 **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.

RBC101.3.20 ~~Section 305.1.~~ Delete the first paragraph and replace with the following:

~~Equipment and appliances shall be installed as required by the terms of their approval, in accordance with the conditions of the listing, the manufacturer's installation instructions and this code. Manufacturer's installation instructions shall be available on the job site at the time of inspection. Where conflicts between this code and the conditions of listing or the manufacturer's installation instructions occur, the provisions of this code shall apply.~~

~~**Exception:** Where a code provision is less restrictive than the conditions of the listing of the equipment or appliance or the manufacturer's installation instructions, the conditions of the listing and the manufacturer's installation instructions shall apply.~~

RBC101.3.21 Section 305.3. Delete and replace with the following:

305.3 Elevation of ignition source. Equipment and appliances having an ignition source and located in hazardous locations and public garages, private garages, repair garages, automotive motor fuel-dispensing facilities and parking garages shall be elevated such that the source of ignition is not less than 18 inches (457.2 mm) above the floor surface on which the equipment or appliance rests. This equipment and appliances shall not be installed in Group H occupancies or control areas where open use, handling or dispensing of combustible, flammable or explosive materials occurs. 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: Appliances 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, 2006 Edition. Access to the enclosure shall be through a solid door, weather stripped in accordance with the exterior door air leakage requirement of the International Energy Conservation Code and equipped with an approved self-closing device.

RBC101.3.22 Section 305.4. In the exception, delete NFPA 30A. Delete "Section 305.3 and NFPA 88B" and replace with "the exception to Section 305.3 of the International Fuel Gas Code, 2003 Edition."

~~**RBC101.3.23 Section 305.5. Exception.** Delete "Section 305.3" and replace with "the exception to Section 305.3 of the International Fuel Gas Code, 2003 Edition."~~

RBC101.3.24 Section 305.7. Delete and replace with the following:

305.7 Clearances from grade. Equipment and appliances installed at grade level shall be supported on a level concrete slab or other approved materials extending a minimum of 3 inches (76.2 mm) above adjoining grade or shall be suspended a minimum of 6 (152.4 mm) inches above adjoining grade.

RBC101.3.25 Section 305.8. Add an exception as follows:

Exception: A floor-mounted doorstop, permanently attached to the building structure with non-removable bolt/screw heads, may be used to maintain clearance to a combustible door.

RBC101.3.26 Section 306.1. ~~After the second sentence insert the following:~~ Add the following:

Unless otherwise specified, not less than 30 inches (762 mm) in depth, width and height of working space and platform shall be provided to service the appliance.

RBC101.3.25 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.

~~**RBC101.3.27 Section 306.3. Exception 2.** Delete and replace with the following:~~

~~**2.** Where the passageway is not less than 6 feet (1,828.8 mm) in height for its entire length, the passageway shall not be limited in length.~~

RBC101.3.28 Section 306.4. Add exception 3 as follows: Add the following after the exceptions:

3. Access to appliances installed in under floor spaces shall not be through a garage unless the installation complies with Exception 3 of Section 303.3 of the International Fuel Gas Code, 2003 Edition.

~~**RBC101.3.29 Section 306.5.** Delete Item 1 and replace with the following:~~

~~**1.** The side railing shall extend above the parapet or roof edge not less than 30 inches (762 mm) except at an interior roof hatch.~~

~~**RBC101.3.30 Section 306.7.** Insert a new section as follows:~~

~~**306.7 Electrical requirements.** A receptacle outlet shall be provided at or near the equipment location in accordance with the Electrical Code.~~

~~**RBC101.3.31 Section 307.2.** Delete and replace with the following:~~

~~**307.2 Drain pipe materials and sizes.**~~

~~Components of the condensate disposal system shall be cast iron, galvanized steel, copper, cross-linked~~

~~polyethylene, polybutylene, polyethylene, ABS, CPVC or PVC pipe or tubing. All components shall be selected for the pressure and temperature rating of the installation. Condensate waste and drain line size shall be not less than 1/2 inch (12.7 mm) internal diameter and shall not decrease in size from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together or condensate drainage, the pipe or tubing shall be sized in accordance with the manufacturer's installation instructions.~~

~~All horizontal sections of drain piping shall be installed in uniform alignment at a uniform slope of 1/4 unit vertical in 12 units horizontal (2 percent).~~

RBC101.3.28 Section 310.1. Delete and replace with the following:

Section 310.1 Gas Pipe Bonding. Each aboveground portion of a gas 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 bonded when it is connected to the building electrical service grounding electrode system. The connection to the gas piping system shall be made to black iron pipe, or a black iron pipe component through a number 6 AWG copper wire or equivalent.

RBC101.3.29 Section 401.5.1. Insert a new section as follows:

401.5.1 Elevated gas pressure pipe

Identification. Gas piping systems for 2 pounds and greater shall be identified with labels marked medium or high pressure fuel gas every 10 feet.

~~**RBC101.3.32 Section 402.5.** Delete and replace with the following:~~

~~**402.5 Allowable pressure drop.** The design pressure loss in any piping system under maximum probable flow conditions, from the point of delivery to the inlet connection of the equipment, shall not exceed those shown in Tables 402.4 (1) through 402.4 (33) of the International Fuel Gas Code, 2003 Edition.~~

Add the following exception.

Exception: When minimum pressure required for proper appliance operation is unavailable, then the design pressure loss under maximum probable flow conditions, from the point of delivery to the inlet connection of the equipment, shall not exceed those shown in Tables 402.4(1) through 402.4(35) of the International Fuel Gas Code, 2006.

RBC101.3.33 Section 402.6. Delete item 2.

RBC101.3.34 Section 403.4.3. Delete and replace with the following:

403.4.3 Copper and brass. Copper and brass tubing or pipe shall not be used on natural gas systems.

~~**RBC101.3.35 Section 403.10.5.** Insert a new section as follows:~~

~~**403.10.5 Unions.** Where unions are necessary, right and left nipples and couplings shall be used. Ground joint unions may be used at exposed fixture, appliance or equipment connections and in exposed exterior locations immediately on the discharge side of a building shutoff valve. Heavy duty flanged type unions may be used in special cases, when approved by the Building Official. Bushings shall not be in concealed locations.~~

RBC101.3.36 Section 403.11. Delete item 3. and replace with the following:

3. Compression type mechanical joints are prohibited.

RBC101.3.37 Section 404.1. Add the following:

No gas piping shall be located in any lot other than the lot which is the site of the building, structure, or premises served.

RBC101.3.38 Section 404.3. Delete and replace with the following:

404.3 Piping in Concealed Locations. Portions of a piping system installed in a concealed location shall not have unions, tubing fittings, bushings or compressions couplings.

~~**RBC101.3.39 Section 404.5.** Delete the last sentence and replace with the following:~~

~~Shield plates shall be of 1/16 inch (1.6 mm) thick steel and shall cover the area of the pipe where the member is notched or bored.~~

~~**RBC101.3.40 Section 404.8.** Delete "such as soil condition" from the first sentence.~~

RBC101.3.41 Section 404.8. Add the following:

Listed PE and CSST pipe shall be used in exterior buried piping systems.

Exception: LP gas systems may use type L soft copper for exterior buried piping.

RBC101.3.42 Section 404.9. Delete "12 inches (304.8 mm)" and replace with "18 inches (457.2 mm)".

RBC101.3.43 Section 404.9.1. Delete.

~~**RBC101.3.44 Section 404.11.** Delete and replace with the following:~~

~~**404.11 Piping underground beneath buildings.** No gas piping shall be installed in or on the ground under any building or structure unless installed in gastight conduit, and all exposed gas piping shall be~~

~~kept at least 6 inches (152.4 mm) above grade or structure. The term "building or structure" shall include structures such as porches and steps, whether covered or uncovered, breezeways, roofed porte-cocheres, roofed patios, carports, covered walks, covered driveways, and similar structures or appurtenances.~~

~~The conduit shall be of material approved for installation underground beneath buildings and not less than Schedule 40 pipe. The interior diameter of the conduit shall be not less than 1/2 inch (12.7 mm) larger than the outside diameter of the gas piping. The conduit shall extend to a point at least 12 inches (304.8 mm) beyond any area where it is required to be installed or to the outside wall of a building, and the outer ends shall not be sealed. Where the conduit terminates within a building, it shall be readily accessible and the space between the conduit and the gas piping shall be sealed to prevent leakage of gas into the building. Concealed unprotected gas piping may be installed above grade in approved recesses or channels.~~

Exceptions:

- ~~1. When necessary due to structural conditions, approved type gas piping may be installed in other locations, when permission has first been obtained from the Administrative Authority.~~
- ~~2. Gas piping listed for installation under buildings or structures.~~

RBC101.3.45 Section 406.1.2. Delete the second paragraph and replace with the following:

Minor repairs and additions are not required to be pressure tested provided that the piping is accessible, limited to a maximum of eight joints and has a total developed length no greater than 10 feet (3,048 mm).

RBC101.3.46 Section 406.4. Delete and replace with the following:

406.4 Test pressure. Test pressure shall be tested in accordance with this section

406.4.1 Test pressure measure. The gas piping shall stand a pressure of not less than 10 pounds per square inch (69 kPa) gage. ~~or, at the discretion of the code official, the piping and valves may be tested at a pressure of at least 6 inches mercury (20.3 kPa), measured with a manometer or slope gage.~~ Test pressures shall be held for a length of time satisfactory to the code official but not less than 15 minutes, with no perceptible drop in pressure. For welded piping, ~~and for piping carrying gas at pressures exceeding 14 inches water column (3.5 kPa) pressure,~~ the test pressure shall be at least 60 pounds per square inch (414 kPa) and shall be continued for a length of time satisfactory to the code official but

not less than 30 minutes. These tests shall be made using air, carbon dioxide or nitrogen pressure only and shall be made in the presence of the code official. Necessary apparatus for conducting tests shall be furnished by the permit holder. ~~Mechanical gauges used to measure test pressures shall have a range such that the highest end of the scale is not greater than three times the test pressure.~~

RBC101.3.46 Section 406.4.2 R-Occupancies. ~~Systems carrying pressures exceeding 14 inches water column (3.5 kPa) installed within structures classified as Group R-Occupancies shall be tested at 60 pounds per square inch (414 kPa), for at least 30 minutes for the entire system, including the piping downstream of the gas pressure regulator.~~

RBC101.3.47 Section 406.6.5. Disconnected piping inspection. When existing piping is disconnected from the source of supply (gas meter removed, etc.) in a R-3 occupancy for more than one (1) calendar year, the piping shall be retested in accordance with the requirements of Section 406.4 of the International Fuel Gas Code, 2003 Edition. When existing piping is disconnected from the source of supply (gas meter removed, etc.) in any occupancy other than R-3 for more than six (6) months, the piping shall be retested in accordance with the requirements of Section 406.4 of the International Fuel Gas Code, 2003 Edition.

RBC101.3.48 Section 408. Delete.

RBC101.3.49 Section 409.5. Delete and replace with the following:

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 (1,828.8 mm) of total developed length from the appliance gas valve, and shall be installed upstream from the union, connector or quick disconnect device it serves. These shutoff valves shall be provided with access.

Shutoff valves may be located immediately adjacent to and inside or under an appliance when placed in an accessible and protected location and when such appliance may be removed without removal of the valve.

Shutoff valves may be accessibly located inside wall heaters and wall furnaces listed for recessed installation where necessary maintenance can be performed without removal of the shutoff valve. Shutoff valves for vented decorative appliances and decorative appliances for installation in fireplaces shall be installed in an area remote from the appliance, but in the same room and provided with ready access. These valves shall be permanently identified and shall serve no other equipment.

Piping from the shutoff valve to within 6 feet (1,828.8 mm) of total developed length of the appliance gas valve shall be sized in accordance with Section 402 of the International Fuel Gas Code, 2006 Edition.

RBC101.3.50 Section 409.5.1. Delete and replace with the following:

409.5.1 Masonry/concrete Barbecue or Fireplace Outlets. Gas outlets in a barbecue or fireplace shall be controlled by an approved operating valve located in the same room and outside the fireplace but not more than 6 feet (1,828.8 mm) of developed length from the appliance gas valve. If piping on the discharge side of the control valve is galvanized steel, the piping may be embedded in or surrounded by not less than 2 inches (50.8 mm) of concrete or masonry.

~~**RBC101.3.51 Section 410.2. Item 4.** Delete and replace with the following:~~

~~4.—The MP pressure regulator shall be provided with access. Where located indoors, the regulator shall be vented to the outdoors with rigid metallic pipe per section 304.4 or shall be equipped with a leak-limiting device, in either case complying with Section 410.3 of the International Fuel Gas Code, 2003 Edition.~~

~~**RBC101.3.52 Section 410.3. Exception.** Delete and replace with the following:~~

~~**Exception:** A vent to the outside of the building is not required for regulators equipped with and labeled for utilization with approved vent-limiting devices, capable of releasing not more than 5 cubic feet (141.6 L) of gas per hour.~~

RBC101.3.50 Section 410.3.1. Add the following: Vent piping located inside a structure, shall be rigid metallic pipe complying with Section 403.4 of the International Fuel Gas Code 2006 Edition.

~~**RBC101.3.53 Section 411.** In the title, delete "connections" and replace with "fuel connections".~~

~~**RBC101.3.54 Section 411.1.2.** Delete the first paragraph and replace with the following:~~

~~Connectors shall have an overall length not to exceed 6 feet (1,828.8 mm) in length. Except for rigid metal pipe, connectors shall not be concealed within, or extended through, walls, floors, partitions, ceilings or appliance housings. A shutoff valve not less than the nominal size of the connector shall be installed ahead of the connector in accordance with Section 409.5 of the International Fuel Gas Code, 2003 Edition. Connectors shall be sized to provide the total demand of the connected appliance.~~

~~**RBC101.3.55 Section 411.2.** Insert a new section as follows:~~

~~**411.2 Closing Outlets.** It shall be unlawful to remove or disconnect gas piping or a gas appliance without capping or plugging the outlet from which said pipe or appliance was removed with a thread fitting. Outlets on a piping system which has been installed, altered or repaired to which gas appliances are not connected shall be left capped gastight.~~

RBC101.3.56 Sections 412.2 through 412.8. Delete.

RBC101.3.57 Sections 413.2 through 413.9 Delete.

RBC101.3.57 Section 416 delete.

RBC101.3.58 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.

RBC101.3.59 Section 501.6. Delete "shall be designed for positive pressure applications" and replace with "shall be designed and listed for positive pressure applications".

~~**RBC101.3.60 Section 502.6.** Delete and replace with the following:~~

RBC101.3.61 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.

~~Venting systems shall be adequately supported for the weight and the design of the material used. Vent offsets shall be supported for their weight and shall be installed to maintain proper clearance, to prevent physical damage, and to prevent separation of the joints.~~

RBC101.3.61 Section 503.2.2. Delete.

RBC101.3.62 Section 503.3.3. Item 3. Delete and replace with the following:

3. Forced draft systems and all portions of induced draft systems shall be designed and listed for positive pressure applications.

RBC101.3.63 Table 503.4. Delete "single wall metal pipe" throughout the Table.

RBC101.3.64 Section 503.5.3. Delete the exception and add the following:

Masonry chimney flues serving listed gas appliances with drafts hoods, Category I appliances, and other gas appliances listed for use with Type B vent shall be lined with a chimney lining system specifically listed for use only with such appliances. The liner shall be installed in accordance with the liner manufacturer's instructions and the terms of the listing. A permanent identifying label shall be

attached at the point where the connection is to be made to the liner. The label shall read: "This chimney liner is for appliances that burn gas only. Do not connect to solid or liquid fuel-burning appliances or incinerators."

Exception: When replacing an existing draft hood appliance, a chimney lining system is not required to be installed in an existing masonry chimney flue that serves two or more draft hood appliances provided that the existing chimney flue is inspected and deemed safe for the intended appliance.

RBC101.3.65 Section 503.5.6.1. Delete the exception.

RBC101.3.66 Section 503.5.7.3. In the first sentence, delete "equipped with a manual reset device" and replace with "equipped with a listed manual reset device."

RBC101.3.67 Section 503.6.4. Delete item 3.

~~**RBC101.3.68 Section 503.6.6 Item 2** Delete:~~

RBC101.3.69 Section 503.6.9.1. Delete "a single story of" from the first paragraph. ~~and delete the word "Exceptions" above Item 1.~~

RBC101.3.70 Section 503.7. Delete and replace with the following:

503.7 Single-wall Metal Pipe. Single-wall metal pipe vents are prohibited.

~~**RBC101.3.71 Section 503.8.** Delete first sentence and replace with the following:~~

~~The location of venting systems shall comply with Sections 503.5.4, 503.6.6 of the International Fuel Gas Code, 2003 Edition or the following:~~

RBC101.3.72 Section 503.10.2.2. Delete the exception.

RBC101.3.73 Section 503.10.2.3. Delete item 2 and replace with the following:

2. Galvanized sheet steel of a thickness not less than that specified in Table 503.10.2.4 of the International Fuel Gas Code, 2006 Edition.

~~**RBC101.3.74 Section 503.10.2.4.** Delete:~~

RBC101.3.75 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.

~~**RBC101.3.76 Section 503.10.9.** Delete the last sentence.~~

RBC101.3.77 Section 503.10.15. Delete.

~~RBC101.3.78 Section 503.15.~~ Delete the last sentence of the first paragraph and replace with the following:

~~The following shall be considered approved obstructions:~~

~~RBC101.3.79 Section 504.2.1.~~ Delete the first sentence of the first paragraph and replace with the following:

~~These venting tables shall not be used where approved obstructions, as described in Section 503.15 of the International Fuel Gas Code, 2003 Edition, including items 1 through 4, are installed in the venting system.~~

RBC101.3.80 Section 504.2.9. Delete the 1st and 3rd paragraphs and items 1 through 6.

~~**504.2.9 Vent location.** Tables 504.2(1) and 504.2(2) of the International Fuel Gas Code, 2003 Edition, shall not be used for vents exposed to the outdoors below the roof line. A type-B vent or listed chimney lining system passing through to an encased chimney flue shall not be considered to be exposed to the outdoors.~~

~~RBC101.3.81 Section 504.3.1.~~ Delete the first sentence of the first paragraph and replace with the following:

~~These venting tables shall not be used where approved obstructions, as described in Section 503.15 of the International Fuel Gas Code, 2003 Edition, including items 1 through 4, are installed in the venting system.~~

RBC101.3.82 Section 504.3.14. Delete "Table 504.2(1) or 504.2(2)" and replace with "Table 504.3(1) or 504.3 (2) of the International Fuel Gas Code, 2006 Edition."

~~RBC101.3.83 Section 504.3.15.~~ Delete "offsets" and replace with "termination" in the heading.

RBC101.3.84 Section 504.3.20. Delete the 2nd and 3rd paragraphs and items 1 through 5. Delete and replace with the following:

~~**504.3.20 Vent location.** Tables 504.3(1) and 504.3(2) shall not be used for vents exposed to the outdoors below the roof line. A type-B vent or listed chimney lining system passing through to an encased chimney flue shall not be considered to be exposed to the outdoors.~~

RBC101.3.85 Section 602.4. Insert a new section as follows:

602.4 Glass Doors. Fireplace openings containing decorative gas appliances shall be equipped with glass doors or automatic dampers.

RBC101.3.86 Section 603. Delete and replace with the following:

603 Log Lighters. Log lighters are prohibited.

RBC101.3.87 Section 609. Delete and replace with the following:

609 Floor Furnaces. Floor furnaces are prohibited.

~~RBC101.3.88 Section 610.1.~~ Delete "shall be installed in accordance" and replace with "shall be installed and vented in accordance".

RBC101.3.89 Section 611.2. Delete the last sentence and replace with the following:

Non-recirculating, direct-fired industrial air heaters shall be permitted to provide ventilation and make up air.

~~RBC101.3.90 Section 611.6.~~ Delete the last sentence and replace with the following:

~~An atmospheric vent line shall not be required to be provided on a valve train component equipped with a listed vent limiter, capable of releasing not more than 5 cubic feet (142.6 L) of gas per hour.~~

~~RBC101.3.91 Section 612.6.~~ Delete the last sentence and replace with the following:

~~An atmospheric vent line shall not be required to be provided on a valve train component equipped with a listed vent limiter, capable of releasing not more than 5 cubic feet (142.6 L) of gas per hour.~~

RBC101.3.92 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.

~~RBC101.3.93 Section 614.3.~~ Delete.

~~RBC101.3.94 Section 614.5.~~ Delete the last sentence and replace with the following:

~~Where a closet is designed for the installation of a clothes dryer, an opening having a net free area of not less than 100 square inches (645 cm²) shall be provided in the closet enclosure communicating with an area at least 500 square feet (46.5 m²).~~

~~RBC101.3.95 Section 614.6.1 Maximum length shall be 35 feet. Exception.~~ Delete.

~~RBC101.3.96 Section 614.7.~~ Add the following:

~~Clothes dryer transition ducts used to connect the appliance to exhaust duct system shall be limited to single lengths not to exceed 8 feet (2,438.4 mm) in length and shall be listed and labeled for the application. Transition ducts shall not be concealed within construction.~~

~~RBC101.3.97 Section 618.2.~~ Delete "forced air furnace" and replace with "minimum duct size" in the heading.

~~RBC101.3.98 Section 618.2.~~ Add the following:

The net free area of return air openings located in an enclosed basement shall not exceed the net free area of all supply openings located in the same space.

~~RBC101.3.99 Section 618.5. Add an item as follows:~~

~~7. Return air shall not be located within 10 feet (3,048 mm) of any fuel burning appliances, firebox or draft hood located in any portion of a building. This distance shall be measured along any path that air may travel, such as, doors, openings or transfer grilles.~~

~~Exception: Buildings constructed prior to the adoption of this Code.~~

RBC101.3.100 Section 621.2. Delete and replace with the following:

Unvented room heaters shall not be used for comfort heating in a dwelling unit.

RBC101.3.101 Section 621.4. Delete the first sentence and replace with the following:

Unvented room heaters shall not be installed within occupancies in Group A, E, I and R.

RBC101.3.102 Section 624. Delete and replace with the following:

SECTION 624

Table 624.1 ^{1 & 3}

Number of bathrooms	1 to 1.5			2 to 2.5				3 to 3.5			
	1	2	3	2	3	4	5	3	4	5	6
Number of bedrooms											
First Hour Rating ²	42	54	54	54	67	67	80	67	80	80	80

Footnotes:

¹The first hour rating is found on the "Energy Guide" label.

²Non-storage and solar water heaters shall be sized to meet the appropriate first hour rating as shown in the table.

³On demand type water heaters shall be sized per manufacture's instructions, site specific.

⁴This table only applies to new dwelling units.

~~**624.2. Clearances.** Clearance of listed water heaters from combustible materials shall be as specified in the listing or on the rating plate.~~

624.3 Protection from Damage. All water heaters installed in areas where they may be subjected to mechanical damage shall be suitably guarded against damage by being installed behind adequate barriers or by being elevated or located out of the normal path of a vehicle using the garage.

624.3.1 Support. A water heater supported from the ground shall rest on level concrete or other approved base extending not less than 3 inches (76.2 mm) above the adjoining ground level.

624.3.2 Pans. When a water heater is located in an attic, attic-ceiling assembly, floor-ceiling assembly, floor-sub-floor assembly, or any wood floor where damage may result from a leaking water heater,

WATER HEATERS

624.1 General. The regulations of this section shall govern the construction, location and installation of water heaters heating potable water, together with all chimneys, vents and their connectors. The minimum capacity for water heaters shall be in accordance with the first hour rating listed in Table 624.1 below. The size/capacity of water heaters installed in commercial food processing establishment shall be determined by the El Paso County Health Department. All design, construction and workmanship shall conform to the accepted engineering practices, manufacturer's installation instructions and applicable standards and shall be of such character as to secure the results sought to be obtained by this Code. No water heater shall be hereinafter installed which does not comply in all respects with the type and model of each size thereof approved by the code official. The potable water connections and relief valves for all water heaters shall conform to the applicable requirements of Chapter 5 of the International Plumbing Code, 2006 Edition. All water heaters shall be capable of being removed without first removing a permanent portion of a building structure or other installed equipment and appliances.

watertight pan of corrosion resistant materials shall be installed beneath the water heater with a minimum 1¼ inch (31.75 mm) diameter drain to an approved location.

624.4 Access and Working Space. Every water heater installation shall be accessible for inspection, repair or replacement, in accordance with this Section and Section 306 of the International Mechanical Code, 2006 Edition. Every attic, roof, mezzanine, or platform more than 8 feet (2,438.4 mm) above the ground or floor level shall be made accessible by a stairway or ladder permanently fastened to the building and not less than 14 inches (355.6 mm) center to center and not less than 6 inches (152.4 mm) from the face of the wall. Each stile is to extend 30 inches (762 mm) above the surface to be reached, or as high as possible, if

height is limited. Permanent ladders for water heater access need not be provided at parapets or walls less than 30 inches (762 mm) in height.

Exception: A permanent ladder is not required for water heaters 10 gallons (37.8 L) or less in size or for water heaters located above a suspended acoustical ceiling and when the water heater is supported from the structure above.

624.5 Water heaters utilized for space heating. Water heaters utilized both to supply potable hot water and provide hot water for space-heating applications shall be listed and labeled for such applications by the manufacturer and shall be installed in accordance with the manufacturer's installation instructions and the Uniform Plumbing Code.

624.5.1 Sizing. Water heaters utilized for both potable water heater and space-heating applications shall be sized to prevent the space-heating load from diminishing the required potable water-heating capacity.

624.5.2 Temperature Limitation. Where a combination potable water-heating and space-heating system requires water for space heating at temperatures higher than 140°F (60°C), a **temperature actuated mixing valve** shall be provided to temper the water supplied to the potable hot water distribution system to a temperature of 140°F (60°C) or less.

624.6 Supplemental water-heating devices. Potable water-heating devices that utilize refrigerant-to-water heat exchangers shall be approved and installed in accordance with the **International Plumbing Code** and the manufacturer's installation instructions.

624.7 Requirements for discharge piping. The discharge piping serving a pressure relief valve, temperature relief valve or combination thereof shall:

1. Not be directly connected to the drainage system.
2. Discharge through an air gap located in the same room as the water heater.
3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the air gap.
4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.
5. Discharge to the floor, to an indirect waste receptor or to the outdoors. Where discharging to the outdoors in areas subject to freezing, discharge piping shall be first piped to an indirect waste receptor through an air gap located in a conditioned area.
6. Discharge in a manner that does not cause personal injury or structural damage.
7. Discharge to a termination point that is readily observable by the building occupants.
8. Not be trapped.

9. Be installed so as to flow by gravity.

10. Not terminate more than 6 inches (152 mm) above the floor or waste receptor.

11. Not have a threaded connection at the end of such piping.

12. Not have valves or tee fittings.

13. Be constructed of those materials listed in Section 605.4 of the 2006 IPC, or materials tested, rated and approved for such use in accordance with ASME A112.4.1. ~~Section 629.2. Insert a new section as follows:~~

~~629.2 Installation. Kilns shall be listed and installed in accordance with the manufacturer's installation instructions and the provisions of this code.~~

RBC101.3.103 Section 631.2. Delete and replace with the following:

631.2 Installation. In addition to the requirements of this code, the installation of boilers shall be in accordance with the manufacturer's instructions and the International Mechanical Code, 2006 Edition. Operating instructions shall be attached to the boiler. Boilers shall have all controls set, adjusted and tested by the installer. The manufacturer's rating data and the nameplate shall be attached to the boiler.

RBC101.3.104 Section 634. Delete.

RBC305.4.107 Section 636 Insert a new section as follows:

SECTION 636 (IFGC) DECORATIVE APPLIANCES FOR INSTALLTION IN FIRE PITS

636.1 General. Decorative appliances for installation in a fire pit shall be tested in accordance with ANSI Z21.58 – 95, or other recognized standard for outdoor appliances. Must be listed by a Third Party Agent, and installed per manufacturer's installation instructions.

636.2 Flame safeguard device. Decorative appliances for installation in a fire pit with the exception of those tested in accordance with ANSI Z21.58 – 95, or other recognized standard for outdoor appliances, shall utilize a direct ignition device, an igniter or pilot flame to ignite the fuel at the main burner, and shall be equipped with a flame safeguard device. The flame safeguard device shall automatically shut off the fuel supply to the main burner or group of burners when the means of ignition of such burners becomes inoperative.

RBC109.2.4 Mechanical Inspections. The following inspections shall be completed by a mechanical inspector:

1. **Vent.** After all the vents are installed and the roof is in place so that the structure is dried in and before the vents are concealed.
2. **Gas Piping.** After all gas piping has been installed and tested and before it is covered or concealed.
3. **Hydronic Piping.** After all hydronic piping has been installed and tested and before it is covered or concealed.
4. **Refrigeration Piping.** After all refrigeration piping, except for a single line set, has been installed and tested and before it is covered or concealed.
5. **Process Steam and Water Piping.** After the steam and water piping systems that are a part of a heating or cooling system have been installed, tested and before it is covered and concealed.
6. **Refrigeration Piping.** After all piping and tubing that conveys refrigeration gas has been installed, tested and before it is concealed.
7. ~~**LPG (Liquefied Petroleum Gas) Drain.** After the piping is in place and run to daylight, prior to being covered.~~
8. **Duct.** On all occupancies except one- and two-family dwellings and accessory structures, after the ductwork is in place and before it is concealed.
9. **Residential Rough.** Encompasses all the rough mechanical work within a one- and two- family dwelling and accessory structures. Includes, but is not limited to all gas appliance vents as well as all supply, return and exhaust duct systems. To be accomplished after all work has been completed and the roof is in place so that the structure is dried in and before any work is concealed.
10. **Outside Gas.** After all aboveground potable water, waste, and vent piping is in place, and prior to any of the piping being concealed.

