

## 2009 IFGC Proposed Code Amendments

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

**RBC101.1.1 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.

**RBC101.1.2 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, 2009 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.

**RBC101.1.3 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.

**RBC101.1.4 Systems and Equipment outside the Scope.** This code shall not apply to the following:

1. Portable LP-gas appliances and *equipment* of all types that is not connected to a fixed fuel *piping* system.
2. Installation of farm appliances and *equipment* such as brooders, dehydrators, dryers and irrigation *equipment*.
3. Raw material (feedstock) applications except for *piping* to special atmosphere generators.
4. Oxygen-fuel gas cutting and welding systems.
5. Industrial gas applications using gases such as acetylene and acetylenic compounds, hydrogen, ammonia, carbon monoxide, oxygen and nitrogen.
6. Petroleum refineries, pipeline compressor or pumping stations, loading terminals, compounding plants, refinery tank farms and natural gas processing plants.
7. Integrated chemical plants or portions of such plants where flammable or combustible liquids or gases are produced by, or used in, chemical reactions.
8. LP-gas installations at utility gas plants.
9. Liquefied natural gas (LNG) installations.
10. Fuel gas *piping* in power and atomic energy plants.
11. Proprietary items of *equipment*, apparatus or instruments such as gas-generating sets, compressors and calorimeters.
12. LP-gas *equipment* for vaporization, gas mixing and gas manufacturing.

13. Temporary LP-gas *piping* for buildings under construction or renovation that is not to become part of the permanent *piping* system.

14. Installation of LP-gas systems for railroad switch heating.

15. Installation of hydrogen gas, LP-gas and compressed natural gas (CNG) systems on vehicles.

16. Except as provided in Section 401.1.1, *gas piping*, meters, gas pressure regulators and other appurtenances used by the serving gas supplier in the distribution of gas, other than undiluted LP-gas.

17. Building design and construction, except as specified herein.

18. *Piping* systems for mixtures of gas and air within the flammable range with an operating pressure greater than 10 psig (69 kPa gauge).

19. Portable fuel cell appliances that are neither connected to a fixed *piping* system nor interconnected to a power grid.

**RBC101.1.5 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.

### **RBC101.2 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, 2009 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 deleted. expressly

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:

**RBC101.2.1 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.

**RBC101.3.2 Section 303.3. Delete items 3 and 4, amend item 5, add item 6.**

**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.

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, 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.

**RBC101.2.2 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.

**RBC101.2.3 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 cm<sup>2</sup> per 227 W) of the total input rating of all gas utilization equipment.

**RBC101.2.4 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, 2009 Edition.

**RBC101.2.5 Section 305.8.** Add an exception as follows:

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

**RBC101.2.6 Section 306.4. Add exception 3 as follows:**

3. Access to appliances installed in under floor spaces shall not be through a garage unless the installation complies with Exception 5 of Section

303.3 of the International Fuel Gas Code, 2009 Edition.

**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.

**RBC101.3.30 Section 402.5**

**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, 2009.

**RBC101.2.7 Section 403.4.3.** Delete and replace with the following:

**403.4.3 Copper and brass.** Copper and brass piping shall not be used on natural gas systems.

**RBC101.3.3 Section 403.5.2** Delete and replace with the following:

**403.5.2 Copper and brass tubing.** Copper and brass tubing shall not be used on natural gas systems.

**RBC101.2.8 Section 403.11. Delete item 3.** and replace with the following:

3. Compression type mechanical joints are prohibited.

**RBC101.2.9 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.

**RBC101.2.10 Section 404.9** 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.

**RBC101.2.11 Section 404.10.** Delete "12 inches (304.8 mm)" and replace with "18 inches (457.2 mm)".

**RBC101.2.12 Section 404.10.1** Delete.

**RBC101.2.13 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).

**RBC101.2.14 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. 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, 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.**

**RBC101.2.15 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.

**RBC101.2.16 Section 408.** Delete.

**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 2009 Edition.**

**RBC101.3.57 Section 416 Delete.**

**RBC101.2.17 Table 503.4.** Delete "single wall metal pipe" throughout the Table.

**RBC101.2.18 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.

**RBC101.2.19 Section 503.5.6.1.** Delete the exception.

**RBC101.2.20 Section 503.7.** Delete and replace with the following:

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

**RBC101.2.21 Section 503.10.2.2.** Delete the exception.

**RBC101.2.22 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, 2009 Edition.

**Section 504.2.9. Delete the 2<sup>nd</sup> and 3<sup>rd</sup> paragraphs and items 1 through 6.**

**RBC101.2.23 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, 2009 Edition."

**Section 504.3.20. Delete the 2<sup>nd</sup> and 3<sup>rd</sup> paragraphs and items 1 through 5.**

**RBC101.2.24 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.**

**RBC101.2.25 Section 603.** Delete and replace with the following:

**603 Log Lighters.** Log lighters are prohibited.

**RBC101.2.26 Section 609.** Delete and replace with the following:

**609 Floor Furnaces.** Floor furnaces are prohibited.

**RBC101.2.27 Section 621.2.** Delete and replace with the following:

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

**RBC101.2.28 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.

**RBC101.2.29 Section 624.** Delete and replace with the following:

**SECTION 624  
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

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, 2009 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.

**Table 624.1** <sup>1 & 3</sup>

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

**Footnotes:**

<sup>1</sup>The first hour rating is found on the “Energy Guide” label.

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

<sup>3</sup> On demand type water heaters shall be sized per manufacturer’s instructions, site specific.

<sup>4</sup> This table only applies to new dwelling units.

**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, 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, 2009 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 2009 Edition 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

**RBC101.2.30 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, 2009 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.

**RBC101.2.31 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. **Duct.** On all occupancies except one- and two- family dwellings and accessory structures, after the ductwork is in place and before it is concealed.
7. **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.
9. **Outside Gas.** water, waste, and vent piping is in place, and prior to any of the piping being concealed.

