

Part FG – The IFGC, as Modified by Chapter Comm 65

TABLE OF CONTENTS

SUBCHAPTER I	Purpose, Scope, Application and Compliance	FG-1	504	Sizing of Category I Appliance Venting Systems (IFGS)	FG-38
SUBCHAPTER II	Changes, Additions or Omissions to the International Fuel Gas Code (IFGC)	FG-1	505	Direct-Vent, Integral Vent, Mechanical Vent and Ventilation/Exhaust Hood Venting (IFGC)	FG-48
			506	Factory-Built Chimneys (IFGC).	FG-48
CHAPTER 1	ADMINISTRATION.	FG-1	CHAPTER 6	SPECIFIC APPLIANCES.	FG-59
Section			Section		
102	Applicability (IFGC).	FG-1	601	General (IFGC)	FG-59
108	Violations (IFGC)	FG-1	602	Decorative Appliances for Installation in Fireplaces (IFGC)	FG-59
CHAPTER 2	DEFINITIONS	FG-5	603	Log Lighters (IFGC).	FG-59
Section			604	Vented Decorative Appliances (IFGC)	FG-59
201	General (IFGC)	FG-5	605	Incinerators and Crematories (IFGC)	FG-59
202	General Definitions (IFGC)	FG-5	606	Commercial-Industrial Incinerators (IFGC)	FG-59
CHAPTER 3	GENERAL REGULATIONS	FG-15R2	607	Vented Wall Furnaces (IFGC)	FG-59
Section			608	Floor Furnaces (IFGC)	FG-59
301	General (IFGC).	FG-15R2	609	Duct Furnaces (IFGC).	FG-60
302	Structural Safety (IFGC)	FG-16R	610	Direct-Fired Make-Up Air Heaters (IFGC).	FG-60
303	Appliance Location (IFGC)	FG-16R	611	Direct-Fired Industrial Air Heaters (IFGC).	FG-60
304	Combustion, Ventilation, and Dilution Air (IFGS)	FG-17R2	612	Clothes Dryers (IFGC)	FG-61
305	Installation (IFGC)	FG-20R2	613	Clothes Dryer Exhaust (IFGC).	FG-61
306	Access and Service Space (IFGC).	FG-20R2	614	Sauna Heaters (IFGC).	FG-62
307	Condensate Disposal (IFGC).	FG-21R	615	Engine and Gas Turbine-Powered Equipment (IFGC).	FG-62
308	Clearance Reduction (IFGS)	FG-21R	616	Pool and Spa Heaters (IFGC).	FG-62
309	Electrical (IFGC)	FG-24R	617	Forced-Air Warm-Air Furnaces (IFGC)	FG-62
CHAPTER 4	GAS PIPING INSTALLATIONS.	FG-25	618	Conversion Burners (IFGC)	FG-63
Section			619	Unit Heaters (IFGC)	FG-63
Comm 65.0400		FG-25	620	Unvented Room Heaters (IFGC)	FG-63
CHAPTER 5	CHIMNEYS AND VENTS	FG-27	621	Vented Room Heaters (IFGC)	FG-63
Section			622	Cooking Appliances (IFGC).	FG-63
501	General (IFGC)	FG-27	623	Water Heaters (IFGC).	FG-63
502	Vents (IFGC)	FG-28	624	Refrigerators (IFGC).	FG-64
503	Venting of Equipment (IFGS)	FG-28	625	Gas-Fired Toilets (IFGC)	FG-64
			626	Air-Conditioning Equipment (IFGC).	FG-64
			627	Illuminating Appliances (IFGC)	FG-65
			628	Small Ceramic Kilns (IFGC)	FG-65

629	Infrared Radiant Heaters (IFGC)	FG-65
630	Boilers (IFGC)	FG-65
631	Equipment Installed in Existing Unlisted Boilers (IFGC)	FG-65
632	Chimney Damper Opening Area (IFGS)	FG-65

CHAPTER 7 REFERENCED STANDARDS .. FG-67

APPENDIX B	SIZING OF VENTING SYSTEMS SERVING APPLIANCES EQUIPPED WITH DRAFT HOODS, CATEGORY I APPLIANCES, AND APPLIANCES LISTED FOR USE AND TYPE B VENTS (IFGS)	FG-73
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INDEX	FG-83
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REGULATOR, LINE GAS PRESSURE. A device placed in a gas line between the service pressure regulator and the equipment for controlling, maintaining or reducing the pressure in that portion of the piping system downstream of the device.

REGULATOR, MEDIUM-PRESSURE. A medium-pressure (MP) regulator reduces the gas piping pressure to the appliance regulator or to the appliance utilization pressure.

REGULATOR, PRESSURE. A device placed in a gas line for reducing, controlling, and maintaining the pressure in that portion of the piping system downstream of the device.

REGULATOR, SERVICE PRESSURE. A device installed by the serving gas supplier to reduce and limit the service line pressure to delivery pressure.

RELIEF OPENING. The opening provided in a draft hood to permit the ready escape to the atmosphere of the flue products from the draft hood in the event of no draft, back draft, or stoppage beyond the draft hood, and to permit air into the draft hood in the event of a strong chimney updraft.

RELIEF VALVE (DEVICE). A safety valve designed to forestall the development of a dangerous condition by relieving either pressure, temperature, or vacuum in the hot water supply system.

RELIEF VALVE, PRESSURE. An automatic valve that opens and closes a relief vent, depending on whether the pressure is above or below a predetermined value.

RELIEF VALVE, TEMPERATURE.

Reseating or self-closing type. An automatic valve that opens and closes a relief vent, depending on whether the temperature is above or below a predetermined value.

Manual reset type. A valve that automatically opens a relief vent at a predetermined temperature and that must be manually returned to the closed position.

RELIEF VALVE, VACUUM. A valve that automatically opens and closes a vent for relieving a vacuum within the hot water supply system, depending on whether the vacuum is above or below a predetermined value.

RISER, GAS. A vertical pipe supplying fuel gas.

ROOM HEATER, UNVENTED. See “Unvented room heater.”

ROOM HEATER, VENTED. A free-standing heating unit used for direct heating of the space in and adjacent to that in which the unit is located (see also “Vented room heater”).

ROOM LARGE IN COMPARISON WITH SIZE OF EQUIPMENT. Rooms having a volume equal to at least 12 times the total volume of a furnace or air-conditioning appliance and at least 16 times the total volume of a boiler. Total vol-

ume of the appliance is determined from exterior dimensions and is to include fan compartments and burner vestibules, when used. When the actual ceiling height of a room is greater than 8 feet (2438 mm), the volume of the room is figured on the basis of a ceiling height of 8 feet (2438 mm).

SAFETY SHUTOFF DEVICE. See “Flame safeguard.”

SHAFT. An enclosed space extending through one or more stories of a building, connecting vertical openings in successive floors, or floors and the roof.

SPECIFIC GRAVITY. As applied to gas, specific gravity is the ratio of the weight of a given volume to that of the same volume of air, both measured under the same condition.

THERMOSTAT.

Electric switch type. A device that senses changes in temperature and controls electrically, by means of separate components, the flow of gas to the burner(s) to maintain selected temperatures.

Integral gas valve type. An automatic device, actuated by temperature changes, designed to control the gas supply to the burner(s) in order to maintain temperatures between predetermined limits, and in which the thermal actuating element is an integral part of the device.

1. Graduating thermostat. A thermostat in which the motion of the valve is approximately in direct proportion to the effective motion of the thermal element induced by temperature change.
2. Snap-acting thermostat. A thermostat in which the thermostatic valve travels instantly from the closed to the open position, and vice versa.

TRANSITION FITTINGS, PLASTIC TO STEEL. An adapter for joining plastic pipe to steel pipe. The purpose of this fitting is to provide a permanent, pressure-tight connection between two materials which cannot be joined directly one to another.

UNCONFINED SPACE. A space having a volume not less than 50 cubic feet per 1,000 Btu/h (4.8 m³/kW) of the aggregate input rating of all appliances installed in that space. Rooms communicating directly with the space in which the appliances are installed, through openings not furnished with doors, are considered a part of the unconfined space.

UNIT HEATER.

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

Low-static pressure type. A self-contained, automatically controlled, vented appliance, intended for installation in the

space to be heated without the use of ducts, having integral means for circulation of air. Such units are allowed to be equipped with louvers or face extensions made in accordance with the manufacturer's specifications.

UNLISTED BOILER. A boiler not listed by a nationally recognized testing agency.

UNUSUALLY TIGHT CONSTRUCTION [Comm 65.0202 (1)]. The total area of outdoor openings is less than 3 percent of the floor area of the space in which equipment is located.

UNVENTED ROOM HEATER. An unvented heating appliance designed for stationary installation and utilized to provide comfort heating. Such appliances provide radiant heat or convection heat by gravity or fan circulation directly from the heater and do not utilize ducts.

VALVE. A device used in piping to control the gas supply to any section of a system of piping or to an appliance.

Automatic. An automatic or semiautomatic device consisting essentially of a valve and operator that control the gas supply to the burner(s) during operation of an appliance. The operator shall be actuated by application of gas pressure on a flexible diaphragm, by electrical means, by mechanical means, or by other approved means.

Automatic gas shutoff. A valve used in conjunction with an automatic gas shutoff device to shut off the gas supply to a water-heating system. It shall be constructed integrally with the gas shutoff device or shall be a separate assembly.

Equipment shutoff. A valve located in the piping system, used to isolate individual equipment for purposes such as service or replacement.

Individual main burner. A valve that controls the gas supply to an individual main burner.

Main burner control. A valve that controls the gas supply to the main burner manifold.

Manual main gas-control. A manually operated valve in the gas line for the purpose of completely turning on or shutting off the gas supply to the appliance, except to pilot or pilots that are provided with independent shutoff.

Manual reset. An automatic shutoff valve installed in the gas supply piping and set to shut off when unsafe conditions occur. The device remains closed until manually reopened.

Service shutoff. A valve, installed by the serving gas supplier between the service meter or source of supply and the customer piping system, to shut off the entire piping system.

VENT. A pipe or other conduit composed of factory-made components, containing a passageway for conveying combustion products and air to the atmosphere, listed and labeled for use with a specific type or class of appliance.

Special gas vent. A vent listed and labeled for use with listed Category II, III and IV appliances.

Type B vent. A vent listed and labeled for use with appliances with draft hoods and other Category I appliances that are listed for use with Type B vents.

Type BW vent. A vent listed and labeled for use with wall furnaces.

Type L vent. A vent listed and labeled for use with appliances that are listed for use with Type L or Type B vents.

VENT CONNECTOR. (See "Connector").

VENT GASES. Products of combustion from appliances plus excess air plus dilution air in the vent connector, gas vent or chimney above the draft hood or draft regulator.

VENTED APPLIANCE CATEGORIES. Appliances that are categorized for the purpose of vent selection are classified into the following four categories:

Category I. An appliance that operates with a nonpositive vent static pressure and with a vent gas temperature that avoids excessive condensate production in the vent.

Category II. An appliance that operates with a nonpositive vent static pressure and with a vent gas temperature that is capable of causing excessive condensate production in the vent.

Category III. An appliance that operates with a positive vent static pressure and with a vent gas temperature that avoids excessive condensate production in the vent.

Category IV. An appliance that operates with a positive vent static pressure and with a vent gas temperature that is capable of causing excessive condensate production in the vent.

VENTED ROOM HEATER. A vented self-contained, free-standing, nonrecessed appliance for furnishing warm air to the space in which it is installed, directly from the heater without duct connections.

VENTED WALL FURNACE. A self-contained vented appliance complete with grilles or equivalent, designed for incorporation in or permanent attachment to the structure of a building, mobile home or travel trailer, and furnishing heated air circulated by gravity or by a fan directly into the space to be heated through openings in the casing. This definition shall exclude floor furnaces, unit heaters and central furnaces as herein defined.

VENTING SYSTEM. A continuous open passageway from the flue collar or draft hood of an appliance to the outside atmosphere for the purpose of removing flue or vent gases. A venting system is usually composed of a vent or a chimney and vent connector, if used, assembled to form the open passageway.

Mechanical draft venting system. A venting system designed to remove flue or vent gases by mechanical means, that consists of an induced draft portion under nonpositive static pressure or a forced draft portion under positive static pressure.

CHAPTER 3

GENERAL REGULATIONS

SECTION 301 (IFGC) GENERAL

Comm 65.0300 Temperature control. The requirements in IMC Section 309 and s. Comm 64.0309 apply to gas-fired equipment and systems.

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.

301.1.1 Other fuels. The requirements for combustion and dilution air for gas-fired appliances shall be governed by Section 304. The requirements for combustion and dilution air for appliances operating with fuels other than fuel gas shall be regulated by the *International Mechanical Code*.

301.2 Energy utilization. Heating, ventilating and air-conditioning systems of all structures shall be designed and installed for efficient utilization of energy in accordance with the *International Energy Conservation Code*.

301.3 [Comm 65.0301] Listed and labeled. The requirements as specified in s. Comm 64.0301 (2) shall apply.

301.4 Labeling. Labeling shall be in accordance with the procedures set forth in Sections 301.4.1 through 301.4.2.3.

301.4.1 Testing. An approved agency shall test a representative sample of the appliances being labeled to the relevant standard or standards. The approved agency shall maintain a record of all of the tests performed. The record shall provide sufficient detail to verify compliance with the test standard.

301.4.2 Inspection and identification. The approved agency shall periodically perform an inspection, which shall be in-plant if necessary, of the appliances to be labeled. The inspection shall verify that the labeled appliances are representative of the appliances tested.

301.4.2.1 Independent. The agency to be approved shall be objective and competent. To confirm its objectivity, the agency shall disclose all possible conflicts of interest.

301.4.2.2 Equipment. An approved agency shall have adequate equipment to perform all required tests. The equipment shall be periodically calibrated.

301.4.2.3 Personnel. An approved agency shall employ experienced personnel educated in conducting, supervising and evaluating tests.

301.5 Label information. A permanent factory-applied nameplate(s) shall be affixed to appliances on which shall appear in legible lettering, the manufacturer's name or trademark, the model number, serial number and, for listed appliances, the seal or mark of the testing agency. A label shall

also include the hourly rating in Btu/h (W); the type of fuel approved for use with the appliance; and the minimum clearance requirements.

301.6 Plumbing connections. Potable water supply and building drainage system connections to appliances regulated by this code shall be in accordance with the *International Plumbing Code*.

301.7 Fuel types. Appliances shall be designed for use with the type of fuel gas to which they will be connected and the altitude at which they are installed. Appliances that comprise parts of the installation shall not be converted for the usage of a different fuel, except where approved and converted in accordance with the manufacturer's instructions. The fuel gas input rate shall not be increased or decreased beyond the limit rating for the altitude at which the appliance is installed.

301.8 Vibration isolation. Where means for isolation of vibration of an appliance is installed, an approved means for support and restraint of that appliance shall be provided.

301.9 Repair. Defective material or parts shall be replaced or repaired in such a manner so as to preserve the original approval or listing.

301.10 Wind resistance. Appliances and supports that are exposed to wind shall be designed and installed to resist the wind pressures determined in accordance with the *International Building Code*.

301.11 Flood hazard. For structures located in special flood hazard areas, the appliance, equipment and system installations regulated by this code shall comply with the flood-resistant construction requirements of the *International Building Code*.

301.12 Seismic resistance. When earthquake loads are applicable in accordance with the *International Building Code*, the supports shall be designed and installed for the seismic forces in accordance with the *International Building Code*.

301.13 Ducts. All ducts required for the installation of systems regulated by this code shall be designed and installed in accordance with the *International Mechanical Code*.

301.14 Rodentproofing. Buildings or structures and the walls enclosing habitable or occupiable rooms and spaces in which persons live, sleep or work, or in which feed, food or foodstuffs are stored, prepared, processed, served or sold, shall be constructed to protect against rodents in accordance with the *International Building Code*.

301.15 Prohibited location. The appliances, equipment and systems regulated by this code shall not be located in an elevator shaft.

SECTION 302 (IFGC) STRUCTURAL SAFETY

302.1 Structural safety. The building shall not be weakened by the installation of any gas piping. In the process of installing or repairing any gas piping, the finished floors, walls, ceilings, tile work or any other part of the building or premises which are required to be changed or replaced shall be left in a safe structural condition in accordance with the requirements of the *International Building Code*.

302.2 Penetrations of floor/ceiling assemblies and fire-resistance-rated assemblies. Penetrations of floor/ceiling assemblies and assemblies required to have a fire-resistance rating shall be protected in accordance with the *International Building Code*.

302.3 Cutting, notching and boring in wood members. The cutting, notching and boring of wood members shall comply with Sections 302.3.1 through 302.3.3.

302.3.1 Joist notching. Notching at the ends of joists shall not exceed one-fourth the joist depth. Holes bored in joists shall not be within 2 inches (51 mm) of the top and bottom of the joist and their diameter shall not exceed one-third the depth of the member. Notches in the top or bottom of the joist shall not exceed one-sixth the depth and shall not be located in the middle one-third of the span.

302.3.2 Stud cutting and notching. In exterior walls and bearing partitions, any wood stud is permitted to be cut or notched to a depth not exceeding 25 percent of its width. Cutting or notching of studs to a depth not greater than 40 percent of the width of the stud is permitted in nonbearing partitions supporting no loads other than the weight of the partition.

302.3.3 Bored holes. A hole not greater in diameter than 40 percent of the stud depth is permitted to be bored in any wood stud. Bored holes not greater than 60 percent of the depth of the stud are permitted in nonbearing partitions or in any wall where each bored stud is doubled, provided not more than two such successive doubled studs are so bored. In no case shall the edge of the bored hole be nearer than $\frac{5}{8}$ inch (15.9 mm) to the edge of the stud. Bored holes shall not be located at the same section of stud as a cut or notch.

302.4 Cutting, notching and boring holes in structural steel framing. The cutting, notching and boring of holes in structural steel framing members shall be as prescribed by the registered design professional.

302.5 Cutting, notching and boring holes in cold-formed steel framing. Flanges and lips of load-bearing, cold-formed steel framing members shall not be cut or notched. Holes in webs of load-bearing, cold-formed steel framing members shall be permitted along the centerline of the web of the framing member and shall not exceed the dimensional limitations, penetration spacing or minimum hole edge distance as prescribed by the registered design professional. Cutting, notching and boring holes of steel floor/roof decking shall be as prescribed by the registered design professional.

302.6 Cutting, notching and boring holes in nonstructural cold-formed steel wall framing. Flanges and lips of non-structural cold-formed steel wall studs shall be permitted along

the centerline of the web of the framing member, shall not exceed $1\frac{1}{2}$ inches (38 mm) in width or 4 inches (102 mm) in length, and the holes shall not be spaced less than 24 inches (610 mm) center to center from another hole or less than 10 inches (254 mm) from the bearing end.

SECTION 303 (IFGC) APPLIANCE LOCATION

303.1 General. Appliances shall be located as required by this section, specific requirements elsewhere in this code and the conditions of the equipment and appliance listing.

Comm 65.0303 (1) Heat exchanger corrosion protection. If the air entering the heat exchanger of all gas-fired equipment is 30°F (-1 °C) or lower, the heat exchanger and burners shall be constructed of corrosion-resistive materials.

303.2 Hazardous locations. Appliances shall not be located in a hazardous location unless listed and approved for the specific installation.

303.3 Prohibited locations. Appliances shall not be located in, or obtain combustion air from, any of the following rooms or spaces:

1. Sleeping rooms.
2. Bathrooms.
3. Toilet rooms.
4. Storage closets.
5. Surgical rooms.

Exceptions:

1. Direct-vent appliances that obtain all combustion air directly from the outdoors.
2. Vented room heaters, wall furnaces, vented decorative appliances and decorative appliances for installation in vented solid fuel-burning fireplaces, provided that the room is not a confined space and the building is not of unusually tight construction.
3. Deleted.
4. Deleted.
5. Appliances installed in a dedicated enclosure in which all combustion air is taken directly from the outdoors, in accordance with Section 304.11. Access to such 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.

303.4 Protection from physical damage. Appliances shall not be installed in a location where subject to physical damage unless protected by approved barriers meeting the requirements of the *International Fire Code*.

303.5 Indoor locations. Furnaces and boilers installed in closets and alcoves shall be listed for such installation.

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