

## ORDINANCE NO. 5824

### AN ORDINANCE ENACTING THE 2009 INTERNATIONAL FUEL GAS CODE BY REPEALING CHAPTER 15.22 OF THE RAPID CITY MUNICIPAL CODE IN ITS ENTIRETY AND ADOPTING A NEW CHAPTER 15.22 OF THE RAPID CITY MUNICIPAL CODE.

**BE IT ORDAINED** by the City of Rapid City that Chapter 15.22 of the Rapid City Municipal Code is repealed in its entirety.

**BE IT FURTHER ORDAINED** by the City of Rapid City that a new Chapter 15.22 of the Rapid City Municipal Code, entitled International Fuel Gas Code, be and is hereby adopted as follows:

#### **15.22.010 IFGC Adoption**

There is adopted by the City of Rapid City, for the purpose of regulating fuel-gas appliances, that certain code published by the International Code Council, Inc., known as the International Fuel Gas Code, 2009 edition, specifically Chapters 2, 3, 5, 6, 7, 8 and Appendix B thereof. A copy of said code is on file in the office of the City Building Official. The administration and regulation of fuel-gas appliances shall be regulated by Chapter 15.26 Mechanical Code.

#### **15.22.020 IFGC Chapter 2, Section 201.3, Terms defined in other codes - Amended.**

**201.3 Terms defined in other codes.** Where terms are not defined in this code and are defined in the current Electrical Code adopted by the City of Rapid City, International Building Code, International Fire Code, the current Mechanical Code adopted by the City of Rapid City, or the current Plumbing Code adopted by the City of Rapid City, such terms shall have meanings ascribed to them as in those codes.

#### **15.22.030 IFGC Chapter 2, Section 202 General Definitions – Amended.**

##### **SECTION 202 (IFGC) GENERAL DEFINITIONS**

**ACCESS (TO).** That which enables a device, appliance or equipment to be reached by ready access or by a means that first requires the removal or movement of a panel, door or similar obstruction (see also “Ready access”).

**AIR CONDITIONER, GAS-FIRED.** A gas-burning, automatically operated appliance for supplying cooled and/or dehumidified air or chilled liquid.

**AIR CONDITIONING.** The treatment of air so as to control simultaneously the temperature, humidity, cleanness and distribution of the air to meet the requirements of a conditioned space.

**AIR, EXHAUST.** Air being removed from any space or piece of equipment and conveyed directly to the atmosphere by means of openings or ducts.

**AIR-HANDLING UNIT.** A blower or fan used for the purpose of distributing supply air to a room, space or area.

**AIR, MAKEUP.** Air that is provided to replace air being exhausted.

**ALTERATION.** A change in a system that involves an extension, addition or change to the arrangement, type or purpose of the original installation.

**ANODELESS RISER.** A transition assembly in which plastic piping is installed and terminated above ground outside of a building.

**APPLIANCE (EQUIPMENT).** Any apparatus or equipment that utilizes gas as a fuel or raw material to produce light, heat, power, refrigeration or air conditioning.

**APPLIANCE, FAN-ASSISTED COMBUSTION.** An appliance equipped with an integral mechanical means to either draw or force products of combustion through the combustion chamber or heat exchanger.

**APPLIANCE, AUTOMATICALLY CONTROLLED.** Appliances equipped with an automatic burner ignition and safety shutoff device and other automatic devices which accomplish complete turn-on and shutoff of the gas to the main burner or burners, and graduate the gas supply to the burner or burners, but do not affect complete shutoff of the gas.

#### **APPLIANCE TYPE.**

**Low-heat appliance (residential appliance).** Any appliance in which the products of combustion at the point of entrance to the flue under normal operating conditions have a temperature of 1,000°F (538°C) or less.

**Medium-heat appliance.** Any appliance in which the products of combustion at the point of entrance to the flue under normal operating conditions have a temperature of more than 1,000°F (538°C), but not greater than 2,000°F (1093°C).

**APPLIANCE, UNVENTED.** An appliance designed or installed in such a manner that the products of combustion are not conveyed by a vent or chimney directly to the outside atmosphere.

**APPLIANCE, VENTED.** An appliance designed and installed in such a manner that all of the products of combustion are conveyed directly from the appliance to the outside atmosphere through an approved chimney or vent system.

**APPROVED.** Acceptable to the code official or other authority having jurisdiction.

**APPROVED AGENCY.** An established and recognized agency that is approved by the code official and regularly engaged in conducting tests or furnishing inspection services.

**ATMOSPHERIC PRESSURE.** The pressure of the weight of air and water vapor on the surface of the earth, approximately 14.7 pounds per square inch (psi) (101 kPa absolute) at sea level.

**AUTOMATIC IGNITION.** Ignition of gas at the burner(s) when the gas controlling device is turned on, including reignition if the flames on the burner(s) have been extinguished by means other than by the closing of the gas controlling device.

**BAFFLE.** An object placed in an appliance to change the direction of or retard the flow of air, air-gas mixtures or flue gases.

**BAROMETRIC DRAFT REGULATOR.** A balanced damper device attached to a chimney, vent connector, breeching or flue gas manifold to protect combustion equipment by controlling chimney draft. A double-acting barometric draft regulator is one whose balancing damper is free to move in either direction to protect combustion equipment from both excessive draft and backdraft.

**BOILER, LOW-PRESSURE.** A self-contained appliance for supplying steam or hot water.

**Hot water heating boiler.** A boiler in which no steam is generated, from which hot water is circulated for heating purposes and then returned to the boiler, and that operates at water pressures not exceeding 160 pounds per square inch gauge (psig) (1100 kPa gauge) and at water temperatures not exceeding 250°F (121°C) at or near the boiler outlet.

**Hot water supply boiler.** A boiler, completely filled with water, which furnishes hot water to be used externally to itself, and that operates at water pressures not exceeding 160 psig (1100 kPa gauge) and at water temperatures not exceeding 250°F (121°C) at or near the boiler outlet.

**Steam heating boiler.** A boiler in which steam is generated and that operates at a steam pressure not exceeding 15 psig (100 kPa gauge).

**BRAZING.** A metal-joining process wherein coalescence is produced by the use of a non ferrous filler metal having a melting point above 1,000°F (538°C), but lower than that of the base metal being joined. The filler material is distributed between the closely fitted surfaces of the joint by capillary action.

**BROILER.** A general term including salamanders, barbecues and other appliances cooking primarily by radiated heat, excepting toasters.

**BTU.** Abbreviation for British thermal unit, which is the quantity of heat required to raise the temperature of 1 pound (454 g) of water 1°F (1.8°C) (1 Btu = 1055 J).

**BURNER.** A device for the final conveyance of the gas, or a mixture of gas and air, to the combustion zone.

**Induced-draft.** A burner that depends on draft induced by a fan that is an integral part of the appliance and is located downstream from the burner.

**Power.** A burner in which gas, air or both are supplied at pressures exceeding, for gas, the line pressure, and for air, atmospheric pressure, with this added pressure being applied at the burner.

**CHIMNEY.** A primarily vertical structure containing one or more flues, for the purpose of carrying gaseous products of combustion and air from an appliance to the outside atmosphere.

**Factory-built chimney.** A listed and labeled chimney composed of factory-made components, assembled in the field in accordance with manufacturer's instructions and the conditions of the listing.

**Masonry chimney.** A field-constructed chimney composed of solid masonry units, bricks, stones or concrete.

**Metal chimney.** A field-constructed chimney of metal.

**CLEARANCE.** The minimum distance through air measured between the heat-producing surface of the mechanical appliance, device or equipment and the surface of the combustible material or assembly.

**CLOTHES DRYER.** An appliance used to dry wet laundry by means of heated air. Dryer classifications are as follows:

**Type 1.** Factory-built package, multiple production. Primarily used in family living environment. Usually the smallest unit physically and in function output.

**Type 2.** Factory-built package, multiple production. Used in business with direct intercourse of the function with the public. Not designed for use in individual family living environment.

**CODE.** These regulations, subsequent amendments thereto or any emergency rule or regulation that the administrative authority having jurisdiction has lawfully adopted.

**CODE OFFICIAL.** The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative.

**COMBUSTION.** In the context of this code, refers to the rapid oxidation of fuel accompanied by the production of heat or heat and light.

**COMBUSTION AIR.** Air necessary for complete combustion of a fuel, including theoretical air and excess air.

**COMBUSTION CHAMBER.** The portion of an appliance within which combustion occurs.

**COMBUSTION PRODUCTS.** Constituents resulting from the combustion of a fuel with the oxygen of the air, including inert gases, but excluding excess air.

**CONCEALED LOCATION.** A location that cannot be accessed without damaging permanent parts of the building structure or finish surface. Spaces above, below or behind readily removable panels or doors shall not be considered as concealed.

**CONCEALED PIPING.** Piping that is located in a concealed location (see “Concealed location”).

**CONDENSATE.** The liquid that condenses from a gas (including flue gas) caused by a reduction in temperature or increase in pressure.

**CONNECTOR, APPLIANCE (Fuel).** Rigid metallic pipe and fittings, semirigid metallic tubing and fittings or a listed and labeled device that connects an appliance to the gas piping system.

**CONNECTOR, CHIMNEY OR VENT.** The pipe that connects an appliance to a chimney or vent.

**CONSTRUCTION DOCUMENTS.** All of the written, graphic and pictorial documents prepared or assembled for describing the design, location and physical characteristics of the elements of the project necessary for obtaining a mechanical permit.

**CONTROL.** A manual or automatic device designed to regulate the gas, air, water or electrical supply to, or operation of, a mechanical system.

**CONVERSION BURNER.** A unit consisting of a burner and its controls for installation in an appliance originally utilizing another fuel.

**COUNTER APPLIANCES.** Appliances such as coffee brewers and coffee urns and any appurtenant water-heating equipment, food and dish warmers, hot plates, griddles, waffle makers and other appliances designed for installation on or in a counter.

**CUBIC FOOT.** The amount of gas that occupies 1 cubic foot (0.02832 m<sup>3</sup>) when at a temperature of 60°F (16°C), saturated with water vapor and under a pressure equivalent to that of 30 inches of mercury (101 kPa).

**DAMPER.** A manually or automatically controlled device to regulate draft or the rate of flow of air or combustion gases.

**DECORATIVE APPLIANCE, VENTED.** A vented appliance wherein the primary function lies in the aesthetic effect of the flames.

**DECORATIVE APPLIANCES FOR INSTALLATION IN VENTED FIREPLACES.** A vented appliance designed for installation within the fire chamber of a vented fireplace, wherein the primary function lies in the aesthetic effect of the flames.

**DEMAND.** The maximum amount of gas input required per unit of time, usually expressed in cubic feet per hour, or Btu/h (1 Btu/h = 0.2931 W).

**DESIGN FLOOD ELEVATION,** See chapter 15.32 Flood Area Construction Regulations of the Rapid City Municipal code

**DILUTION AIR.** Air that is introduced into a draft hood and is mixed with the flue gases.

**DIRECT-VENT APPLIANCES.** Appliances that are constructed and installed so that all air for combustion is derived directly from the outside atmosphere and all flue gases are discharged directly to the outside atmosphere.

**DRAFT.** The pressure difference existing between the equipment or any component part and the atmosphere, that causes a continuous flow of air and products of combustion through the gas passages of the appliance to the atmosphere.

**Mechanical or induced draft.** The pressure difference created by the action of a fan, blower or ejector, that is located between the appliance and the chimney or vent termination.

**Natural draft.** The pressure difference created by a vent or chimney because of its height, and the temperature difference between the flue gases and the atmosphere.

**DRAFT HOOD.** A nonadjustable device built into an appliance, or made as part of the vent connector from an appliance, that is designed to (1) provide for ready escape of the flue gases from the appliance in the event of no draft, backdraft or stoppage beyond the draft hood, (2) prevent a backdraft from entering the appliance, and (3) neutralize the effect of stack action of the chimney or gas vent upon operation of the appliance.

**DRAFT REGULATOR.** A device that functions to maintain a desired draft in the appliance by automatically reducing the draft to the desired value.

**DRIP.** The container placed at a low point in a system of piping to collect condensate and from which the condensate is removable.

**DRY GAS.** A gas having a moisture and hydrocarbon dew point below any normal temperature to which the gas piping is exposed.

**DUCT FURNACE.** A warm-air furnace normally installed in an air distribution duct to supply warm air for heating. This definition shall apply only to a warm-air heating appliance that depends for air circulation on a blower not furnished as part of the furnace.

**DUCT SYSTEM.** A continuous passageway for the transmission of air that, in addition to ducts, includes duct fittings, dampers, plenums, fans and accessory air-handling equipment.

**DWELLING UNIT.** A single unit providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation.

**EQUIPMENT.** See "Appliance."

**FIREPLACE.** A fire chamber and hearth constructed of noncombustible material for use with solid fuels and provided with a chimney.

**Masonry fireplace.** A hearth and fire chamber of solid masonry units such as bricks, stones, listed masonry units or reinforced concrete, provided with a suitable chimney.

**Factory-built fireplace.** A fireplace composed of listed factory-built components assembled in accordance with the terms of listing to form the completed fireplace.

**FIRING VALVE.** A valve of the plug and barrel type designed for use with gas, and equipped with a lever handle for manual operation and a dial to indicate the percentage of opening.

**FLAME SAFE GUARD.** A device that will automatically shut off the fuel supply to a main burner or group of burners when the means of ignition of such burners becomes inoperative, and when flame failure occurs on the burner or group of burners.

**FLOOR FURNACE.** A completely self-contained furnace suspended from the floor of the space being heated, taking air for combustion from outside such space and with means for observing flames and lighting the appliance from such space.

**Gravity type.** A floor furnace depending primarily upon circulation of air by gravity. This classification shall also include floor furnaces equipped with booster-type fans which do not materially restrict free circulation of air by gravity flow when such fans are not in operation.

**Fan type.** A floor furnace equipped with a fan which provides the primary means for circulating air.

**FLUE, APPLIANCE.** The passage(s) within an appliance through which combustion products pass from the combustion chamber of the appliance to the draft hood inlet opening on an appliance equipped with a draft hood or to the outlet of the appliance on an appliance not equipped with a draft hood.

**FLUE COLLAR.** That portion of an appliance designed for the attachment of a draft hood, vent connector or venting system.

**FLUE GASES.** Products of combustion plus excess air in appliance flues or heat exchangers.

**FLUE LINER (LINING).** A system or material used to form the inside surface of a flue in a chimney or vent, for the purpose of protecting the surrounding structure from the effects of combustion products and for conveying combustion products without leakage to the atmosphere.

**FUEL GAS.** A natural gas, manufactured gas, liquefied petroleum gas, or mixtures of these gases.

**FUEL GAS UTILIZATION EQUIPMENT.** See “Appliance.”

**FURNACE.** A completely self-contained heating unit that is designed to supply heated air to spaces remote from or adjacent to the appliance location.

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

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

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

**Forced-air type.** A central furnace equipped with a fan or blower which provides the primary means for circulation of air.

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

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

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

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

**Upflow furnace.** A furnace designed with airflow discharge vertically upward at or near the top of the furnace. This classification includes “high boy” furnaces with the blower mounted below the heating element and “low boy” furnaces with the blower mounted beside the heating element.

**FURNACE, ENCLOSED.** A specific heating, or heating and ventilating, furnace incorporating an integral total enclosure and using only outside air for combustion.

**FURNACE PLENUM.** An air compartment or chamber to which one or more ducts are connected and which forms part of an air distribution system.

**GAS CONVENIENCE OUTLET.** A permanently mounted, manually operated device that provides the means for connecting an appliance to, and disconnecting an appliance from, the supply piping. The device includes an integral, manually operated valve with a nondisplaceable valve member and is designed so that disconnection of an appliance only occurs when the manually operated valve is in the closed position.

**GASEOUS HYDROGEN SYSTEM.** See Section 702.1.

**GAS PIPING.** An installation of pipe, valves or fittings installed on a premises or in a building and utilized to convey fuel gas.

**GAS UTILIZATION EQUIPMENT.** An appliance that utilizes gas as a fuel or raw material or both.

**HAZARDOUS LOCATION.** Any location considered to be a fire hazard for flammable vapors, dust, combustible fibers or other highly combustible substances. The location is not necessarily categorized in the building code as a high-hazard group classification.

**HOUSE PIPING.** See “Piping system.”

**HYDROGEN CUT-OFF ROOM.** See Section 702.1.

**HYDROGEN GENERATING APPLIANCE.** See Section 702.1.

**IGNITION PILOT.** A pilot that operates during the lighting cycle and discontinues during main burner operation.

**IGNITION SOURCE.** A flame, spark or hot surface capable of igniting flammable vapors or fumes. Such sources include appliance burners, burner ignitors, and electrical switching devices.

**INCINERATOR.** An appliance used to reduce combustible refuse material to ashes and which is manufactured, sold and installed as a complete unit.

**INDUSTRIAL AIR HEATERS, DIRECT-FIRED NONRECIRCULATING.** A heater in which all the products of combustion generated by the burners are released into the air stream being heated. The purpose of the heater is to offset building heat loss by heating only outdoor air.

**INDUSTRIAL AIR HEATERS, DIRECT-FIRED RECIRCULATING.** A heater in which all the products of combustion generated by the burners are released into the air stream being heated. The purpose of the heater is to offset building heat loss by heating outdoor air, and, if applicable, indoor air.

**INFRARED RADIANT HEATER.** A heater that directs a substantial amount of its energy output in the form of infrared radiant energy into the area to be heated. Such heaters are of either the vented or unvented type.

**JOINT, FLANGED.** A joint made by bolting together a pair of flanged ends.

**JOINT, FLARED.** A metal-to-metal compression joint in which a conical spread is made on the end of a tube that is compressed by a flare nut against a mating flare.

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

**JOINT, PLASTIC ADHESIVE.** A joint made in thermoset plastic piping by the use of an adhesive substance which forms a continuous bond between the mating surfaces without dissolving either one of them.

**JOINT, PLASTIC HEAT FUSION.** A joint made in thermoplastic piping by heating the parts sufficiently to permit fusion of the materials when the parts are pressed together.

**JOINT, WELDED.** A gas-tight joint obtained by the joining of metal parts in molten state.

**LABELED.** Devices, equipment, appliances or materials to which have been affixed a label, seal, symbol or other identifying mark of a nationally recognized testing laboratory, inspection agency or other organization concerned with product evaluation that maintains periodic inspection of the production of the above-labeled items and by whose label the manufacturer at tests to compliance with applicable nationally recognized standards.

**LIMIT CONTROL.** A device responsive to changes in pressure, temperature or level for turning on, shutting off or throttling the gas supply to an appliance.

**LIQUEFIED PETROLEUM GAS or LPG (LP-GAS).** Liquefied petroleum gas composed predominately of propane, propylene, butanes or butylenes, or mixtures thereof that is

gaseous under normal atmospheric conditions, but is capable of being liquefied under moderate pressure at normal temperatures.

**LISTED.** Equipment, appliances or materials included in a list published by a nationally recognized testing laboratory, inspection agency or other organization concerned with product evaluation that maintains periodic inspection of production of listed equipment, appliances or materials, and whose listing states either that the equipment, appliance or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner. The means for identifying listed equipment, appliances or materials may vary for each testing laboratory, inspection agency or other organization concerned with product evaluation, some of which do not recognize equipment, appliances or materials as listed unless they are also labeled. The authority having jurisdiction shall utilize the system employed by the listing organization to identify a listed product.

**LIVING SPACE.** Space within a dwelling unit utilized for living, sleeping, eating, cooking, bathing, washing and sanitation purposes.

**LOG LIGHTER.** A manually operated solid fuel ignition appliance for installation in a vented solid fuel-burning fire place.

**LUBRICATED PLUG-TYPE VALVE.** A valve of the plug and barrel type provided with means for maintaining a lubricant between the bearing surfaces.

**MAIN BURNER.** A device or group of devices essentially forming an integral unit for the final conveyance of gas or a mixture of gas and air to the combustion zone, and on which combustion takes place to accomplish the function for which the appliance is designed.

**METER.** The instrument installed to measure the volume of gas delivered through it.

**MODULATING.** Modulating or throttling is the action of a control from its maximum to minimum position in either predetermined steps or increments of movement as caused by its actuating medium.

**OCCUPANCY.** The purpose for which a building, or portion thereof, is utilized or occupied.

**OFFSET (VENT).** A combination of approved bends that makes two changes in direction bringing one section of the vent out of line but into a line parallel with the other section.

**ORIFICE.** The opening in a cap, spud or other device whereby the flow of gas is limited and through which the gas is discharged to the burner.

**OUTLET.** A threaded connection or bolted flange in a pipe system to which a gas-burning appliance is attached.

**OXYGEN DEPLETION SAFETY SHUTOFF SYSTEM (ODS).** A system designed to act to shut off the gas supply to the main and pilot burners if the oxygen in the surrounding atmosphere is reduced below a predetermined level.

**PILOT.** A small flame that is utilized to ignite the gas at the main burner or burners.

**PIPING.** Where used in this code, “piping” refers to either pipe or tubing, or both.

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

**Tubing.** Semi-rigid conduit of copper, aluminum, plastic or steel.

**PIPING SYSTEM.** All fuel piping, valves and fittings from the outlet of the point of delivery to the outlets of the equipment shutoff valves.

**PLASTIC, THERMOPLASTIC.** A plastic that is capable of being repeatedly softened by increase of temperature and hardened by decrease of temperature.

**POINT OF DELIVERY.** For natural gas systems, the point of delivery is the outlet of the service meter assembly or the outlet of the service regulator or service shutoff valve where a meter is not provided. Where a valve is provided at the outlet of the service meter assembly, such valve shall be considered to be downstream of the point of delivery. For undiluted liquefied petroleum gas systems, the point of delivery shall be considered to be the outlet of the first regulator that reduces pressure to 2 psig (13.8 kPag) or less.

**PORTABLE FUEL CELL APPLIANCE.** A fuel cell generator of electricity, which is not fixed in place. A portable fuel cell appliance utilizes a cord and plug connection to a grid-isolated load and has an integral fuel supply.

**PRESSURE DROP.** The loss in pressure due to friction or obstruction in pipes, valves, fittings, regulators and burners.

**PRESSURE TEST.** An operation performed to verify the gas-tight integrity of gas piping following its installation or modification.

**PURGE.** To free a gas conduit of air or gas, or a mixture of gas and air.

**QUICK-DISCONNECT DEVICE.** A hand-operated device that provides a means for connecting and disconnecting an appliance or an appliance connector to a gas supply and that is equipped with an automatic means to shut off the gas supply when the device is disconnected.

**READY ACCESS (TO).** That which enables a device, appliance or equipment to be directly reached, without requiring the removal or movement of any panel, door or similar obstruction (see “Access”).

**REGISTERED DESIGN PROFESSIONAL.** An individual who is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws of the state or jurisdiction in which the project is to be constructed.

**REGULATOR.** A device for controlling and maintaining a uniform supply pressure, either pounds-to-inches water column (MP regulator) or inches-to-inches water column (appliance regulator).

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

**Adjustable.**

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

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

**Nonadjustable.**

1. Spring type, nonadjustable. A regulator in which the regulating force acting upon the diaphragm is derived principally from a spring, the loading of which is not field adjustable.
2. Weight type. A regulator in which the regulating force acting upon the diaphragm is derived from a weight or combination of weights.

**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 (MP Regulator).** A line pressure regulator that reduces gas pressure from the range of greater than 0.5 psig (3.4 kPa) and less than or equal to 5 psig (34.5 kPa) to a lower 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 up draft.

**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 volume 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.

**SLEEPING UNIT.** A room or space in which people sleep, which can also include permanent provisions for living, eating, and either sanitation or kitchen facilities, but not both. Such rooms and spaces that are also part of a dwelling unit are not sleeping units.

**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.

**STATIONARY FUEL CELL POWER PLANT.** A self-contained package or factory-matched packages which constitute an automatically operated assembly of integrated systems for generating electrical energy and recoverable thermal energy that is permanently connected and fixed in place.

#### **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.

#### **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 H<sub>2</sub>O) 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.

**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.

### **VENT PIPING**

**Breather.** Piping run from a pressure-regulating device to the outdoors, designed to provide a reference to atmospheric pressure. If the device incorporates an integral pressure relief mechanism, a breather vent can also serve as a relief vent.

**Relief.** Piping run from a pressure-regulating or pressure-limiting device to the outdoors, designed to provide for the safe venting of gas in the event of excessive pressure in the gas piping system.

**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.

**Forced-draft venting system.** A portion of a venting system using a fan or other mechanical means to cause the removal of flue or vent gases under positive static vent pressure.

**Induced draft venting system.** A portion of a venting system using a fan or other mechanical means to cause the removal of flue or vent gases under nonpositive static vent pressure.

**Natural draft venting system.** A venting system designed to remove flue or vent gases under nonpositive static vent pressure entirely by natural draft.

**WALL HEATER, UNVENTED-TYPE.** A room heater of the type designed for insertion in or attachment to a wall or partition. Such heater does not incorporate concealed venting arrangements in its construction and discharges all products of combustion through the front into the room being heated.

**WATER HEATER.** Any heating appliance or equipment that heats potable water and supplies such water to the potable hot water distribution system.

**15.22.040 IFGC Chapter 3, Section 301.2 Energy Utilization – Deleted.**

**15.22.050 IFGC Chapter 3, Section 301.3 Listed and labeled – Amended.**

**301.3 Listed and labeled.** Appliances regulated by this code shall be listed and labeled.

**15.22.060 IFGC Chapter 3, Section 301.6 Plumbing connections – Amended.**

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

### **15.22.070 IFGC Chapter 3, Section 301.11 Flood hazard – Amended.**

**301.11 Flood hazard.** See Chapter 15.32, Flood Area Construction Regulations, of the Rapid City Municipal Code.

### **15.22.080 IFGC Chapter 3, Section 303.3 Prohibited locations - Amended**

**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 meets the required volume criteria of Section 304.5.
3. Appliances installed in an enclosure in which all combustion air is taken from sources other than a bedroom or bathroom. Access to such enclosure shall be through a solid weather-stripped door, equipped with an approved self-closing device.

### **15.22.090 IFGC Chapter 3, Section [M] 306.1 Clearances for maintenance and replacement – Amended**

**306.1 Clearances for maintenance and replacement.** Clearances around appliances to elements of permanent construction, including other installed equipment and appliances, shall be a minimum 30 inches or the manufacturer's suggested clearance to allow inspection, service, repair, or replacement without removing such elements of permanent construction or disabling the function of a required fire-resistance-rated assembly. These clearances shall be at all service sides of appliances and equipment. The required clearance shall be from the floor to a height of 6'6" above the floor. Mechanical equipment shall be allowed within this area.

### **15.22.100 IFGC Chapter 3, Section [M] 306.3 Appliances in attics – Amended**

**306.3 Appliances in attics.** Attics containing appliances requiring access shall be provided with an opening and unobstructed passageway large enough to allow removal of the largest appliance. The passageway shall not be less than 30 inches (762 mm) high and 22 inches

(559 mm) wide. The passageway shall have continuous solid flooring not less than 24 inches (610 mm) wide. A level service space not less than 30 inches (762 mm) deep and 30 inches (762 mm) wide shall be present at the front or service side of the appliance. The clear access opening dimensions shall be a minimum of 20 inches by 30 inches (508 mm by 762 mm), where such dimensions are large enough to allow removal of the largest appliance.

**Exceptions:**

1. The passageway and level service space are not required where the appliance is capable of being serviced and removed through the required opening.
2. Where the passageway is unobstructed and not less than 6 feet (1829 mm) high and 22 inches wide for its entire length, the passageway shall be not greater than 50 feet (15250 mm) in length.

**15.22.110 IFGC Chapter 3, Section [M] 306.3.1 Electrical requirements – Amended.**

**[M] 306.3.1 Electrical requirements.** A lighting fixture controlled by a switch located at the required passageway opening and a receptacle outlet shall be provided at or near the equipment location in accordance with the current Electrical Code adopted by the City of Rapid City.

**15.22.120 IFGC Chapter 3, Section [M] 306.4 Appliances under floors – Amended**

**306.4 Appliances under floors.** Under floor spaces containing appliances requiring access shall be provided with an access opening and unobstructed passageway large enough to remove the largest appliance. The passageway shall not be less than 30 inches (762 mm) high and 22 inches (559 mm) wide. A level service space not less than 30 inches (762 mm) deep and 30 inches (762 mm) wide shall be present at the front or service side of the appliance. If the depth of the passageway or the service space exceeds 12 inches (305 mm) below the adjoining grade, the walls of the passageway shall be lined with concrete or masonry. Such concrete or masonry shall extend a minimum of 4 inches (102 mm) above the adjoining grade and shall have sufficient lateral-bearing capacity to resist collapse. The clear access opening dimensions shall be a minimum of 22 inches by 30 inches (559 mm by 762 mm), where such dimensions are large enough to allow removal of the largest appliance.

**Exceptions:**

1. The passageway is not required where the level service space is present when the access is open and the appliance is capable of being serviced and removed through the required opening.
2. Where the passageway is unobstructed and not less than 6 feet high (1829 mm) and 22 inches wide for its entire length, the passageway shall not be limited in length.

**15.22.130 IFGC Chapter 3, Section [M] 306.4.1 Electrical requirements – Amended.**

**[M] 306.4.1 Electrical requirements.** A lighting fixture controlled by a switch located at the required passageway opening and a receptacle outlet shall be provided at or near the equipment location in accordance with the current Electrical Code adopted by the City of Rapid City.

**15.22.140 IFGC Chapter 3, Section [M] 306.5 Equipment and appliances on roofs or elevated structures – Amended**

**306.5 Equipment and appliances on roofs or elevated structures.** Equipment and appliances installed on roofs or elevated structures shall be readily accessible.

**Exceptions:**

1. Permanent exterior ladders providing roof access need not extend closer than twelve (12) feet to the finish grade. The requirement for a permanent exterior ladder shall begin when the roof line is at twelve (12) feet.
2. A portable ladder may be used for access for furnaces on the single-story portion or a Group R or U Occupancy.
3. Permanent ladders for equipment access need not be provided at parapets or walls less than thirty (30) inches (762 mm) in height.

Permanent ladders installed to provide the required access shall comply with the following minimum design criteria:

1. The side railing shall extend above the parapet or roof edge not less than 30 inches (762 mm).
2. Ladders shall have rung spacing not to exceed 14 inches (356 mm) on center.
3. Ladders shall have a toe spacing not less than 6 inches (152 mm) deep.
4. There shall be a minimum of 14 inches (356 mm) between rails.
5. Rungs shall have a minimum 0.75-inch (19 mm) diameter and be capable of withstanding a 300-pound (136.1 kg) load.
6. Ladders over 18 feet in height shall be provided with offset sections and landings capable of withstanding 100 pounds (488.2 kg/m<sup>2</sup>) per square foot.
7. Ladders shall be protected against corrosion by approved means.

Catwalks installed to provide the required access shall be not less than 24 inches (610 mm) wide and shall have railings as required for service platforms.

**Exception:** This section shall not apply to Group R-3 occupancies.

**15.22.150 IFGC Chapter 3, Section [M] 306.5.2 Electrical requirements – Amended.**

**[M] 306.5.2 Electrical requirements.** A receptacle outlet shall be provided at or near the equipment location in accordance with the current Electrical Code adopted by the City of Rapid City.

**15.22.160 IFGC Chapter 3, Section [M] 307.3 Drain pipe materials and sizes- Amended**

**[M] 307.3 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. Joints and connections shall be made in accordance with the applicable provisions of the current plumbing Code adopted by the City of Rapid City relative to the material type. Condensate waste and drain line size shall be not less than 3/4-inch (19 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 manifold together for condensate drainage, the pipe or tubing shall be sized in accordance with an *approved* method.

**15.22.170 IFGC Chapter 3, Section 309.2 Connections – Amended.**

**309.2 Connections.** Electrical connections between equipment and the building wiring, including the grounding of the equipment, shall conform to the current Electrical Code adopted by the City of Rapid City.

**15.22.180 IFGC Chapter 3, Section 310 Electrical Bonding – Deleted**

**15.22.190 IFGC Chapter 5, Section 504.3.9.1 Tee and Wye fittings - Deleted**

**15.22.200 IFGC Chapter 6, Section 621.2 Prohibited use – Deleted**

**15.22.210 IFGC Chapter 6, Section 621.4 Prohibited locations – Amended**

**621.4 Prohibited locations.** Unvented room heaters shall not be installed within occupancies other than Group U, unattached accessory structures. The location of unvented room heaters shall also comply with Section 303.3.

**15.22.220 IFGC Chapter 6, Section 624.1.1 Installation requirements – Amended.**

**624.1.1 Installation requirements.** The requirements for water heaters relative to sizing, relief valves, drain pans and scald protection shall be in accordance with the current Plumbing Code adopted by the City of Rapid City.

**15.22.230 IFGC Chapter 6, Section 624.2 Water heaters utilized for space heating – Amended.**

**624.2 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 current Plumbing Code adopted by the City of Rapid City.

**15.22.240 IFGC Chapter 7, Section 703.6 Electrical wiring and equipment – Amended.**

**703.6 Electrical wiring and equipment.** Electrical wiring and equipment shall comply with the current Electrical Code adopted by the City of Rapid City.

CITY OF RAPID CITY

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Mayor

ATTEST:

\_\_\_\_\_  
Finance Officer