

Chapter 11 Gas Installation Code

As to authority and duty of department of inspections to administer and enforce Gas Installation Code, see Section 2-62 of this Code. As to application of Gas Installation Code in trailer courts, see Section

Sections:

1. Title of Chapter
2. Requirements and specifications
3. Permits and inspections
4. Gas appliance installers and detailers
5. Non-liability of City
6. Penalties

Section 11-1. Title of chapter.

This chapter shall be known and designated as the "Gas Installation Code". (Grantsville City Ordinance 65-2.)

Section 11-2. Requirements and specifications.

Generally:

- a. No gas appliance shall be installed or any gas appliance replaced unless the rood or place where the appliance is located is ventilated to properly support combustion and liberate all products of combustion to the outside or the atmosphere.
- b. Gas water heaters shall not be installed in bathrooms or sleeping rooms. Vented space heaters shall not be installed in bathrooms or sleeping rooms unless a permanently open ventilator of not less than 150 square inches of effective area is provided. Vented space heaters are designated as those space heaters where combustion occurs in a permanently gas-tight closed chamber and are so constructed that all products of combustion are conducted to the cent opening of the heater and thence to the outside.
- c. The use of open-fire heaters or heaters not equipped with entirely enclosed combustion chambers is expressly prohibited for use anywhere other than in an approved fireplace. Such fireplaces must not be in bedrooms or bathrooms.
- d. A suitable inside access door with minimum dimensions of 30 inches by 30 inches shall be provided to the space in which any floor furnace, attic furnace or any other heating appliance is located. If access can be gained through an outside door or window, such door or window shall be made as large as possible and under no circumstances shall it be less than 21 inches high and 24 inches wide. Whenever a ladder or stairway is needed to fail access to any heating appliance, it shall be made a permanent part of the structure. Gas furnaces designed for attic installation may be set on combustible material, which is covered with one-inch asbestos board or sheet metal. Clearances must be maintained in accordance with the National Board of Fire Underwriters' requirements as set forth in National Board of Fire Underwriters' pamphlet number 54, dated August 1959.
- e. Floor furnaces shall be so located that a clearance of 2 feet on all sides and underneath is provided. A passage of at least 24 inches by 24 inches shall be provided from the access door to the furnace.

Air Supply:

- a. A permanent opening to provide an adequate supply of air for combustion must be furnished to the space occupied by a house-heating unit. Such air supply may be taken from other parts of the house (except bathroom or bedroom) or directly from the outside.
- b. When air is supplied from other parts of the house to an enclosed furnace room, an opening equal to one square inch of free area per 1000 B.T.U. input rating of all connected appliances shall be provided in such a manner that the supply will always be available. When air is supplied from the outside to an enclosed furnace room, an opening equal to one-half square inch of free area per 1000 B.T.U. shall be provided.
- c. All openings on the suction side of any blower or fan used in connection with any heating system installed in the same room with any gas appliance shall be tightly sealed in such a manner that it will not be left open while any gas appliance is in use, nor shall any opening, fan or device be so installed that the suction will impair the draft on any gas appliance vent.

Conversion Burners:

- a. Warm air furnaces, boilers or heaters which are designed to use fuel other than gas for the development of heat may be converted into gas-burning appliances by means of the installation of gas burners into the firepots thereof, provided such gas burners are of an approved design and construction and provisions and in a manner that their use therein will not endanger life, health or property.
- b. The combustion chamber must stand a test for gas-tightness so that no products of combustion or gas may enter rooms or spaces to be heated.
- c. Chimneys and flues must be in good condition as to gas-tightness and draft or made so before converting any such apparatus.
- d. Burners must be equipped with continuous burning pilot lights of the mixed gas and air type of sufficient size and number to assure positive ignition of the gas from the main burners at all times, such pilot lights shall be fed from a separate line leading from the fuel supply on the meter side of the shut-off valve, and shall be fixed to the burner in such a way as to provide a rigid relative position between the pilot tip and the ports of the burners. Where two or more pilots are required, mixed gas and air pilots shall be installed irrespective of the type and kind of safety pilots used. All such pilot lights shall be of the approved type.
- e. The manifold of the burner must be equipped with a main control valve of the stopcock type.
- f. The furnace, boiler or heater converted shall be provided with a secondary air supply and so regulated or altered that proper and complete combustion will be provided for.

Venting Requirements:

- a. Every gas appliance, except heaters equipped with an approved, patented vent and domesticated gas cooking ranges and refrigerators which are installed in kitchens or rooms having 400 cubic feet or of volume and which kitchens or rooms, in addition thereto, are properly ventilated in an approved manner, shall be connected to an effective flue or chimney by means of a suitable vent connection, or in lieu of this must be connected to an approved double pipe vent, the inside pipe to be constructed of aluminum or equivalent, and the outside pipe to be either aluminum equivalent or galvanized iron. All metal pipes shall be firmly connected with not less than three sheet metal screws at each connection, or an approved locking device.
- b. Type B gas flue or vent. Vent piping of noncombustible, corrosion-resistant material of sufficient thickness, cross-sectional area and heat insulating quality to avoid excess temperature on adjacent combustible material and certified by a nationally recognized testing agency.
- c. Approved draft diverters shall be provided in all vent pipes from domestic gas appliances unless diverters are built into the appliances. Incinerators or trash burners shall be connected

directly to the "Type A" flue without the use of a draft diverter.

Vent Sizes and Specifications:

- a. When two or more vents are joined together, the area of the chimney or bent shall not be less than the area of the largest vent connection inlet plus 75 per cent of the areas of all additional inlets; provided, that where round vent connections or vent openings are connected to a rectangular chimney, flue or vent the internal area of such rectangular chimney, flue or vent shall be 25 per cent greater than required above.

Table of Areas for Vents

| | | | | | | | | |
|----------------------------------|---|------|----|----|----|----|----|----|
| Vent size—Inches Nominal Area | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Square Inches | 7 | 12.5 | 20 | 28 | 38 | 50 | 60 | 78 |

No chimney or vertical vent shall have an area of less than 12.5 square inches and shall be not less than 3 inches in any internal dimension. No vent connection inlet shall be located less than one foot above the bottom of any chimney or vertical vent except that a standard tee and drip cap may be used on Type B vertical vent. A clean out opening of an approved type shall be provided at the bottom of the vertical vent, flue or chimney. Gas-burning appliances may not be vented into vents, flues or chimneys being used to vent solid or liquid fuels.

In case any horizontal vent connection (the pipe connecting the appliance to the flue or vent) is less than 4 inches in diameter it shall not exceed 9 feet in length, and when the horizontal distance is more than 9 feet, the total vent connection from the appliance shall be at least 4 inches in diameter. In no case shall the length of any horizontal vent be more than 15 feet.

Vent connections shall have a cross sectional area of at least one square inch of each 5500 B.T.U. per hour of appliance input.

Proper Diameters and Maximum Input Capacities of Vent Connections.

| Manufacturers' Sea Level Rating | Input Derated 17% for Altitude | Minimum Vent Diameter |
|---------------------------------|--------------------------------|-----------------------|
| 47,000 B.T.U. | 39,050 B.T.U. | 3 inches |
| 83,500 B.T.U. | 69,300 B.T.U. | 4 inches |
| 130,000 B.T.U. | 107,800 B.T.U. | 5 inches |
| 187,000 B.T.U. | 155,650 B.T.U. | 6 inches |
| 255,000 B.T.U. | 211,750 B.T.U. | 7 inches |
| 333,500 B.T.U. | 276,650 B.T.U. | 8 inches |

| | | |
|----------------|----------------|-----------|
| 409,400 B.T.U. | 350,000 B.T.U. | 9 inches |
| 505,400 B.T.U. | 410,000B.T.U. | 10 inches |

No vent connection shall be smaller than the appliance cent collar except that cent connection on converted appliances may be reduced to one square inch of area for each 5500 B.T.U. of burner input. No flue or chimney opening shall be smaller than the vent connections.

Vent sections shall be assembled with the male or crimped end pointing down or toward the appliance.

Vent Length, Angles and pitch:

- a. Every portion of a cent connection shall have a rise of not less than 1 inch per foot from the appliance to the vertical vent, chimney or flue, Such connection shall be no longer than 75% of the height of the vertical vent, chimney or flue from the vent connection to the top.
- b. Not to exceed three vent connections, none of which may be in the same horizontal plane, may be connected to one vertical vent, chimney or flue.

Inlet connections shall not restrict unduly the space between their ends and the opposite wall of the flue.

- c. Every vent or chimney shall extend in as nearly a vertical direction as possible and shall extend at least two feet above any portion of the roof within 15 feet of such vent or chimney unless an approved method of preventing back drafts is provided.

Vent Protection and Supports:

- a. No vent, vent connection of flue shall be enclosed in such a manner that the same is not readily accessible for inspection.
- b. Vent connections shall be securely supported by means of substantial hangers at intervals of not more than 6 feet and shall be attached to the flue or chimney in a gas-tight manner.
- c. Approved safety thimbles must be used on all vent connections where they pass through walls, floors or ceilings. A roof jack must be used where the vent passes through the roof. Vertical cents shall be equipped with an approved type of roof cap or canopy.
- d. Brick, concrete or masonry chimneys that are not tile lines, except those connected to open-faced effective fireplaces, used as a vent for any domestic appliance.
- e. All Type B flues used to conduct products of combustion to the atmosphere shall be of an approved corrosion-resistant type and so protected that sufficient temperature difference is maintained between top and bottom to create an adequate draft at all times. The foregoing requirements prohibit the use of long outside vents for domestic appliances.
- f. Where the same vertical vent, flue or chimney is used for gas appliances installed on more than one floor, such appliances must be provided with a vertical vent connection of not less than 2 feet before connecting into the common vent, flue or chimney.
- g. Wall heaters of the panel type, when installed in combustible walls or partitions, must be installed in accordance with the National Board of Fire Underwriters' requirements, and vented with "Type B W" vent.
- h. Vents and vent connections must be installed at reasonable distances form combustible material, and in no case shall this distance of at least 1 inch between the outside pipe and any combustible material.

Vent Materials:

The material used for vents and vent connections shall be such as to resist the corrosive action of flue gases and condensates. Where aluminum is used for venting, it should be at least 98% aluminum and not less in thickness than .020 for single wall vents, vent connections or fittings or where it is used for the inner liner of machine fabricated (Type B) double wall vents or fittings, it should not be less in thickness than .016.

In general, this requirement prohibits the use of block iron, galvanized iron or copper vents or vent connections from gas-designed appliances. Block iron only should be used at higher flue temperatures on industrial or conversion burner installations where the products of combustion are at all times at a temperature greater than the dew point.

Application:

This Code shall apply to all new and remodeled installations and to all replacements.

Installations in use when this Code becomes effective or which may be installed subsequent thereto which do not conform to the requirements of this Code and which are dangerous, shall be condemned by the inspector, their future use forbidden and the supply of gas to such appliance discontinued. It shall be unlawful for any person to continue in use any such installation after the same has been condemned by the inspector.

Regulations for Gas Piping and for Gas Fittings:

These specifications shall apply to all piping run on the customer's side of the meter. Such gas piping must be black steel or wrought iron welded or connected with malleable iron fittings except as noted in paragraph (k) below.

Pipe sizes for low-pressure installation must not be less than that specified in the following table.

Capacity of pipes for various sized in cubic feet per hour at four ounces gauge pressure for low-pressure house lines.

Nominal Pipe Diameter in Inches

| Length of pipe | 3/4 in. | 1 in. | 1 1/4 in. | 1 1/2 in. | 2 in. | 3 in. | 4 in. | 6 in. |
|----------------|---------|-------|-----------|-----------|-------|-------|-------|-------|
| 10 feet | 195 | 355 | 740 | 114 | 2330 | 6760 | 13880 | 38600 |
| 20 feet | 145 | 250 | 525 | 810 | 1645 | 4780 | 9800 | 27300 |
| 30 feet | 115 | 210 | 440 | 670 | 1360 | 3950 | 8200 | 22100 |
| 40 feet | 100 | 180 | 380 | 585 | 1280 | 3400 | 7100 | 19100 |
| 50 feet | 90 | 160 | 340 | 520 | 1060 | 3040 | 6300 | 17200 |
| 60 feet | 80 | 150 | 310 | 475 | 960 | 2770 | 5750 | 15600 |

| | | | | | | | | |
|----------|----|-----|-----|-----|-----|------|------|-------|
| 70 feet | 75 | 135 | 285 | 440 | 900 | 2600 | 5330 | 14500 |
| 80 feet | 70 | 125 | 265 | 415 | 840 | 2420 | 5000 | 13500 |
| 90 feet | | 120 | 250 | 390 | 790 | 2270 | 4750 | 12800 |
| 100 feet | | 115 | 240 | 370 | 750 | 2150 | 4500 | 12100 |
| 125 feet | | | 215 | 330 | 670 | 1920 | 4000 | 10800 |
| 150 feet | | | 195 | 300 | 610 | 1750 | 3650 | 9900 |
| 200 feet | | | | 260 | 530 | 1520 | 3140 | 8500 |
| 210 feet | | | | 320 | 660 | 1780 | 3700 | 10300 |
| 240 feet | | | | 300 | 620 | 1680 | 3490 | 9600 |
| 270 feet | | | | 285 | 580 | 1580 | 3250 | 9000 |
| 300 feet | | | | 270 | 545 | 1490 | 3000 | 8500 |
| 450 feet | | | | 226 | 450 | 1230 | 2500 | 7000 |
| 600 feet | | | | 192 | 390 | 1030 | 2130 | 6000 |

To use this table: Determine the maximum gas consumption of the appliance in cubic feet per hour. Determine the length of the pipe to supply the appliance.

Opposite the length (first column), find the figure nearest to the actual maximum gas consumption of the appliance. At the top of the column is the pipe size required. Where the above table is insufficient, the Gas Company should be consulted.

Same Pipe Sizes and Specifications:

- a. All fuel piping and openings shall be 3/4 inch or larger except for gas refrigerators, Bunsen burners and radiant fire heaters. In no case shall the pipe size be less than .5 inch, in which case the maximum run shall not exceed 20 feet.
- b. To determine the size of fuel line to supply industrial, commercial and all heavy-duty equipment, the Gas Company shall be consulted in order that proper service may result.
- c. All burrs left on the inside of gas piping by the cutting-off tool shall in all cases be reamed out.

Threads shall be cut smooth and unbroken. Pipe thread compound of an approved type shall be placed on all male threads only. Lethargy, shellac or any hard cement on pipe joints will not be permitted.

- d. All gas piping must be free from traps and sags and shall be properly supported and securely fastened with pipe hangers, hooks or straps.
- e. Stopcocks shall not be placed in any gas line on the appliance side of the meter except within twenty-four inches of the appliance; provided, that in the case of manifold installations, stopcocks shall be installed in each separate fuel line within twenty-four inches of the meter. All stopcocks shall be of an approved type. Gate valves or globe valves will not be permitted.

Each appliance must be connected with a union within two feet of the burner manifold. Ground joint unions only are permitted. If a stopcock is used, it must be within two feet of each appliance and ahead of the union.

- f. Concealed gas piping shall not have any openings that are connected with or to appliances. In the case of a plugged opening in a concealed gas line, the plug fittings shall be exposed. Concealed unions or dresser-type coupling will not be permitted inside of any building.
- g. Long screws, left-hand threads, bushings, street fittings, cast-iron fittings or brass, aluminum and copper pipe or tubing shall not be permitted in any gas line. (See paragraph (k)). In no case shall any defective fittings, threads or pipe be repaired by caulking, peening or the use of clamps or cement. All defective pipe, fittings or threads joints shall be removed and replaced with new materials. All concealed risers shall be run in inside walls or where they will not be exposed to excessive temperature changes.

Holes cut for running pipe through walls, floors or ceilings shall be so located and of sufficient size to prevent binding and to allow for free movement of the pipe.

All fuel piping must be extended to within 18 inches of the location provided for the meter.

- h. Where underground gas piping is installed on the appliance side of the meter, all such piping shall be laid not less than eighteen (18) inches underground and shall be free from traps or sags. All such underground gas lines shall be wrapped or coated with an approved protective coating and tested in the presence of the inspector and approved by him before such line shall be covered. No pipe smaller than 3/4-inch diameter shall be used underground.
- i. All gas piping on the appliance side of the meter lay in/or under cement floors or other cement construction shall be continuous, or all concealed joints shall be welded.
- j. When any gas piping on the appliance side of the meter is extended or remodeled, all connections shall be made in such manner that sizes can be maintained in accordance with the capacity table herein before set forth. It shall be the responsibility of the contractor when installing additions, remodeling, extending, repairing or removing appliances to or from existing lines to test all new and old piping for leaks, 15 pounds per square inch, to insure that no leaks are present and that the appliance is in the proper working order before leaving the premises, and to file with the city recorder a certificate showing such test had been made. The provisions shall also apply to all persons doing their own work.
- k. The use of flexible or semi-rigid tubing for supplying gas to any appliance will not be permitted, except as noted below. Runs of not over six feet of semi-rigid metal tubing with approved type screwed connectors may be used to connect gas refrigerators.

Gas water heaters and all wall heaters equipped with approved semi-rigid metal tubing and connectors may be connected to the rigid house piping, provided such tubing any floor or wall, and provided the appliance stopcock is located between the rigid piping and semi-rigid tubing.

The use of flexible tubing will be permitted on strictly moveable appliances, provided such tubing is of an approved standard type with screw connectors and is equipped with a stopcock at the inlet end.

1. Before a meter installation will be made, the following must be done: All original or new hose piping installation shall be tested with air at a pressure of fifteen pounds per square inch, and all lines will be required to hold this pressure for fifteen minutes with no drop in pressure. While such lines are under air pressure, all joints and threads shall be tested with a soap solution and such test shall be made in the presence of an authorized inspector. Where extensions are made to existing fuel lines, the above procedure must be followed.

It shall be unlawful for any person other than a duly authorized agent or employee of the gas distributing company to tamper with, alter or in any way molest any gas meter or any part of the service line from such meter to the gas mains. The gas distributing company shall install and maintain, in good order, all meters and appurtenances thereto, including the service line to the gas main and all shut-off valves and stopcocks. Such shut-off valves and stopcocks shall be of an approved type and readily accessible for shutting off the supply of gas to the premises that it serves.

Automatic Controls:

- a. All electric wiring in connection with automatic control shall be installed in a workmanlike manner and must conform with any codes or ordinances applicable to the city.
- b. Connection of the pilot line to the gas supply line will be at a point ahead of the appliance automatic control valve so that the main burner can be turned off without extinguishing the pilot flame. (This pilot connection to the gas supply line shall not be more than three feet from the appliance.) Automatically controlled domestic heating appliances and water heaters must be provided with an automatically controlled safety pilot light which is so constructed as to prevent the flow of unburned gas through the main burners in the event the safety pilot light is not burning. Pilot lights of either the mixed gas or safety type must be of sufficient number to assure positive ignition.
- c. Stopcocks must be placed immediately adjacent to and on the meter side of the automatic valve in all fuel lines, supplying automatically controlled heating appliances. Stopcocks must be placed in each fuel supply leading from the burner manifold to any unit of industrial size burners. An automatic gas valve controlled from a remote point such as a thermostat will be permitted to supply gas to only one appliance. All electric automatic valves must conform with, and be installed according to the following provisions:
 1. They must be so constructed that they will shut off the gas supply in case of failure of the power supply.
 2. They must be so constructed in such a manner as to withstand the corrosive action of sulfur-bearing gas, and be approved by the Gas Company in that respect.
- d. Gas refrigerators, all automatically controlled space heaters and all domestic types of central heating furnaces, boilers, conversion burners and floor or wall furnaces, whether operated by automatic or hand control, must be equipped with an appliance pressure regulator. The purpose is to both limit the input to the appliance rating and maintain a uniform flow of gas to the appliance irrespective of the normal pressure variations in the house lines. All commercial and industrial types of suspended unit heaters, which require fans or blowers, must be equipped with an appliance, gas regulator. (Grantsville City Ordinance 65-2.)

Section 11-3. Permits and inspections.

- a. The department of inspections shall have supervision of the issuance of permits, inspections and the application and enforcement of this chapter.
- b. It shall be unlawful for any person to install on the outlet or consumers' side of the meter any gas piping, gas appliances or gas installations of any kind without having first obtained from the department of inspections a permit therefore, based on information required by the department and subject to inspection after installation.
- c. The department of inspections shall charge for such permits the sum of \$3.00 for piping and the installation of each unit or appliance and a charge of \$1.50 for each additional appliance, unit or outlet. Such fees are to be paid over to the city treasurer.
- d. The department of inspections shall have the power to disconnect or forbid the use of any installations or appliances using gas, which have been connected without inspection or are used in violation of this chapter. (Grantsville City Ordinance 65-2.)

Section 11-4. Gas appliance installers and dealers.

- a. It shall be unlawful for any person to install, maintain or repair any gas appliance on the outlet or customer's side of the meter in the city unless he shall first obtain a gas appliance installer's license from the city, authorizing him to perform such work, or unless he is regularly licensed as a master plumber or furnace dealer or is a dealer in gas appliances. Any person directly employed by any such licensed party shall be permitted to perform work on the authority of his employer's license, in which case the licensed employer shall be responsible, for the work so performed. Any bond required for a master plumber or other installer shall take the place and is in lieu of that provided for hereafter.
- b. . Each applicant for a gas appliance installer's license shall file an application in writing with the city recorder, on the application blank furnished by that officer, accompanied by the same fees and bonds as required of master plumbers.
- c. Gas appliance dealers shall register with the city recorder.
- d. The gas appliance installer's license shall entitle such installer to make any installation, alteration or repair, except that where an extension of an electrical circuit is required, a licensed electrician shall make the electrical extension.
- e. The council may revoke the license of any gas appliance installer provided for in this section after notice and hearing or opportunity to be heard for any violation of this section. No refund of the license fee or any part thereof shall be allowed in the case of revocation. No person whose license has been revoked shall not be licensed without permission of the council, nor shall such person, as the employee of another licensed appliance dealer, be allowed to make installations as herein provided.
- f. The revocation penalty shall not be a bar to or affect any other penalty provision for a violation of the Gas Installation Code.

Section 11-5. Non-liability of city.

This chapter shall not be construed as imposing upon the city any liability or responsibility for damages resulting from defective gas piping or appliances or the installation thereof nor shall the city or any official or employee thereof be held as assuming any liability for damages or responsibility by reason of any inspection or licensing under or pursuant to this Code. (Grantsville City Ordinance 65-2.)

Section 11-6. Penalties.

- a. Any person, firm, association or corporation violating any of the provisions of this Ordinance shall be

deemed guilty of a misdemeanor and fined not less than \$25.00 nor more than \$299.00 for each and every violation of any provision hereof, and each day's violation shall be deemed a separate offense.
(Grantsville City Ordinance 65-2.)

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