



## NOTABLE CHANGES TO THE FUEL GAS CODE SECTION OF THE BUILDING CODE\* EFFECTIVE DECEMBER 31, 2014

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The New York City Fuel Gas Code is based on the 2003 edition of the International Fuel Gas Code as published by the International Code Council. Changes and amendments were made reflecting the unique character of the City that brings it up to date with the 2009 edition of such International Fuel Gas Code. This New York City Fuel Gas Code update summary is comprised of both additions and deletions to the previous code. Either of these could be in the form of very minor corrections to entire sections being added or deleted. This document contains examples of wording being removed by placing the wording in brackets “[ ]” and examples of new wording that has been added by underlining it. This summary also is intended to illustrate most of the more substantive changes while leaving out the many very minor ones. Some examples of minor changes are:

- The use of the word ‘equipment’ has been deleted many times and the word ‘appliance’ inserted in its place;
- Corrections to grammar and or punctuation;
- The re-numbering and or re-lettering of paragraphs and subparagraphs;
- The re-numbering and or re-lettering of drawings and charts;
- The additions, deletions or changes to the standards governing a particular rule. An ANSI standard could be changed to an ASME one or an NFPA standard could be added and
- Metric equivalents have been added or modified to some paragraphs.

**The following 64 page summary is drawn from the 214 page full text of the amended Fuel Gas Code which includes all modifications, additions and deletions. As such, it is evident that there are many changes overall to the Code. Therefore, it is highly recommended that you read the entire revised Code to see the totality of all the changes.**

*The New York City Fuel Gas Code based on the 2003 edition of the International Fuel Gas Code published by the International Code Council, with changes that reflect the unique character of the city and amendments that bring it up to date with the 2009 edition of such International Fuel Gas Code, is hereby adopted to read as follows:*

**CHAPTER 1  
ADMINISTRATION**

**SECTION FGC 101  
GENERAL**

**101.1 Title.** This code shall be known and may be cited as the “*New York City Fuel Gas Code*,” “NYCFGC” or “FGC.” All section numbers in this code shall be deemed to be preceded by the designation “FGC.”

**101.2.2 Piping systems.** These regulations cover piping systems for natural gas [with an operating pressure of 125 pounds per square inch gauge (psig) (862 kPa gauge) or less]. High pressure natural gas installations at pressures of 15 psig (103 kPa gauge) or above shall also comply with the requirements of Appendix G of this code. Coverage shall extend to the outlet of the [equipment] appliance shutoff valves. Piping [systems] system requirements shall include design, materials, components, fabrication, assembly, installation, testing, inspection, operation and maintenance.

**101.2.4 Systems and equipment outside the scope.** This code shall not apply to the following:

8. Fuel gas piping in public utility power plants and atomic energy plants.

**SECTION FGC 102  
APPLICABILITY**

**102.1 General.** [The provisions of this code shall apply to all matters affecting or relating to structures and premises, as set forth in Section 101.] Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern. Where, in a specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

**102.3.1 Owner responsibility.** The owner or the owner’s designated agent shall be responsible for maintenance of installations. To determine compliance with this provision, the commissioner shall have the authority to require an existing installation to be inspected.

**102.4.1 Minor additions, alterations, renovations and repairs.** Minor additions, alterations, renovations and repairs to existing installations shall meet the provisions for new construction, unless such work is done in the same manner and arrangement as was in the existing system, is not hazardous and is approved.

**102.4.2 Special provisions for prior code buildings.** In addition to the requirements of Sections 102.4 and 102.4.1, the provisions of Sections 102.4.1.1 through 102.4.1.4 shall apply to prior code buildings.

**102.4.2.1 Fuel gas piping in fire-resistance-rated assemblies.** For prior code buildings, the replacement of existing fuel gas piping in the same locations shall not be subject to Section 404.1, item 5, when approved by the commissioner.

**102.4.2.2 Guards and access to roofs and elevated structures.** The provisions of Section 306.6 relating to guards and Section 306.5 relating to permanent means of access shall not apply where the equipment or appliances replace existing equipment or appliances in the same location.

**102.4.2.3 Seismic supports.** For prior code buildings, the determination as to whether seismic requirements apply to an alteration shall be made in accordance with the *1968 Building Code* and interpretations by the department relating to such determinations. Any applicable seismic loads and requirements shall be permitted to be determined in accordance with Chapter 16 of the *New York City Building Code* or the *1968 Building Code* and Reference Standard RS 9-6 of such code.

**102.4.2.4 Wind resistance.** For prior code buildings, equipment, appliances and supports that are exposed to wind shall be designed and installed to resist the wind pressures determined in accordance with Chapter 16 of the *New York City Building Code*.

**102.8.1 Editions of referenced standards.** References to standards in this code shall be to the editions of those standards provided for in Chapter 8 of this code, or as otherwise provided by rule.

**102.10 Application of references.** Reference to chapter section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

**SECTION FGC 104  
DUTIES AND POWERS OF THE COMMISSIONER  
OF BUILDINGS**

**104.1 General.** The commissioner shall have the authority to render interpretations of this code and to adopt rules, [establishing] policies, and procedures in order to clarify and implement [the] its provisions [of this code]. Such interpretations, policies, procedures, and rules shall be in compliance with the intent and purpose of this code. See the New York City Charter and Chapter 1 of Title 28 of the *Administrative Code* for additional provisions relating to the authority of the Commissioner of Buildings.

**SECTION FGC 107 [(IFGC)]  
INSPECTIONS AND TESTING**

**107.2 Required inspections and testing.** In addition to any inspections otherwise required by this code or applicable rules, the following inspections shall be required: (Previously was under 107.1)

**1. Progress inspections:**

1.3 Inspections required by the *New York City Energy Conservation Code* shall be made in accordance with rules of the department, as applicable.

## **SECTION FGC 202 GENERAL DEFINITIONS**

**1968 OR PRIOR CODE BUILDINGS OR STRUCTURES (PRIOR CODE BUILDINGS).** See Section 28-101.5 of the *Administrative Code*.

**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.

**CHIMNEY CONNECTOR.** A pipe that connects a fuel-burning appliance to a chimney.

**CONNECTOR, APPLIANCE (Fuel).** Rigid metallic pipe 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.]

**DECORATIVE SHROUD.** A partial non-combustible enclosure for aesthetic purposes that is installed at the termination of a venting system that surrounds or conceals the chimney or vent cap.

**DWELLING.** A building or structure which is occupied in whole or in part as the home, residence or sleeping place of one or more families.

**DWELLING UNIT.** A single unit consisting of one or more habitable rooms and occupied or arranged to be occupied as a unit separate from all other units within a dwelling.

**EQUIPMENT.** [See “Appliance.”] Any apparatus or device that delivers gas as a fuel or raw material to an appliance or vents combustion products from an appliance, including but not limited to control devices, pressure regulators, valves, appliance appurtenances, gas connectors, or power exhausters used in connections to appliances.

**EXTERIOR MASONRY CHIMNEYS.** Masonry chimneys exposed to the outdoors on one or more sides below the roof line.

**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.

**Gravity type furnace.** 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.

**INTEGRAL VENT APPLIANCES.** Appliances designed for outdoor installation that have built-in natural or mechanical venting means and are constructed and installed so that all air for combustion is

derived from the outdoor atmosphere and all flue gases are discharged to the outdoor atmosphere through an integral vent termination.

**INTERLOCK.** A device actuated by another device with which it is directly associated, to govern succeeding operations of the same or allied devices. A circuit in which a given action cannot occur until after one or more other actions have taken place.

**LABEL.** Identification applied to material by the manufacturer or an approved agency that contains the name of the manufacturer, the function and performance characteristics of the material, and the name and identification of the approved agency that conducted the evaluation of a representative sample of such material.

**LEAK CHECK.** An operation performed on a gas piping system to verify that the system does not leak. Leakage checks are intended to discover open outlets, defective appliance connections and defects that have developed since the initial installation, normally performed after pressure testing.

**[MECHANICAL EXHAUST SYSTEM.** Equipment installed in and made a part of the vent, which will provide a positive induced draft.]

**[MP REGULATOR.** A medium-pressure gas regulator, the capacity of which shall be determined by the manufacturer.]

**OUTLET.** [A threaded connection or bolted flange in a pipe system to which a gas-burning appliance is attached.] The point at which a gas-fired appliance connects to the gas piping system.

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

**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.

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

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

**SLEEPING UNIT.** A dwelling unit, which may contain either toilet or kitchen facilities but not both. Any sleeping unit housing more than one family shall also be classified as a congregate living unit. The creation of or conversion to sleeping units shall be limited by Section 27-2077 of the New York City Housing Maintenance Code.

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

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

## **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.

[**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.]

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## **CHAPTER 3 GENERAL REGULATIONS**

### **SECTION FGC 301 GENERAL**

[**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.]

**301.7 Fuel types.** Appliances shall be designed for use with the type of fuel gas that will be supplied to them.

**301.7.1 Appliance fuel conversion.** Appliances shall not be converted to utilize a different fuel gas except where complete instructions for such conversion are provided in the installation instructions by the serving gas supplier or by the appliance manufacturer.

[**301.7.1] 301.7.2 Liquid petroleum gas.** Storage or use of LPG for a stationary LPG installation shall comply with the *New York City Fire Code*.

**301.18 Noise control requirements.** Appliances and equipment regulated by this code must comply with Section 928 of the *New York City Mechanical Code*.

**SECTION FGC 302  
STRUCTURAL SAFETY**

**302.3.1 Engineered wood products.** Cuts, notches and holes bored in trusses, [laminated veneer] structural composite lumber, structural glued-laminated members and I-joists are prohibited except where permitted by the manufacturer's recommendations or where the effects of such alterations are specifically considered in the design of the member by a registered design professional.

**SECTION FGC 303  
APPLIANCE LOCATION**

**303.3 Prohibited locations.** [Appliances shall not be located in, or obtain combustion air from, any of the following rooms or spaces:] Appliances shall not be located in sleeping rooms, bathrooms, toilet rooms, storage closets or surgical rooms, or in a space that opens only into such rooms or spaces.

**Exceptions:**

1. In rooms other than those used for sleeping purposes, direct-vent appliances that obtain all combustion air directly from the outdoors and installed in accordance with the conditions of the listing and the manufacturer's instructions.
2. In rooms other than those used for sleeping purposes, [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.] vented room heaters, wall furnaces, vented decorative appliances, vented gas fireplaces, vented gas fireplace heaters and decorative appliances for installation in vented solid fuel-burning fireplaces that are installed in rooms that meet the required volume criteria of Section 304.5.

**303.3.1 Gas-fired direct vent appliances.** Gas-fired direct vent space-heating appliances used for providing heat in rooms for sleeping purposes shall be deemed to be located outside of the sleeping room provided that such a unit is factory assembled and manufactured with an integral factory assembled carbon monoxide detector interlock with automatic main gas shut-off valve. Such unit shall be of direct vent type, such that all air for combustion is derived from the outdoors and that all flue gases are discharged directly to the outdoors. All gas piping shall be hard-piped with no flexible connectors. Such unit shall be installed through a sleeve located in an exterior wall. Pursuant to 27-2034 (f) of the *New York City Housing Maintenance Code*, each heater shall be equipped with an effective device which will automatically shut off the gas supply to the heater if its pilot light or other constantly burning flame is extinguished, or in the event of an interruption of the gas supply to the heater, and will not permit the heater to be relighted unless such shut-off device is first reset manually. Installation requirements shall be in accordance with the manufacturer's instructions and the applicable listing.

**303.4 Protection from physical damage.** Appliances shall not be installed in a location where subject to physical damage, including vehicular impact, unless protected by approved barriers meeting the requirements of the *New York City Fire Code*.

**303.5.1 Gas Fired Appliances.** Gas fired appliances, regardless of btu per hour input, shall be located in an enclosure in accordance with Section 509 of the *New York City Building Code*.

**Exception:** [1.] Gas fired direct vented appliances with a 350,000 btu per hour input or less may be installed in a non-fire rated enclosure.

**303.5.2 Maximum temperature.** Maximum indoor temperature in spaces surrounding appliances shall not exceed the operational temperature of the installed equipment and/or 104° F (40°C).

## SECTION FGC 304 COMBUSTION, VENTILATION AND DILUTION AIR

**304.1 General.** Air for combustion, ventilation and dilution of flue gases for [gas utilization equipment] appliances installed in buildings shall be provided by application of one of the methods prescribed in Sections 304.5 through 304.9. Where the requirements of Section 304.5 are not met, outdoor air shall be introduced in accordance with one of the methods prescribed in Sections 304.6 through 304.9. Direct-vent appliances, gas appliances of other than natural draft design and vented gas appliances other than Category I shall be provided with combustion, ventilation and dilution air in accordance with the [equipment] appliance manufacturer's instructions. Combustion, ventilation, and dilution air shall be obtained solely from the outdoors for fuel-burning appliances with an input greater than 350,000 Btu/h.

**304.1.1 Crawl space and attic space.** For the purposes of this chapter, an opening to a naturally ventilated crawl space or attic space shall be considered equivalent to an opening to the outdoors.

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

**304.1.3 Attic space.** Where combustion air is obtained from an attic area, the attic ventilating openings shall not be subject to ice or snow blockage, and the attic shall have not less than 30 inches (762 mm) vertical clear height at its maximum point. Attic ventilation openings shall be sufficient to provide the required volume of combustion air and the attic ventilation required by the *New York City Building Code*. The combustion air openings shall be provided with a sleeve of not less than 0.019 inch (0.48 mm) (No.26 Gage) galvanized steel or other approved material extending from the appliance enclosure to at least 6 inches (152 mm) above the top of the ceiling joists and insulation.

**[304.4 Makeup air provisions.** Makeup air requirements for the operation of exhaust fans, kitchen ventilation systems, clothes dryers and fireplaces shall be considered in determining the adequacy of a space to provide combustion air requirements.]

**304.4 Circulation of air.** The equipment and appliances within every room containing fuel-burning appliances shall be installed so as to allow free circulation of air. Provisions shall be made to allow

for the simultaneous operation of mechanical exhaust systems, fireplaces or other equipment and appliances operating in the same room or space from which combustion, ventilation, and dilution air is being drawn. Such provisions shall prevent the operation of such appliances, equipment and systems from affecting the supply of combustion, ventilation, and dilution air.

**304.4.2 Ventilation air for fuel burning devices.** Where ventilation air is brought in by mechanical means for heat generation mitigation, provisions must be made for proper air balance to prevent a negative or positive pressure in the boiler room and to discharge the ventilation directly to the outside.

**304.4.3 Prohibited sources.** Openings and ducts shall not connect appliance enclosures with a space in which the operation of a fan will adversely affect the flow of the combustion, ventilation, and dilution air. Combustion, ventilation, and dilution air shall not be subject to ice or snow blockage. No combustion, ventilation, and dilution air inlet shall be less than 30 inches above grade. Combustion, ventilation, and dilution air shall not be obtained from a hazardous location, except where the fuel-fired appliances are located within the hazardous location and are installed in accordance with this code. Combustion, ventilation, and dilution air shall not be taken from a refrigeration machinery room, except where a refrigerant vapor detector system is installed to automatically shut off the combustion process in the event of refrigerant leakage. For structures in areas of special flood hazard, air shall be obtained from a location complying with Appendix G of the *New York City Building Code*.

**304.5 Indoor combustion air.....**

**Exception:** Combustion, ventilation, and dilution air shall be obtained solely from the outdoors for fuel-burning appliances with an input greater than 350,000 Btu/h.

**304.9 Mechanical combustion air supply.** Where all combustion air is provided by a mechanical air supply system, the combustion air shall be supplied from the outdoors at a rate not less than 0.35 cubic feet per minute per 1,000 Btu/h (0.034 m<sup>3</sup>/min per kW) of total input rating of all appliances located within the space. Combustion air rates shall also comply with any applicable rules of the New York City Department of Environmental Protection. The mechanical air supply shall be sufficient to accommodate combustion air, ventilation air, and dilution air requirements of the installation.

**304.9.2 Appliance interlock.** Each of the appliances served shall be interlocked with the mechanical air supply system to prevent main burner operation when the mechanical air supply system is not in operation. The air flow and the damper operation shall be proven prior to burner operation.

**304.9.3 [Combined combustion air and ventilation air system.** Where combustion air is provided by the building's mechanical ventilation system, the system shall provide the specified combustion air rate in addition to the required ventilation air. **Reserved.**

**[304.10 Louvers and grilles.** The required size of openings for combustion, ventilation and dilution air shall be based on the net free area of each opening. Where the free area through a design of louver, grille or screen is known, it shall be used in calculating the size opening required to provide the free area specified. Where the design and free area of louvers and grilles are not known, it shall be assumed that wood louvers will have 10-percent free area and metal louvers and grilles will have 60-percent free

area. Screens shall have a mesh size not smaller than ¼ inch (6.4 mm). Nonmotorized louvers and grilles shall be fixed in the open position. Motorized louvers shall be interlocked with the equipment so that they are proven to be in the full open position prior to main burner ignition and during main burner operation. Means shall be provided to prevent the main burner from igniting if the louvers fail to open during burner start-up and to shut down the main burner if the louvers close during operation.]

**304.10 Opening obstructions locations, and protection.** The required size of openings for combustion, ventilation, and dilution air shall be based on the net free area of each opening. The net free area of an opening shall be that specified by the manufacturer of the opening covering. In the absence of such information, openings covered with metal louvers shall be deemed to have a net free area of 60 percent of the area of the opening, and openings covered with wood louvers shall be deemed to have a net free area of 10 percent of the area of the opening. Louvers and grilles shall be fixed in the open position.

**Exception:** Operable louvers shall be interlocked with the appliance so that they are proven to be in the full open position prior to main burner ignition and during main burner operation. Means shall be provided to prevent the main burner from igniting if the louvers fail to open during burner startup and to shut down the main burner if the louvers close during operation.

**304.10.1 Dampered openings.** Where the combustion air openings are provided with automatic, smoke or fire dampers, the dampers shall be electrically interlocked with the appliances served, so as to prevent operation of any appliance when any of the dampers are closed. Manually operated dampers shall not be installed in combustion air openings. The damper opening shall be proven prior to burner operation.

**304.10.2 Caution sign.** A sign stating, “Louvers, dampers and/or ventilation openings must not be blocked or disabled.” shall be permanently affixed, in clear view, adjacent to the opening(s) within the room containing the equipment. The letters used on the sign shall be at least 1-inch (25 mm) in height.

**304.10.3 Opening location and protection.** Combustion air openings to the outdoors shall comply with the location and protection provisions applicable to outside air intake openings of Sections 401.5 and 401.6 of the *New York City Mechanical Code*.

**304.11 Combustion air ducts.** Combustion air ducts shall comply with all of the following:

[ Ducts shall be of galvanized steel complying with Chapter 6 of the *New York City Mechanical Code* or of equivalent corrosion-resistant material listed and labeled for this application.

1. Ducts shall terminate in an unobstructed space allowing free movement of combustion air to the appliances.
2. Ducts shall serve a single enclosure.
3. Ducts shall not serve both upper and lower combustion air openings where both such openings are used. The separation between ducts serving upper and lower combustion air

openings shall be maintained to the source of combustion air.

4. Ducts shall not be screened where terminating in an attic space.
5. Horizontal upper combustion air ducts shall not slope downward toward the source of combustion air.
6. The remaining space surrounding a chimney liner, gas vent, special gas vent or plastic piping installed within a masonry, metal or factory-built chimney shall not be used to supply combustion air.

**Exception:** Direct-vent gas-fired appliances designed for installation in a solid fuel-burning fireplace where installed in accordance with the listing and the manufacturer's instructions.

7. Combustion air intake openings located on the exterior of a building shall have the lowest side of such openings located not less than 12 inches (305 mm) vertically from the adjoining grade level. ]
  1. Be of galvanized steel complying with Chapter 6 of the *New York City Mechanical Code* or of equivalent corrosion-resistant material approved for this application.

**Exception:** Within dwelling units, unobstructed stud and joist spaces shall not be prohibited from conveying combustion air, provided that not more than one required fireblock is removed.

2. Have a minimum cross-sectional dimension of 3 inches (76 mm).
3. Terminate in an unobstructed space allowing free movement of combustion air to the appliances.
4. Have the same cross-sectional areas as the free area of the openings to which they connect.
5. Serve a single appliance enclosure.
6. Not serve both upper and lower combustion air openings where both such openings are used. The separation between ducts serving upper and lower combustion air openings shall be maintained to the source of combustion air.
7. Not be screened where terminating in an attic space.
8. Not slope downward toward the source of combustion air, where serving the upper required combustion air opening.
9. Be constructed so that the remaining space surrounding a chimney or chimney liner, installed within a masonry, metal or factory-built chimney cannot be used to supply combustion, ventilation and dilution air, except for direct vent appliances designed and installed in

accordance with the equipment manufacturer's instructions and listing."

## **SECTION FGC 305 INSTALLATION**

### **Elevation of ignition source....**

**Exception:** Elevation of the ignition source is not required for appliances that are listed as flammable vapor ignition resistant[ and for installation without elevation].

**305.3.1 Installation in residential garages.** In residential garages where appliances are installed in a separate, enclosed space having access only from outside of the garage, such appliances shall be permitted to be installed at floor level, provided that the required combustion air is taken from the exterior of the garage.

**305.3.2 Parking garages.** Connection of a parking garage with any room in which there is a fuel-fired appliance shall be by means of a vestibule providing a two-doorway separation, except that a single door is permitted where the sources of ignition in the appliance are elevated in accordance with Section 305.3.

**Exception:** This section shall not apply to appliance installations complying with Section 305.4.

**305.4 Public garages, motor fuel-dispensing facilities and repair garages.** Appliances located in public garages, motor fuel-dispensing facilities, repair garages or other areas frequented by motor vehicles shall be installed a minimum of 8 feet (2438 mm) above the floor. [Where motor vehicles exceed 6 feet (1829 mm) in height and are capable of passing under an appliance, appliances shall be installed a minimum of 2 feet (610 mm) higher above the floor than the height of the tallest vehicle.] Where motor vehicles are capable of passing under an appliance, the appliance shall be installed at the clearances required by the appliance manufacturer and not less than 1 foot (305 mm) higher than the tallest vehicle garage door opening.

**305.7 Clearances from grade.** [Equipment and appliances]Appliances installed at grade level shall be supported on a level concrete slab or other approved material extending not less than 3-inches (76 mm) above adjoining grade or shall be suspended [a minimum of ]not less than 6 inches (152 mm) above adjoining grade. Such supports shall be installed in accordance with the manufacturer's installation instructions.

**305.9 Parking structures.** Appliances installed in enclosed, basement and underground parking structures shall be installed in accordance with NFPA 88A.

**305.10 Repair garages.** Appliances installed in repair garages shall be installed in a detached building or room, separated from repair areas by walls or partitions, floors or floor-ceiling assemblies that are constructed so as to prohibit the transmission of vapors and having a fire-resistance rating of not less than 1 hour, and that have no openings in the wall separating the repair area within 8 feet (2438 mm) of the

floor. Wall penetrations shall be firestopped. Air for combustion purposes shall be obtained from the outdoors. The appliance room shall not be used for the storage of combustible materials.

**Exceptions:**

1. Overhead heaters where installed not less than 8 feet (2438 mm) above the floor shall be permitted.
2. Heating appliances for vehicle repair areas where there is no dispensing or transferring of Class I or II flammable or combustible liquids or liquefied petroleum gas shall be installed in accordance with NFPA 30A.

**305.11 Installation in aircraft hangars.** Heaters in aircraft hangars shall be installed in accordance with NFPA 409.

**305.12 Avoid strain on gas piping.** Appliances shall be supported and connected to the piping so as not to exert undue strain on the connections.

**SECTION FGC 306  
ACCESS AND SERVICE SPACE**

**306.1 Clearances for maintenance and replacement.** [Clearances around appliances to elements of permanent construction, including other installed appliances, shall be sufficient 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.] Appliances shall be accessible for inspection, service, repair and replacement without disabling the function of a fire-resistance-rated assembly or removing permanent construction, other appliances, or any other piping or ducts not connected to the appliance being inspected, serviced, repaired or replaced. A level working space at least 30 inches deep and 30 inches wide (762 mm by 762 mm) shall be provided in front of the control side to service an appliance.

**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 component of the appliance. The passageway shall not be less than 30 inches (762 mm) high and 22 inches (559 mm) wide, nor more than 20 feet (6096 mm) in length when measured along the centerline of the passageway from the opening to the [equipment] appliance. 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 extending 4 inches (102 mm) above the adjoining grade and having 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] and large enough to allow removal of the largest [component of the ]appliance.

**Exceptions:**

2. Where the passageway is unobstructed and not less than 6 feet (1829 mm) high [(1829 mm)] and 22 inches (559 mm) wide for its entire length, the passageway shall not be limited in length.

**306.5 [Appliances] Equipment and appliances on roofs or elevated structures.** Where [appliances] equipment and appliances requiring access are installed on roofs or elevated structures at a height exceeding 16 feet (4877mm), such access shall be provided by a permanent approved means of access [designed by a registered design professional], the extent of which shall be from grade or floor level to the [appliance's] equipment and appliances' level service space. Such access shall not require climbing over obstructions greater than 30 inches [high ](762 mm) high or walking on roofs having a slope greater than [four ]4 units vertical in 12 units horizontal (33-percent slope). Where access involves climbing over parapet walls, the height shall be measured to the top of the parapet wall.

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 [a] rung spacing not to exceed [14] 12 inches [(356 mm)] (305 mm) on center.
3. Ladders shall have a toe spacing not less than [6] 7 inches [(152 mm)] (178 mm) deep.
4. There shall be a minimum of 18 inches (457 mm) between rails.
5. Rungs shall have a minimum diameter of 0.75-inch (19 mm) and shall be capable of withstanding a 300-pound (136.1 kg) load.
6. Where a cage, well or ladder safety device is provided, [Ladders] ladders over [30] 20 feet [(9144 mm)] (6096 mm) in height shall be provided with landing [offset sections and landings ] platforms for each 30 feet (9144 mm) of height. Where a cage, well or ladder safety device is not provided, ladders over 20 feet (6096 mm) in height shall be provided with landing platforms for each 20 feet (6096 mm) in height. Landings shall be capable of withstanding a load of 100 pounds per square foot (488.2 kg/m<sup>2</sup>). Landing dimensions shall be not less than 30 inches (762 mm) and not less than 24 inches (610 mm) in width. A guardrail and toeboard shall be provided on all open sides of the landing.
7. Where ladder extensions are installed the side rails of through or side-step ladder extensions shall extend 3 ½ feet above the parapets and landings. For through ladder extensions, the rungs shall be omitted from the extensions and shall have not less 18 nor more than 24 inches of clearance between rails. For side-step or offset fixed ladder sections, at landings, the side rails and rungs shall be carried to the next regular rung beyond or above the 3 ½ feet minimum.
8. Ladders shall be protected against corrosion by approved means. [designed by a registered design professional.]

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

**306.5.1 Sloped roofs.** Where appliances, equipment, fans or other components that require service are installed on a roof having a slope of [three] 3 units vertical in 12 units horizontal (25-percent slope) or greater and having an edge more than 30 inches (762 mm) above grade at such edge, a level platform shall be provided on each side of the appliance or equipment to which access is required [by the manufacturer's installation instructions] for service, repair or maintenance. The platform shall be not [be] less than 30 inches (762 mm) in any dimension and shall be provided with guards [in accordance with Section 306.6]. The guards shall extend not less than 42 inches (1067 mm) above the platform, shall be constructed so as to prevent the passage of a 21-inch-diameter (533 mm) sphere and shall comply with the loading requirements for guards specified in the New York City Building Code. Access shall not require walking on roofs having a slope greater than 4 units vertical in 12 units horizontal (33-percent slope). Where access involves obstructions greater than 30 inches (762 mm) in height, such obstructions shall be provided with ladders installed in accordance with Section 306.5 or stairs installed in accordance with the requirements specified in the *New York City Building Code* in the path of travel to and from appliances, fans or equipment requiring service.

**306.5.2 Electrical requirements.** A receptacle outlet shall be provided at or near the [equipment] appliance location in accordance with the *New York City Electrical Code*.

**306.6 Guards.** Guards shall be provided where appliances, [fans] equipment or other components that require service and roof hatch openings are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The guard shall extend not less than 30 inches (762 mm) beyond each end of such appliances, fans or other components and roof hatch openings and the top of the guard shall be located not less than 42 inches (1067 mm) above the elevated surface adjacent to the guard. The guard shall be constructed so as to prevent the passage of a 21-inch-diameter (533 mm) sphere and shall comply with the loading requirements for guards specified in the *New York City Building Code*.

[304.7] **306.7. Rooftop access and obstructions.** Equipment and appliances installed on rooftops of buildings shall be installed in accordance with the requirements of the New York City Fire Code regarding rooftop access and obstructions, and shall not obstruct or interfere with firefighting operations or the operation of any doors, windows, fire escapes, or other means of egress or other building components requiring operation or access.

## SECTION FGC 307 CONDENSATE DISPOSAL

**307.1 Evaporators and cooling coils.** Condensate drainage systems shall be provided for equipment and appliances containing evaporators and cooling coils in accordance with the New York City Mechanical Code.

**307.2 Fuel-burning appliances.** Liquid combustion by-products of condensing appliances shall be collected and discharged to [a dedicated] an approved plumbing fixture, or [to a] disposal area in accordance with the manufacturer's installation instructions. Condensate piping shall be of approved

corrosion-resistant material and shall not be smaller than the drain connection on the appliance. Such piping shall maintain a minimum horizontal slope in the direction of discharge of not less than one-eighth unit vertical in 12 units horizontal (1-percent slope).

**307.2.1 Condensate disposal.** Condensate from all fuel-burning appliances and associated flues shall be neutralized to a pH of at least 6 and no more than 8 prior to disposal to a sanitary system.

**[307.2] 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 Chapter 7 of the *New York City Plumbing Code* relative to the material type. Condensate waste and drain line size shall be not less than  $\frac{3}{4}$ -inch (19 mm) internal diameter [(19 mm)] and shall not decrease in size from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized by a registered design professional. [All horizontal sections of drain piping shall be installed in uniform alignment at a uniform slope.]

**[307.4 Evaporators and cooling coils.** Drainage of condensate from evaporators and cooling coils shall be performed in accordance with the *New York City Mechanical Code*.]

**[307.5 Exceptions.** Section 307.5 applies to permanently installed equipment. Window units and through-the-wall air-conditioning units are exempt.]

**307.5 Auxiliary drain pan.** Category IV condensing appliances shall be provided with an auxiliary drain pan where damage to any building component will occur as a result of stoppage in the condensate drainage system. Such pan shall be installed in accordance with the applicable provisions of Section 307 of the *New York City Mechanical Code*.

**Exception:** An auxiliary drain pan shall not be required for appliances that automatically shut down operation in the event of a stoppage in the condensate drainage system.

## **SECTION FGC 308 CLEARANCE REDUCTION**

**308.2 Reduction table.** The allowable clearance reduction shall be based on one of the methods specified in Table 308.2 or shall utilize an assembly listed for such application. Where required clearances are not listed in Table 308.2, the reduced clearances shall be determined by linear interpolation between the distances listed in the table. Reduced clearances shall not be derived by extrapolation below the range of the table. The reduction of the required clearances to combustibles for listed and labeled appliances and equipment shall be in accordance with the requirements of this section except that such clearances shall not be reduced where reduction is specifically prohibited by the terms of the appliance or equipment listing [see Figures 308.2(1) through 308.2(3)].

**TABLE 308.2** <sup>a-[j] through k</sup>

**REDUCTION OF CLEARANCES WITH SPECIFIED FORMS OF PROTECTION**

TYPE OF PROTECTION APPLIED TO AND COVERING ALL SURFACES OF COMBUSTIBLE MATERIAL WITHIN THE DISTANCE SPECIFIED AS THE REQUIRED CLEARANCE WITH NO PROTECTION [see Figures 308.2(1), 308.2(2), and 308.2(3)]	WHERE THE REQUIRED CLEARANCE WITH NO PROTECTION FROM APPLIANCE, VENT CONNECTOR, OR SINGLE-WALL METAL PIPE IS: (inches)									
	36		18		12		9		6	
	Allowable clearances with specified protection (inches)									
	Use Column 1 for clearances above appliance or horizontal connector. Use Column 2 for clearances from appliance, vertical connector, and single-wall metal pipe.									
	Above Col. 1	Sides and rear Col. 2	Above Col. 1	Sides and rear Col. 2	Above Col. 1	Sides and rear Col. 2	Above Col. 1	Sides and rear Col. 2	Above Col. 1	Sides and rear Col. 2
1. 3 1/2-inch-thick masonry wall without ventilated airspace	—	24	—	12	—	9	—	6	—	5
2. 1/2-inch insulation board over 1-inch glass fiber or mineral wool batts	24	18	12	9	9	6	6	5	4	3
3. 0.0296 (No. 22 gauge) galvanized sheet metal over 1-inch glass fiber or mineral wool batts reinforced with wire on rear face with ventilated airspace.	18	12	9	6	6	4	5	3	3	3
4. 3 1/2-inch-thick masonry wall with ventilated airspace	—	12	—	6	—	6	—	6	—	6
5. [1/2-inch-thick insulation board] 0.024-inch (nominal 24 gage) sheet metal with ventilated airspace	18	12	9	6	6	4	5	3	3	3
6. [0.024 sheet metal with ventilated airspace over 0.024 sheet metal] 1/2-inch thick insulation board with ventilated airspace	18	12	9	6	6	4	5	3	3	3
7. [1-inch glass fiber or mineral wool batts sandwiched between two sheets 0.024 sheet metal with ventilated airspace] 0.024-inch (nominal 24 gage) sheet metal with ventilated airspace over 0.024-inch (nominal 24 gage) sheet metal with ventilated airspace	18	12	9	6	6	4	5	3	3	3
8. 1-inch glass fiber or mineral wool batts sandwiched between two sheets 0.024-inch (nominal 24 gage) sheet metal with ventilated airspace	18	12	9	6	6	4	5	3	3	3

For SI: 1 inch = 25.4 mm, °C = [(°F - 32)/1.8], 1 pound per cubic foot = 16.02 kg/m<sup>3</sup>, 1 Btu per inch per square foot per hour per °F = 0.144 W/m<sup>2</sup> · K.

- a. Reduction of clearances from combustible materials shall not interfere with combustion air, draft hood clearance and relief, and accessibility of servicing.
- b. All clearances shall be measured from the outer surface of the combustible material to the nearest point on the surface of the appliance, disregarding any intervening protection applied to the combustible material.
- c. Spacers and ties shall be of noncombustible material. No spacer or tie shall be used directly opposite an appliance or connector.
- d. For all clearance reduction systems using a ventilated airspace, adequate provision for air circulation shall be provided as described [see Figures 308.2(2) and 308.2(3)].
- e. There shall be at least 1 inch between clearance reduction systems and combustible walls and ceilings for reduction systems using ventilated airspace.
- f. Where a wall protector is mounted on a single flat wall away from corners, it shall have a minimum 1-inch air gap. To provide air circulation, the bottom and top edges, or only the side and top edges, or all edges shall be left open.
- g. Mineral wool batts (blanket or board) shall have a minimum density of 8 pounds per cubic foot and a minimum melting point of 1500°F.
- h. Insulation material used as part of a clearance reduction system shall have a thermal conductivity of 1.0 Btu per inch per square foot per hour per °F or less.
- i. There shall be at least 1 inch between the appliance and the protector. In no case shall the clearance between the appliance and the combustible surface be reduced below that allowed in this table.
- j. All clearances and thicknesses are minimum; larger clearances and thicknesses are acceptable.
- k. Listed single-wall connectors shall be installed in accordance with the terms of their listing and the manufacturer's installation instructions.

**CHAPTER 4**

**GAS PIPING INSTALLATIONS**  
**SECTION FGC 401**  
**GENERAL**

**401.1.2 [Plastic piping.** Underground plastic piping installed outside of buildings shall be in compliance with Appendix E and Appendix F of this code.] **Reserved.**

**401.5 Identification.** [For other than black steel pipe, exposed] All piping installed in new construction and all new piping installed in existing buildings, whether or not the piping is intended to be enclosed when construction is completed, shall be identified by a yellow label marked “Gas” in black letters. Where the installation requires a gas test such labeling shall be completed prior to such test. Labels shall be provided in accordance with ASME A13.1 and the [The] marking shall be spaced at intervals not exceeding 5 feet (1524 mm). The marking shall not be required on pipe located in the same room as the [equipment] appliance served.

**SECTION FGC 402**  
**PIPE SIZING**

**402.1 General considerations.** [Piping systems shall be of such size and so installed as to provide a supply of gas sufficient to meet the maximum demand without undue loss of pressure between the point of delivery and the gas utilization equipment.] Piping systems shall be of such size and so installed as to provide a supply of gas sufficient to meet the maximum demand and supply gas to each appliance inlet at not less than the minimum supply pressure required by the appliance.

**There are approximately 19 pages of either deletions, changes or additions to the various sizing tables. Therefore, please refer to the unabridged or complete version of the Fuel Gas Code for sizing information.**

**SECTION FGC 403**  
**PIPING MATERIALS**

**403.1.1 Pipe size and pressure limitations.**

Gas distribution piping operating at a pressure of over ½ psig (3.5 kPa gauge) to [3]\_5 psig ([20] 34.5 kPa gauge) and size 4 inches (102 mm) or larger shall be welded.

**Exception:** Manufactured and listed gas trains provided with the appliance may be threaded.

**403.5 Metallic tubing.** Metallic tubing shall not be used except as provided in Section 405.5.

**403.5.1 Standards.** Stainless steel flexible multiple leg hose assemblies shall be designed in accordance with the requirements of this code and the manufacturer’s recommendation.

**403.5.2 Seismic requirements.** Stainless steel flexible multiple leg hose assemblies shall be designed to withstand seismic force and displacement in accordance with Section 1613 of the *New York City Building Code*.

**403.5.3 Special inspection required.** The installation of stainless steel flexible multiple leg hose assemblies shall be subject to special inspection in accordance with Section 1707.7 of the *New York City Building Code* and Section 406 of this code.

**403.6 [Plastic pipe, tubing and fittings.** Plastic pipe, tubing and fittings shall not be used except as provided for in Sections 401.1.1 and 401.1.2.] **Reserved.**

## SECTION FGC 404 PIPING SYSTEM INSTALLATION

**404.1 Prohibited locations.** Piping shall not be installed in or through a [circulating air duct,] ducted supply, return or exhaust duct, or a trash or clothes chute, chimney or gas vent, ventilating duct, dumbwaiter or elevator shaft. Piping installed downstream of the point of delivery shall not extend through any townhouse unit other than the unit served by such piping. Piping, fixtures, or equipment shall be located so as not to interfere with the normal operation of windows or doors and other exit openings. The following installation limitations shall apply:

1. **Fire pump and fire pump rooms.** Gas piping [or], gas consumption devices or any other gas equipment shall not be installed within any space housing a fire pump. Access to gas meter rooms shall not be permitted thru rooms housing a fire pump.
2. **Fire-rated construction.** Gas piping shall not be installed within [concealed spaces of] fire-rated [construction] assemblies.
3. **Public corridor.** Gas piping shall not be installed in public corridors [providing access to required exits] and exit enclosures.

**Exception:** Gas piping may be installed in public corridors in residential buildings that do not have floors below grade or in multi-use buildings that have a residential occupancy in accordance with the following:

1. Gas piping shall be permitted to be installed within a public corridor at the lowest level of the building or the lowest residential level of the building.
2. All gas valves located within the public corridor shall be accessible for maintenance and inspection.
3. Gas pressure within the public corridor piping shall not exceed ½ psi (14 inch w.c.). The completed piping within the public corridor is to be tested and proven tight at 10 psig (69 kPa gauge) for a minimum of 30 minutes.
4. The public corridor shall be ventilated in accordance with the *New York City Mechanical Code*. The pipe shall not be installed in a return air plenum.

5. Pipes must be welded.

**404.2 Piping in solid partitions and walls.** Concealed piping shall not be located in solid partitions and solid walls, unless installed in a ventilated chase or casing.

**404.6.1 Conduit with one end terminating outdoors.** The conduit shall extend into an occupiable portion of the building and, at the point where the conduit terminates in the building, the space between the conduit and the gas piping shall be sealed to prevent the possible entrance of any gas leakage. The conduit shall extend not less than 2 inches (51 mm) beyond the point where the pipe emerges from the floor. If the end sealing is capable of withstanding the full pressure of the gas pipe, the conduit shall be designed for the same pressure as the pipe. Such conduit shall extend not less than 4 inches (102 mm) outside the building, shall be vented above grade to the outdoors and shall be installed so as prevent the entrance of water and insects.

**404.6.2 Conduit with both ends terminating indoors.** Where the conduit originates and terminates within the same building, the conduit shall originate and terminate in an accessible portion of the building and shall not be sealed. The conduit shall extend not less than 2 inches (51 mm) beyond the point where the pipe emerges from the floor.

**404.12.1 Conduit with one end terminating outdoors.** The conduit shall extend into an occupiable portion of the building and, at the point where the conduit terminates in the building, the space between the conduit and the gas piping shall be sealed to prevent the possible entrance of any gas leakage. The conduit shall extend not less than 2 inches (51 mm) beyond the point where the pipe emerges from the floor. Where the end sealing is capable of withstanding the full pressure of the gas pipe, the conduit shall be designed for the same pressure as the pipe. Such conduit shall extend not less than 4 inches (102 mm) outside of the building, shall be vented above grade to the outdoors and shall be installed so as to prevent the entrance of water and insects.

**404.12.2 Conduit with both ends terminating indoors.** Where the conduit originates and terminates within the same building, the conduit shall originate and terminate in an accessible portion of the building and shall not be sealed. The conduit shall extend not less than 2 inches (51 mm) beyond the point where the pipe emerges from the floor.

**404.[12]13 Outlet closures.** [Gas outlets that do not connect to appliances shall be capped gas tight.] Gas outlets shall be permitted only under the following conditions:

**[Exception:]**

1. Valved and capped gas tight outlets for single appliance outlets as approved.
2. Valved and capped outlets on each floor in non-production laboratory buildings for future laboratories.
3. Listed and labeled flush-mounted-type quick disconnect devices and listed and labeled gas convenience outlets [shall be] installed in accordance with the manufacturer's installation instructions.

**404.[15] 16 Prohibited devices.** A device shall not be placed inside the piping or fittings that will reduce the cross-sectional area or otherwise obstruct the free flow of gas.

**Exceptions:**

2. An approved fitting or device where the gas piping system has been sized to accommodate the pressure drop of the fitting or device

**SECTION FGC 405  
PIPING BENDS AND CHANGES IN DIRECTION**

**405.1 General.** Changes in direction of pipe shall be permitted to be made by the use of fittings.

**405.4 Elbows.** Factory-made welding elbows or transverse segments cut therefrom shall have an arc length measured along the crotch at least 1 inch (25 mm) in pipe sizes 2 inches (51 mm) and larger.

**405.5 Pipe movement.** Stainless steel flexible multiple leg hose assemblies listed and labeled as an assembly per UL 536 shall be installed for low pressure flammable and combustible gas piping systems where pipe movement resulting from thermal changes and random seismic shifts can occur in the piping systems.

**405.5.1 Seismic requirements.** Stainless steel flexible multiple leg hose assemblies shall be designed to withstand seismic force and displacement in accordance with Section 1613 of the *New York City Building Code*.

**405.5.2 Inspection.** The installation of stainless steel flexible multiple leg hose assemblies shall be subject to special inspections in accordance with Chapter 17 of the *New York City Building Code*.

**SECTION FGC 406  
INSPECTION, TESTING AND PURGING**

**406.1.1.1 Welder's qualifications.** Welders installing gas piping within buildings at any pressure shall [be qualified for all pipe sizes, wall thicknesses and all positions in accordance with *ASME Boiler and Pressure Vessel Code*, Section IX and requalified on an annual basis. The qualification testing shall be performed by an approved agency, and the inspector shall have a minimum radiography qualification of Level II in accordance with the ASNT, Document No. SNT-TC-1A, Supplement A. Copies of the certified welder qualification reports shall be maintained by the welder and shall be made available to the department upon request.] comply with the following:

1. Welders shall be qualified for all pipe sizes, wall thicknesses and all positions in accordance with the *ASME Boiler and Pressure Vessel Code*, Section IX. Requalification of welders is required on an annual basis and when requested by the commissioner.
2. Welder qualification testing shall be performed by an approved agency and the inspector witnessing the test shall be an authorized AWS Certified Welding Inspector. Radiographic test specimens shall be evaluated by a radiographic inspector having a minimum radiog-

raphy qualification of Level II in accordance with the ASNT, Document No. SNT-TC-1A, Supplement A.

3. Copies of the certified welder qualification reports shall be maintained by both the approved agency and the licensed master plumber employing the welder(s) for at least six years and shall be made available to the department upon request.
4. The approved agency shall submit certified welder qualification reports to the department upon successful qualification of a welder and when requested by the commissioner.
5. The licensed master plumber employing the welder(s) shall submit a statement to the department including who welded the gas piping along with a copy(s) of the certified welder qualification report(s) witnessed by a representative of the licensed master plumber, at the time of the first roughing inspection.

**406.1.1.2 Welding requirements.** All welded gas distribution and meter piping main and branch supplies to customer equipment operating in excess of [3] 5 psig ([20] 34.5 kPa gauge) inside buildings shall be welded; and shall be subject to special inspection in accordance with Chapter 17 of the *New York City Building Code*. All piping 2 ½ inches (63.5 mm) or greater in diameter shall be butt-welded, and piping less than 2 ½ (63.5 mm) inches in diameter may be socket-welded or butt-welded.

[Radiography] Radiographic testing shall be performed on all butt welds in gas meter and gas distribution piping operating at pressures exceeding [3] 5 psig ([20] 34.5 kPa gauge) within buildings, in accordance with *ASME Boiler and Pressure Vessel Code*, Section IX.

**406.1.1.3 Welding records.** The licensed master plumber employing the welder(s) shall assign to each welder an identification symbol or number to identify the welds performed by that particular welder. The welder shall identify all welds with his or her symbol or number. The licensed master plumber shall maintain records identifying the weld(s) made by each welder for at least six years and shall make such records available to the department upon request.

**406.1.3 New branches.** [Where new branches are installed from the point of delivery to new appliances, only the newly installed branches shall be required to be pressure tested. Connections between the new piping and the existing piping shall be tested with a noncorrosive leak-detecting fluid or other approved leak-detecting methods.] A piping system shall be tested as a complete unit.

**406.1.4 [Section] System testing.** A piping system shall [be permitted to] be tested as a complete unit [or in sections. Under no circumstances shall a valve in a line be used as a bulkhead between gas in one section of the piping system and test medium in an adjacent section, unless two valves are installed in series with a valved “telltale” located between these valves. A valve shall not be subjected to the test pressure unless it can be determined that the valve, including the valve-closing mechanism, is designed to safely withstand the test pressure].

**[406.7.1 Removal from service.** Where gas piping is to be opened for servicing, addition, or modification, the section to be worked on shall be turned off from the gas supply at the nearest convenient

point, and the line pressure vented to the outdoors, or to ventilated areas of sufficient size to prevent accumulation of flammable mixtures. The remaining gas in this section of pipe shall be displaced with an inert gas as required by Table 406.7.1.]

**[406.7.4 Placing equipment in operation.** After the piping has been readied for operation, all equipment shall be purged and then placed in operation, as necessary.]

**406.7.1 Piping systems required to be purged outdoors.** The purging of piping systems shall be in accordance with the provisions of Sections 406.7.1.1 through 406.7.1.4 where the piping system meets either of the following:

1. The design operating gas pressure is greater than 2 psig (13.79 kPa).
2. The piping being purged contains one or more sections of pipe or tubing that meet(s) the size and length criteria of Table 406.7.1.1.

**406.7.1.1 Removal from service.** Where existing gas piping is opened, the section that is opened shall be isolated from the gas supply and the line pressure vented in accordance with Section 406.7.1.3. Where gas piping meeting the criteria of Table 406.7.1.1 is removed from service, the residual fuel gas in the piping shall be displaced with an inert gas.

**TABLE 406.7.1.1**  
**SIZE AND LENGTH OF PIPING**

<b><u>NOMINAL PIPE SIZE</u></b> <b><u>(inches)</u></b>	<b><u>LENGTH OF PIPING</u></b> <b><u>(feet)</u></b>
<u><math>\geq 2\frac{1}{2} &lt; 3</math></u>	<u><math>&lt; 50</math></u>
<u><math>\geq 3 &lt; 4</math></u>	<u><math>&lt; 30</math></u>
<u><math>\geq 4 &lt; 6</math></u>	<u><math>&lt; 15</math></u>
<u><math>\geq 6 &lt; 8</math></u>	<u><math>&lt; 10</math></u>
<u><math>\geq 8</math></u>	<u>Any length</u>

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

**406.7.1.2 Placing in operation.** Where gas piping containing air and meeting the criteria of Table 406.7.1.1 is placed in operation, the air in the piping shall first be displaced with an inert gas. The inert gas shall then be displaced with fuel gas in accordance with Section 406.7.1.3.

**406.7.1.3 Outdoor discharge of purged gases.** The open end of a piping system being pressure vented or purged shall discharge directly to an outdoor location. Purging operations shall comply with all of the following requirements:

1. The point of discharge shall be controlled with a shutoff valve.
2. The point of discharge shall be located at least 10 feet (3048 mm) from sources of

ignition, at least 10 feet (3048 mm) from building openings and at least 25 feet (7620 mm) from mechanical air intake openings.

3. During discharge, the open point of discharge shall be continuously attended and monitored with a combustible gas indicator that complies with Section 406.7.1.4.
4. Purging operations introducing fuel gas shall be stopped when 90 percent fuel gas by volume is detected within the pipe.
5. Persons not involved in the purging operations shall be evacuated from all areas within 10 feet (3048 mm) of the point of discharge.

**406.7.1.4 Combustible gas indicator.** Combustible gas indicators shall be listed and shall be calibrated in accordance with the manufacturer's instructions. Combustible gas indicators shall numerically display a volume scale from zero percent to 100 percent in 1 percent or smaller increments.

**406.7.2 Piping systems allowed to be purged indoors or outdoors.** The purging of piping systems shall be in accordance with the provisions of Section 406.7.2.1 where the piping system meets both of the following:

1. The design operating gas pressure is 2 psig (13.79 kPa) or less.
2. The piping being purged is constructed entirely from pipe or tubing not meeting the size and length criteria of Table 406.7.1.1.

**406.7.2.1 Purging procedure.** The piping system shall be purged in accordance with one or more of the following:

1. The piping shall be purged with fuel gas and shall discharge to the outdoors.
2. The piping shall be purged with fuel gas and shall discharge to the indoors or outdoors through an appliance burner not located in a combustion chamber. Such burner shall be provided with a continuous source of ignition.
3. The piping shall be purged with fuel gas and shall discharge to the indoors or outdoors through a burner that has a continuous source of ignition and that is designed for such purpose.
4. The piping shall be purged with fuel gas that is discharged to the indoors or outdoors, and the point of discharge shall be monitored with a listed combustible gas detector in accordance with Section 406.7.2.2. Purging shall be stopped when fuel gas is detected.
5. The piping shall be purged by the gas supplier in accordance with written procedures of the utility company.

**406.7.2.2 Combustible gas detector.** Combustible gas detectors shall be listed and shall be calibrated or tested in accordance with the manufacturer’s instructions. Combustible gas detectors shall be capable of indicating the presence of fuel gas.

**406.7.3 Purging appliances and equipment.** After the piping system has been placed in operation, appliances and equipment subsequently installed shall be purged before being placed into operation.

**SECTION FGC 407  
PIPING SUPPORT**

**407.2 Design and installation.** Piping shall be supported with metal pipe hooks, metal pipe straps, metal bands, metal brackets, [or] metal hangers or building structural components suitable for the size of piping, of adequate strength and quality, and located at intervals so as to prevent or damp out excessive vibration. Piping shall be anchored to prevent undue strains on connected [equipment] appliances and shall not be supported by other piping. Pipe hangers and supports shall conform to the requirements of MSS SP-58 and shall be spaced in accordance with Section 415. Supports, hangers, and anchors shall be installed so as not to interfere with the free expansion and contraction of the piping between anchors. All parts of the supporting equipment shall be designed and installed so they will not be disengaged by movement of the supported piping.

**SECTION FGC 408  
DRIPS AND SLOPED PIPING**

**408.4 Sediment trap.** Where a sediment trap is not incorporated as part of the [gas utilization equipment] appliance, a sediment trap shall be installed downstream of the [equipment] appliance shutoff valve as close to the inlet of the [equipment] appliance as practical. The sediment trap shall be either a tee fitting [with] having a capped nipple of any length installed vertically in the bottom most opening of the [run of the] tee or other device approved as an effective sediment trap. Illuminating appliances, ranges, clothes dryers, decorative vented appliances for installation in vented fireplaces, gas fireplaces, and outdoor grills need not be so equipped.

**SECTION FGC 409  
SHUTOFF VALVES**

**409.1.1 Valve approval.** Shutoff valves shall be of an approved type; shall be constructed of materials compatible with the piping; and shall comply with the standard that is applicable for the pressure and application, in accordance with Table 409.1.1.

**TABLE 409.1.1**  
**MANUAL GAS VALVE STANDARDS**

<b><u>VALVE</u></b> <b><u>STANDARDS</u></b>	<b><u>APPLIANCE</u></b> <b><u>SHUTOFF</u></b> <b><u>VALVE</u></b>	<b><u>OTHER VALVE APPLICATIONS</u></b>
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	<u>APPLICATION UP TO 1/2 psig PRESSURE</u>	<u>UP TO 1/2 psig PRESSURE</u>	<u>UP TO 2 psig PRESSURE</u>	<u>UP TO 5 psig PRESSURE</u>	<u>UP TO 125 psig PRESSURE</u>
<u>ANSI Z21.15</u>	<u>X</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>
<u>CSA Requirement 3- 88</u>	<u>X</u>	<u>X</u>	<u>Xa</u>	<u>Xb</u>	<u>=</u>
<u>ASME B 16.44</u>	<u>X</u>	<u>X</u>	<u>Xa</u>	<u>Xb</u>	<u>=</u>
<u>ASME B16.33</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>

For SI: 1 pound per square inch gauge = 6.895 kPa.

- a. If labeled 2G.
- b. If labeled 5G.

**409.3.1 Multiple tenant buildings.** In multiple tenant buildings, where a common piping system is installed to supply other than [one- and two-family dwellings] individual dwelling units, shutoff valves shall be provided for each tenant. Each tenant shall have access to the shutoff valve serving that tenant's space.

**[409.5 Equipment shutoff valve.** Each appliance shall be provided with a shutoff valve separate from the appliance. The shutoff valve shall be located in the same room as the appliance, not further than 6 feet (1829 mm) from the appliance, and shall be installed upstream from the union, connector or quick disconnect device it serves. Such shutoff valves shall be provided with access.

**Exception:** Shutoff valves for vented decorative appliances and decorative appliances for installation in vented fireplaces shall not be prohibited from being installed in an area remote from the appliance where such valves are provided with ready access. Such valves shall be permanently identified and shall serve no other equipment. Piping from the shutoff valve to within 3 feet (914mm) of the appliance connection shall be sized in accordance with Section 402.

**409.5.1 Shutoff valve in fireplace.** Equipment shutoff valves located in the firebox of a fireplace shall be installed in accordance with the appliance manufacturer's instructions.]

**409.5 Appliance shutoff valve.** Each appliance shall be provided with a shutoff valve in accordance with Section 409.5.1, 409.5.2 or 409.5.3.

**409.5.1 Located within same room.** The shutoff valve shall be located in the same room as the appliance. The shut-off valve shall be within 6 feet (1829 mm) of the appliance, and shall be installed upstream of the union, connector or quick disconnect device it serves. Such shutoff valves shall be provided with access. Appliance shutoff valves located in the firebox of a fireplace shall be installed in accordance with the appliance manufacturer's instructions. Where the shutoff valve is located in the firebox a remote shutoff valve shall also be provided

**409.5.2 Vented decorative appliances and room heaters.** Shutoff valves for vented decorative appliances, room heaters and decorative appliances for installation in vented fireplaces shall be permitted to be installed in an area remote from the appliances where such valves are provided with ready access. Such valves shall be permanently identified and shall serve no other appliance. The piping from the shutoff valve to within 6 feet (1829 mm) of the appliance shall be designed, sized and installed in accordance with Sections 401 through 408.

**409.6 Shutoff valve for laboratories.** Where provided with two or more fuel gas outlets, including table-, bench- and hood-mounted outlets, each laboratory space in educational, research, commercial and industrial occupancies shall be provided with a single dedicated shutoff valve through which all such gas outlets shall be supplied. The dedicated shutoff valve shall be readily accessible, located within the laboratory space served, located adjacent to the egress door from the space and shall be identified by approved signage stating "Gas Shutoff."

## SECTION FGC 410 FLOW CONTROLS

**410.1 Pressure regulators.** A line pressure regulator shall be installed where the appliance is designed to operate at a lower pressure than the supply pressure. Line gas pressure regulators shall be listed as complying with ANSI Z21.80. Access shall be provided to pressure regulators. Pressure regulators shall be protected from physical damage. Regulators installed on the exterior of the building shall be approved for outdoor installation.

**410.3 Venting of regulators.** Pressure regulators that require a vent shall [have an independent vent] be vented directly to the [outside of the building] outdoors. [The vent shall be designed to prevent the entry of water or foreign objects.] The vent terminal shall be [outdoors,] a minimum of 18 inches (457 mm) above grade, not under an opening to the building or overhang, and shall be installed so as to prevent the entrance of water and insects.

**410.3.1 Vent piping.** Vent piping for relief vents and breather vents shall be constructed of materials allowed for gas piping in accordance with Section 403. Vent piping shall be not smaller than the vent connection on the pressure regulating device. Vent piping serving relief vents and combination relief and breather vents shall be run independently to the outdoors and shall serve only a single device vent. Vent piping serving only breather vents is permitted to be connected in a manifold arrangement where sized in accordance with an approved design that minimizes back pressure in the event of

diaphragm rupture. Regulator vent piping shall not exceed the length specified in the regulator manufacturer's installation instructions.

**410.4 Flashback arrestor check valve.** Where fuel gas is used with oxygen in any hot work operation, a listed protective device that serves as a combination flashback arrestor and backflow check valve shall be installed at an approved location on both the fuel gas and oxygen supply lines. Where the pressure of the piped fuel gas supply is insufficient to ensure such safe operation, approved equipment shall be installed between the gas meter and the appliance that increases pressure to the level required for such safe operation.

## **SECTION FGC 411 APPLIANCE AND MANUFACTURED HOME CONNECTIONS**

**411.1 Connecting appliances.** Except as required by Section 411.1.1, [A]appliances shall be connected to the piping system by one of the following:

1. Rigid metallic pipe and fittings. Space heaters and water heaters within dwelling units shall be connected using rigid piping and fittings only. Use of semirigid (flexible) metallic tubing, fittings, appliance connectors or quick-disconnect devices is not permitted for this application. [
2. Semirigid (flexible) metallic tubing and metallic fittings. Lengths shall not exceed 6 feet (1829 mm) and shall be located entirely in the same room as the appliance. Semirigid metallic tubing shall not enter a motor-operated appliance through an unprotected knockout opening.]
- [3.] 2. Listed and labeled appliance connectors in compliance with ANSI Z21.24 and installed in accordance with the manufacturer's installation instructions and located entirely in the same room as the appliance.
- [4.] 3. Listed and labeled quick-disconnect devices used in conjunction with listed and labeled appliance connectors.
- [5.] 4. Listed and labeled convenience outlets used in conjunction with listed and labeled appliance connectors.
- [6.] 5. Listed and labeled outdoor appliance connectors complying with ANSI [Z 21.69] Z21.75/CSA 6.27 and [listed for use with food service equipment having casters, or that is otherwise subject to movement for cleaning, and other large movable equipment.] installed in accordance with the manufacturer's installation instructions.

**411.1.1 Commercial cooking appliances.** Commercial cooking appliances installed on casters and appliances that are moved for cleaning and sanitation purposes shall be connected to the piping system with an appliance connector listed as complying with ANSI Z21.69 and NSF/ANSI 169 or in accordance with Item 1 of Section 411.1.

**411.1.[2]3 [Appliance fuel connectors]Connector installation.** [Connectors shall have an overall length not to exceed 3 feet (914 mm), except for range and domestic clothes dryer connectors, which shall not exceed 6 feet (1829 mm) in length. Connectors shall not be concealed within, or extended through, walls, floors, partitions, ceilings or appliance housings. A shutoff valve not less than the nominal size of the connector shall be installed ahead of the connector in accordance with Section 409.5. Connectors shall be sized to provide the total demand of the connected appliance.

**Exception:** Fireplace inserts factory equipped with grommets, sleeves, or other means of protection in accordance with the listing of the appliance.] Fuel connectors shall be installed in accordance with the manufacturer's instructions and Sections 411.1.3.1 through 411.1.3.4.

**411.1.3.1 Maximum length.** Connectors shall have an overall length not to exceed 6 feet (1829 mm). Measurement shall be made along the centerline of the connector. Only one connector shall be used for each appliance.

**411.1.3.2 Minimum size.** Connectors shall have the capacity for the total demand of the connected appliance.

**411.1.3.3 Prohibited locations and penetrations.** Connectors shall not be concealed within, or extended through, walls, floors, partitions, ceilings or appliance housings.

**Exceptions:**

1. Connectors constructed of materials allowed for piping systems in accordance with Section 403 shall be permitted to pass through walls, floors, partitions and ceilings where installed in accordance with Section 409.5.2.
2. Rigid steel pipe connectors shall be permitted to extend through openings in appliance housings.
3. Fireplace inserts that are factory equipped with grommets, sleeves or other means of protection in accordance with the listing of the appliance.
4. Listed connectors shall be permitted to extend through an opening in an appliance housing, cabinet or casing where the tubing or connector is protected against damage.

**411.1.3.4 Shutoff valve.** A shutoff valve not less than the nominal size of the piping system shall be installed ahead of the connector in accordance with Section 409.5.

**411.1.5 Connection of gas engine-powered air conditioners.** Internal combustion engines shall not be rigidly connected to the gas supply piping.

**411.1.6 Unions.** A union fitting shall be provided for appliances connected by rigid metallic pipe. Such unions shall be accessible and located within 6 feet (1829mm) of the appliance.

**411.2 Manufactured home connections.** Manufactured homes shall be connected to the distribution piping system by one of the following materials:

1. Metallic pipe in accordance with Section 403.4.
2. Listed and labeled connectors in compliance with ANSI Z21.75/CSA 6.27 and installed in accordance with the manufacturer’s installation instructions.

**411.3 Suspended low-intensity infrared tube heaters.** Suspended low-intensity infrared tube heaters shall be connected to the building piping system with a connector listed for the application complying with ANSI Z21 .24/CGA 6.10. The connector shall be installed as specified by the tube heater manufacturer’s instructions.

**SECTION FGC 415  
PIPING SUPPORT INTERVALS**

**415.1 Interval of support.** Piping shall be supported at intervals not exceeding the spacing specified in Table 415.1.

**TABLE 415.1  
SUPPORT OF PIPING**

<b>STEEL PIPE, NOMINAL SIZE OF PIPE (inches)</b>	<b>SPACING OF SUPPORTS (feet)</b>	<b>[NOMINAL SIZE OF TUBING (SMOOTH- WALL) (inch O.D.)]</b>	<b>[SPACING OF SUPPORT S (feet)]</b>
1/2	6	[1/2]	[4]
3/4 or 1	8	[5/8 or 3/4]	[6]
1 1/4 or larger (horizontal)	[10] <u>12</u>	[7/8 or 1 (Horizontal)]	[8]
[1 1/4 or larger (vertical)] <u>All vertical piping</u>	Every floor level	[1 or Larger (vertical)]	[Every floor level]

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

**SECTION 416  
OVERPRESSURE PROTECTION DEVICES**

**416.1 General.** Overpressure protection devices shall be provided in accordance with this section to prevent the pressure in the piping system from exceeding the pressure that would cause unsafe operation of any connected and properly adjusted appliances.

**416.2 Protection methods.** The requirements of this section shall be considered to be met and a piping system deemed to have overpressure protection where a service or line pressure regulator plus one other device are installed such that the following occur:

1. Each device limits the pressure to a value that does not exceed the maximum working pressure of the downstream system.
2. The individual failure of either device does not result in the over pressurization of the downstream system.

**416.3 Device maintenance.** The overpressure protection device shall be properly maintained and inspected every two years by a Licensed Master Plumber and inspection records shall be maintained by the Owner and made available for the Department; and inspection procedures shall be in accordance with the commissioner; and replacements or repairs shall be promptly made.

**Exception:** Where the gas pressure is 15 psig (103 kPa gauge) or above, the overpressure protection device shall be inspected annually.

**416.4 Where required.** A pressure-relieving or pressure-limiting device shall not be required where: (1) the gas does not contain materials that could seriously interfere with the operation of the service or line pressure regulator; (2) the operating pressure of the gas source is 5 psi (34.5 kPa) or less; and (3) the service or line pressure regulator has all of the following design features or characteristics:

1. Pipe connections to the service or line regulator do not exceed 2 inches (51 mm) nominal diameter.
2. The regulator is self-contained with no external static or control piping.
3. The regulator has a single port valve with an orifice diameter not greater than that recommended by the manufacturer for the maximum gas pressure at the regulator inlet.
4. The valve seat is made of resilient material designed to withstand abrasion of the gas, impurities in the gas and cutting by the valve, and to resist permanent deformation where it is pressed against the valve port.
5. The regulator is capable, under normal operating conditions, of regulating the downstream pressure within the necessary limits of accuracy and of limiting the discharge pressure under no-flow conditions to not more than 150 percent of the discharge pressure maintained under flow conditions.

**416.5 Devices.** Pressure-relieving or pressure-limiting devices shall be one of the following:

1. Spring-loaded relief device.
2. Pilot-loaded back pressure regulator used as a relief valve and designed so that failure of the pilot system or external control piping will cause the regulator relief valve to open.
3. A monitoring regulator installed in series with the service or line pressure regulator.
4. An automatic shutoff device installed in series with the service or line pressure regulator and set to shut off when the pressure on the downstream piping system reaches the maximum working pressure or some other predetermined pressure less than the maximum working pressure. This device shall be designed so that it will remain closed until manually reset.
5. A liquid seal relief device that can be set to open accurately and consistently at the desired pressure.

The devices shall be installed either as an integral part of the service or line pressure regulator or as separate units. Where separate pressure-relieving or pressure-limiting devices are installed, they shall comply with Sections 416.5.1 through 416.5.6.

**416.5.1 Construction and installation.** Pressure relieving and pressure-limiting devices shall be constructed of materials so that the operation of the devices will not be impaired by corrosion of external parts by the atmosphere or of internal parts by the gas. Pressure-relieving and pressure-limiting devices shall be designed and installed so that they can be operated to determine whether the valve is free. The devices shall also be designed and installed so that they can be tested to determine the pressure at which they will operate and examined for leakage when in the closed position.

**416.5.2 External control piping.** External control piping shall be protected from falling objects, excavations and other causes of damage and shall be designed and installed so that damage to any control piping will not render both the regulator and the overpressure protective device inoperative.

**416.5.3 Setting.** Each pressure-relieving or pressure-limiting device shall be set so that the pressure does not exceed a safe level beyond the maximum allowable working pressure for the connected piping and appliances.

**416.5.4 Unauthorized operation.** Precautions shall be taken to prevent unauthorized operation of any shutoff valve that will make a pressure-relieving valve or pressure-limiting device inoperative. The valve shall be locked or continuously monitored in the open position.

**416.5.5 Vents.** The discharge stacks, vents and outlet parts of all pressure-relieving and pressure-limiting devices shall be located so that gas is safely discharged to the outdoors. Discharge stacks and vents shall be designed to prevent the entry of water, insects and other foreign material that could cause blockage. The discharge stack or vent line shall be at least the same size as the outlet of the pressure-relieving device.

**416.5.6 Size of fittings, pipe and openings.** The fittings, pipe and openings located between the system to be protected and the pressure-relieving device shall be sized to prevent hammering of the valve and to prevent impairment of relief capacity.

## **CHAPTER 5 CHIMNEYS AND VENTS**

### **SECTION FGC 501 GENERAL**

**501.1 Scope...** Venting systems shall be designed in accordance with this chapter and comply with the requirements of the *New York City Air Pollution Control Code*.

**501.2 General.** Every appliance shall discharge the products of combustion to the outdoors, except for appliances exempted by Section 501.8.

**Exception:** Commercial cooking appliances vented by a Type I hood installed in accordance with MC Section 507.

**501.2.1 Design.** Chimneys and vents shall be designed and constructed so as to provide the necessary draft and capacity for each appliance connected to completely exhaust the products of combustion to the outside air. The temperature on adjacent combustible surfaces shall not be raised above 160°F (71°C). [Condensation shall not be developed to an extent that can cause deterioration of the chimney or vent.] Chimneys and vents shall be designed to resist the effects of condensation that would cause deterioration of the chimney or vent.

**501.2.4 Changes in appliance fuels.** Masonry chimneys shall be constructed in accordance with Section 507.

**501.2.5 Exhaust gases from internal combustion engines and turbines.** Exhaust pipes shall be constructed in accordance with Section 508.

**501.10 Connections to exhauster.** Appliance connections to a chimney or vent equipped with a power exhauster shall be made on the inlet side of the exhauster. Joints and vent systems on the positive pressure side of the exhauster shall be sealed to prevent flue-gas leakage as specified by the manufacturer's installation instructions for the exhauster or in accordance with this code.

**501.12 Residential and low-heat appliances flue lining systems.** Flue lining systems for use with residential-type and low-heat appliances shall be limited to the following:

2. Listed chimney lining systems complying with UL 1777 (new and existing chimneys) or ULC-S635 (existing chimneys) or ULC-S640 (new chimneys).

**501.15.4 Clearances.** Chimneys and vents shall have air-space clearance to combustibles in accordance with the *New York City Building Code* and the chimney or vent manufacturer's installation instructions. [Noncombustible firestopping or fireblocking shall be provided in accordance with the *New York City Building Code*.]

**[Exception:** Masonry chimneys equipped with a chimney lining system tested and listed for installation in chimneys in contact with combustibles in accordance with UL 1777, and installed in accordance with the manufacturers instructions, shall not be required to have clearance between combustible materials and exterior surfaces of the masonry chimney.]

**Exception:** Masonry chimneys without the required air-space clearances shall be permitted to be used if lined or relined with a chimney lining system listed for use in chimneys with reduced clearances in accordance with UL 1777 or ULc-S635. The chimney clearance shall be not less than permitted by the terms of the chimney liner listing and the manufacturer's instructions.

**501.15.4.1 Fireblocking.** Noncombustible fireblocking shall be provided in accordance with the *New York City Building Code*.

**501.16 Drains.** A drain shall be provided for all chimneys and gas vents to remove rain water and condensation. The drain shall be a minimum of 1 inch (25 mm) in size and shall be equipped with an appropriately-sized p-trap with automatic trap seal primer in accordance with Section 1002 of the *New York City Plumbing Code* or a float drain trap installed in accordance with the manufacturer's installation requirements. The drain shall be sized by the design engineer and shall be suitable for the chimney area. For listed chimneys and gas vents, the connection tap into the chimney shall be determined by the manufacturer and connected to the drain piping in accordance with the listing and installation instructions. On all outdoor chimneys and gas vents, the connection and drain shall be installed indoors as close as practicable to the chimney base to prevent freezing.

**501.17 Thermal safety (spill) switches.** Thermal safety (spill) switches shall be installed on barometric dampers, draft hoods, draft diverters, and all other appurtences that allow dilution air into chimneys or gas vents. Thermal safety (spill) switches shall be interlocked with all of the appliances connected to the same chimney or gas vent.

## SECTION FGC 502 VENTS

**502.1 General.** All vents, except as provided in Section 503.7, shall be listed and labeled. Type B and BW vents shall be tested in accordance with UL 441 and labeled or field fabricated in accordance with NFPA 211. Type L vents shall be tested in accordance with UL 641. Vents for Category II and III appliances shall be tested in accordance with UL 1738. [Plastic vents for Category IV appliances shall not be required to be listed and labeled where such vents are as specified by the appliance manufacturer and are installed in accordance with the appliance manufacturer's installation instructions.] Plastic piping shall be listed and installed in accordance with the terms of its listing and the manufacturers' instructions.

**502.4 Insulation shield.** Where vents pass through insulated assemblies, an insulation shield constructed of [not less than 26 gage sheet (0.016 inch) (0.4mm) metal] steel having a minimum thickness of 0.0187 inch (0.4712 mm) (No. 26 gage) shall be installed to provide clearance between the vent and the insulation material. The clearance shall not be less than the clearance to combustibles specified by the vent manufacturer's installation instructions. Where vents pass through attic space, the shield shall terminate not less than 2 inches (51 mm) above the insulation materials and shall be secured in place to prevent displacement. Insulation shields provided as part of a listed vent system shall be installed in accordance with the manufacturer's installation instructions.

**502.7 Protection against physical damage.** In concealed locations, where a vent is installed through holes or notches in studs, joists, rafters or similar members less than 1½ inches (38 mm) from the nearest edge of the member, the vent shall be protected by shield plates. Protective steel shield plates having a minimum thickness of 0.0575 inch (1.463 mm) (No. 16 gage) shall cover the area of the vent where the member is notched or bored and shall extend a minimum of 4 inches (102 mm) above sole plates, below top plates and to each side of a stud, joist or rafter.

## **SECTION FGC 503 VENTING OF [EQUIPMENT] APPLIANCES**

**503.3.3 Mechanical draft systems.** Mechanical draft systems shall comply with the following:

6. The exit terminals of mechanical draft systems shall be not less than 7 feet (2134 mm) above finished ground level where located adjacent to public walkways and shall be located as specified in [in compliance with] Section 503.8, Items 1 and 2.

**503.3.4 Ventilating hoods and exhaust systems.** Ventilating hoods and exhaust systems shall be permitted to be used to vent [gas utilization equipment] appliances installed in commercial applications. Where automatically operated [equipment] appliances, other than commercial cooking appliances, are vented through a ventilating hood or exhaust system equipped with a damper or with a power means of exhaust, provisions shall be made to allow the flow of gas to the main burners only when the damper is open to a position to properly vent the [equipment] appliance and when the power means of exhaust is in operation.

**503.3.5 [Circulating air]Air ducts and furnace plenums.** [No portion of a venting system] Venting systems shall not extend into or pass through any [circulating] fabricated air duct or furnace plenum.

**503.3.6 Above-ceiling air-handling spaces.** Where a venting system passes through an above-ceiling air-handling space or other nonducted portion of an air-handling system, such space shall be accessible for inspection. The venting system shall conform to one of the following requirements:

1. The venting system shall be a listed special gas vent; other venting system serving a Category III or Category IV appliance; or other positive pressure vent, with joints sealed in accordance with the appliance or vent manufacturer's instructions.
2. The venting system shall be installed such that fittings and joints between sections are not installed in the above-ceiling space.

3. The venting system shall be installed in a sealed metal conduit or enclosure with sealed joints separating the interior of the conduit or enclosure from the ceiling space.

**503.4.1 Plastic piping.** Plastic piping used for venting [equipment] appliances listed for use with such venting materials shall be [permitted when approved by the commissioner] listed and installed in accordance with the terms of its listing and the manufacturers' instructions. Installation shall be in accordance with the *New York City Building Code*. PVC shall not be permitted.

**503.5.4 Chimney termination.** Chimneys serving gas-fired equipment shall comply with the appliance listing, the manufacturer's instructions and the following requirements:

4. Termination caps shall not be permitted[ and a 3-inch (76mm) minimum drain installed to receive collected water shall be required]. A drain shall be installed in accordance with Section 801.21 of the *New York City Mechanical Code*. A positive means shall be provided to prevent water from entering the appliance.

[**503.5.5.1 Incinerator venting.** Where an incinerator is vented by a chimney serving other gas utilization equipment, the gas input to the incinerator shall not be included in calculating chimney size, provided the chimney flue diameter is not less than 1 inch (25 mm) larger in equivalent diameter than the diameter of the incinerator flue outlet.]

**503.5.6.1 Chimney lining.** Chimneys shall be lined in accordance with NFPA 211.

[**Exception:** Existing chimneys shall be permitted to have their use continued when an appliance is replaced by an appliance of similar type, input rating, and efficiency.]

**Exception:** Where an existing chimney complies with Sections 503.5.6 through 503.5.6.5 and its sizing is in accordance with Section 503.5.5, its continued use shall be allowed where the appliance vented by such chimney is replaced by an appliance of similar type, input rating and efficiency.

**503.5.6.4 Test run.** All new chimneys shall be test run by the [design professional engineer] registered design professional responsible for the testing under operating conditions to demonstrate fire safety and the complete exhausting of smoke and the products of combustion to the outer air. The results of such test run shall be certified as correct by the [design professional engineer] registered design professional responsible for the test and shall be submitted in writing to the department.

**503.5.6.5 Requirement of a smoke test.** A smoke test shall be made as outlined below. Any faults or leaks found shall be corrected. Such smoke test shall be witnessed by a representative of the commissioner. In lieu thereof, the commissioner may accept the test report of the [design professional engineer] registered design professional or special inspector responsible for the test which shall be submitted in writing to the department.

[**503.6.3 Roof penetration.** A gas vent passing through a roof shall extend through the roof flashing, roof jack, or roof thimble and shall be terminated by a listed termination cap.]

**[503.6.4 Offsets.** Type B and Type L vents shall extend in a generally vertical direction with offsets not exceeding 45 degrees (0.79 rad), except that a vent system having not more than one 60-degree (1.04 rad) offset shall be permitted. Any angle greater than 45 degrees (0.79 rad) from the vertical is considered horizontal. The total horizontal length of a vent plus the horizontal vent connector length serving draft-hood-equipped appliances shall not be greater than 75 percent of the vertical height of the vent.

**Exception:** Systems designed and sized as provided in Section 504 or in accordance with other approved engineering methods.

Vents serving Category I fan-assisted appliances shall be installed in accordance with the appliance manufacturer's instructions and Section 504 or other approved engineering methods.]

**[503.6.6] 503.6.4 Gas vent terminations.** A gas vent shall terminate in accordance with one of the following:

1. [Above the roof surface with a listed cap or listed roof assembly. Gas vents 12 inches (305 mm) in size or smaller with listed caps shall be permitted to be terminated in accordance with Figure 503.6.6, provided that such vents are at least 8 feet (2438 mm) from a vertical wall or similar obstruction. All other gas vents shall terminate not less than 2 feet (610mm) above the highest point where they pass through the roof and at least 2 feet (610 mm) higher than any portion of a building within 10 feet (3048 mm).] Gas vents that are 12 inches (305 mm) or less in size and located not less than 8 feet (2438 mm) from a vertical wall or similar obstruction shall terminate above the roof in accordance with Figure 503.6.6.
2. Gas vents that are over 12 inches (305 mm) in size or are located less than 8 feet (2438 mm) from a vertical wall or similar obstruction shall terminate not less than 2 feet (610 mm) above the highest point where they pass through the roof and not less than 2 feet (610 mm) above any portion of a building within 10 feet (3048 mm) horizontally.

ROOF SLOPE	H (min) ft
Flat to 6/12	1.0
Over 6/12 to 7/12	1.25
Over 7/12 to 8/12	1.5
Over 8/12 to 9/12	2.0
Over 9/12 to 10/12	2.5
Over 10/12 to 11/12	3.25
Over 11/12 to 12/12	4.0
Over 12/12 to 14/12	5.0
Over 14/12 to 16/12	6.0
Over 16/12 to 18/12	7.0
Over 18/12 to 20/12	7.5
Over 20/12 to 21/12	8.0

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.  
[503.6.6]

**FIGURE 503.6.4**  
**TERMINATION LOCATIONS FOR GAS VENTS WITH LISTED CAPS 12 INCHES OR LESS IN SIZE AT LEAST 8 FEET FROM A VERTICAL WALL**

**503.6.6 Roof terminations.** Gas vents shall extend through the roof flashing, roof jack or roof thimble and terminate with a listed cap or listed roof assembly.

**503.6.7 Forced air inlets.** Gas vents shall terminate not less than 3 feet (914 mm) above any forced air inlet located within 10 feet (3048 mm).

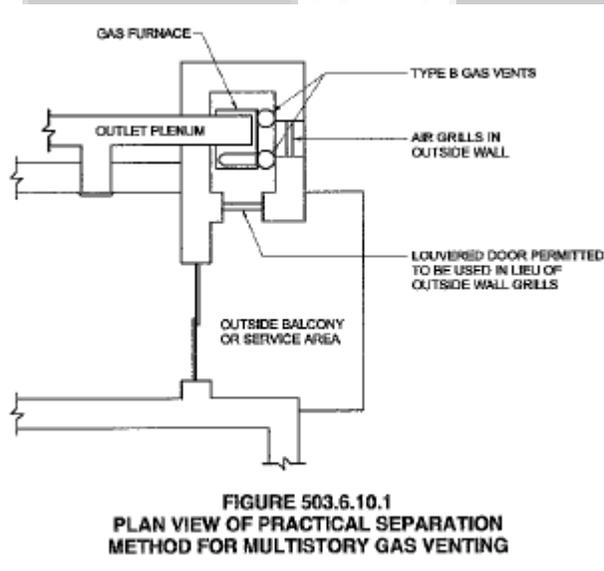
**503.6.9.2 Vent offsets.** Type B and L vents sized in accordance with Item 2 or 3 of Section 503.6.9.1 shall extend in a generally vertical direction with offsets not exceeding 45 degrees (0.79 rad), except that a vent system having not more than one 60-degree (1.04 rad) offset shall be permitted. Any angle greater than 45 degrees (0.79 rad) from the vertical is considered horizontal. The total horizontal distance of a vent plus the horizontal vent connector serving draft hood-equipped appliances shall be not greater than 75 percent of the vertical height of the vent.

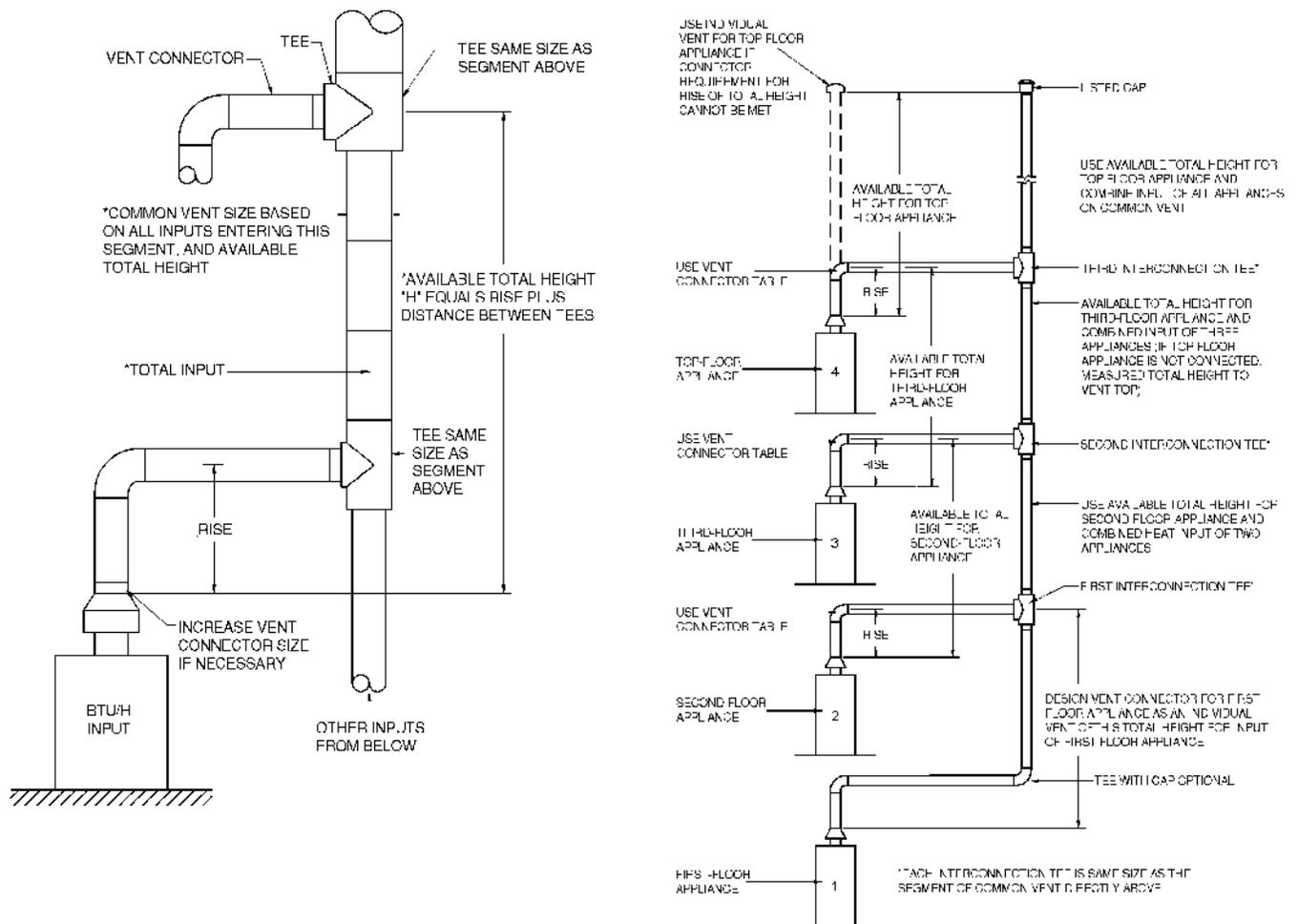
**503.6.10 [Gas vents serving equipment on more than one floor.** A single or common gas vent shall be permitted in multistory installations to vent Category I equipment located on more than one floor level, provided the venting system is designed and installed in accordance with this section and approved engineering methods.] **Multistory prohibited.** Common venting systems for appliances located on more than one floor level shall be prohibited.

**[503.6.10.1 Equipment separation.** All equipment connected to the common vent shall be located in rooms that do not communicate with occupiable and/or habitable spaces. Each of these rooms shall have provisions for an adequate supply of combustion, ventilation, and dilution air that is not supplied from habitable space (see Figure 503.6.10.1).

**503.6.10.2 Sizing.** The size of the connectors and common segments of multistory venting systems for equipment listed for use with Type B double-wall gas vent shall be in accordance with Table 504.3(1) and Figures 503.6.10.2(1) and 503.6.10.2(2), provided:

1. The available total height (H) for each segment of a multistory venting system is the vertical distance between the level of the highest draft hood outlet or flue collar on that floor and the centerline of the next highest interconnection tee [see Figure 503.6.10.2(1)].
2. The size of the connector for a segment is determined from its gas utilization equipment heat input and available connector rise, and shall not be smaller than the draft hood outlet or flue collar size.
3. The size of the common vertical segment, and of the interconnection tee at the base of that segment, shall be based on the total gas utilization equipment heat input entering that segment and its available total height.]





1

**503.6.13 Fastener penetrations.** Screws, rivets and other fasteners shall not penetrate the inner wall of double-wall gas vents, except at the transition from an appliance draft hood outlet, a flue collar or a single-wall metal connector to a double-wall vent.

**503.7.7 Single-wall penetrations of combustible walls.** A single-wall metal pipe shall not pass through a combustible exterior wall unless guarded at the point of passage by a ventilated metal thimble not smaller than the following:

1. For listed appliances equipped with draft hoods and appliances listed for use with Type B gas vents, the thimble shall be not less than 4 inches (102 mm) larger in diameter than the metal pipe. Where there is a run of not less than 6 feet (1829 mm) of metal pipe in the open between the draft hood outlet and the thimble, the thimble shall be permitted to be not less than 2 inches (51 mm) larger in diameter than the metal pipe.
2. For unlisted appliances having draft hoods, the thimble shall be not less than 6 inches (152 mm) larger in diameter than the metal pipe.
3. For residential and low-heat appliances, the thimble shall be not less than 12 inches (305

mm) larger in diameter than the metal pipe.

**Exception:** In lieu of thimble protection, all combustible material in the wall shall be removed a sufficient distance from the metal pipe to provide the specified clearance from such metal pipe to combustible material. Any material used to close up such opening shall be noncombustible.

**[503.7.7] 503.7.8 Clearances.** Minimum clearances from single-wall metal pipe to combustible material shall be in accordance with Table [503.7.7] 503.10.5. The clearance from single-wall metal pipe to combustible material shall be permitted to be reduced where the combustible material is protected as specified for vent connectors in Table 308.2.

**TABLE 503.7.7<sup>a</sup>  
CLEARANCES FOR CONNECTORS**

EQUIPMENT	MINIMUM DISTANCE FROM COMBUSTIBLE MATERIAL			
	Listed Type B gas vent material	Listed Type L vent material	Single-wall metal pipe	Factory-built chimney sections
Listed equipment with draft hoods and equipment listed for use with Type B gas vents	As listed	As listed	6 inches	As listed
Residential boilers and furnaces with listed gas conversion burner and with draft hood	6 inches	6 inches	9 inches	As listed
Residential appliances listed for use with Type L vents	Not permitted	As listed	9 inches	As listed
Listed gas-fired toilets	Not permitted	As listed	As listed	As listed
Unlisted residential appliances with draft hood	Not permitted	6 inches	9 inches	As listed
Residential and low-heat equipment other than above	Not permitted	9 inches	18 inches	As listed
Medium-heat equipment	Not permitted	Not permitted	36 inches	As listed

For SI: 1 inch = 25.4 mm.

a. These clearances shall apply unless the listing of an appliance or connector specifies different clearances, in which case the listed clearances shall apply.

**503.8 Venting system termination location.** The location of venting system terminations shall comply with the following:

1. Gas venting systems shall be extended at least [2] 3 feet ([610] 914 mm) above the highest construction, such as a roof ridge, parapet wall, or penthouse, within 10 feet (3048 mm) of the vent outlet whether the construction is on the same building as the chimney or on another building. However, such constructions do not include chimneys or other vents, or open structural framing. The vent shall be as high as such construction which is located beyond 10 feet (3048 mm) from the vent and up to and including the distance determined by Equation 5-2.

**Exception:** Direct-vent appliances and integral vent appliances approved by the commissioner and installed in accordance with the manufacturer's instructions and Section 503.8 Item 3.

2. Where permitted, through-the-wall vents for Category I, II, III and IV appliances and noncategorized condensing appliances shall not terminate over public walkways or over an area

where condensate or vapor could create a nuisance or hazard or could be detrimental to the operation of regulators, relief valves or other equipment. [Where local experience indicates that condensate is a problem with Category I and III appliances, this provision shall also apply.]

3. Horizontal terminations shall only be allowed if they are in a nonhazardous location and if the appliance has a sealed combustion chamber (direct vent) or integral vent in accordance with the appliance listing and manufacturer's instructions. In addition, horizontal terminations shall comply with the following requirements:

3.1. Where located adjacent to walkways, the termination shall be not less than 7 feet (2134 mm) above the level of the walkway.

3.2. Vents shall terminate at least 3 feet (914 mm) above any forced air inlet, other than the forced air inlet for the subject direct vent or integral vent appliance, located within 10 feet (3048 mm).

3.3. The vent system shall terminate at least 4 feet (1219 mm) below, 4 feet (1219 mm) horizontally from or 1 foot (305 mm) above any door, window or gravity air inlet into the building.

3.4. The vent termination point shall not be located closer than 3 feet (914 mm) to an interior corner formed by two walls perpendicular to each other.

3.5. The vent termination shall not be mounted directly above or within 3 feet (914 mm) horizontally from any gas or electric metering, regulating, venting relief equipment or other building opening.

3.6. The bottom of the vent termination shall be located at least 24 inches (610 mm) above finished grade.

3.7. The maximum heat input of an appliance served by single horizontal vent termination shall be 350,000 Btu/h (1025 kW), unless otherwise approved by the Commissioner.

3.8 The maximum heat input of all appliances served by horizontal vent terminations located within a 10 foot (3048 mm) radius shall be 350,000 Btu/h (1025 kW), unless otherwise approved by the commissioner.

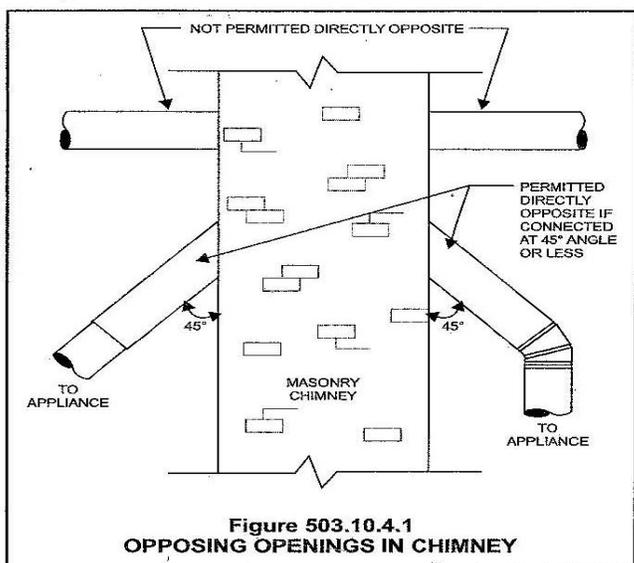
3.9 The vent termination shall be located a minimum of 4 feet from the lot line or from adjacent buildings. The termination shall be installed in accordance with the gas vent manufacturer's listing and installation instructions.

[3. A mechanical draft venting system shall terminate at least 3 feet (914 mm) above any forced-air inlet located within 10 feet (3048 mm).]

**[Exceptions:**

1. This provision shall not apply to the combustion air intake of a direct-vent appliance.
2. This provision shall not apply to the separation of the integral outdoor air inlet and flue gas discharge of listed outdoor appliances.]

**503.10.4.1 Two or more openings.** Where two or more openings are provided into one chimney flue or vent, the openings shall be at different levels, or the connectors shall be attached to the vertical portion of the chimney or vent at an angle of 45 degrees (0.79 rad) or less relative to the vertical.



**503.10.5 Clearance.** Minimum clearances from vent connectors to combustible material shall be in accordance with Table [503.7.7] 503.10.5.

**Exception:** The clearance between a vent connector and combustible material shall be permitted to be reduced where the combustible material is protected as specified for vent connectors in Table 308.2.

**TABLE 503.10.5<sup>a</sup>  
CLEARANCES FOR CONNECTORS**

APPLIANCE	MINIMUM DISTANCE FROM COMBUSTIBLE MATERIAL			
	Listed Type B gas vent material	Listed Type L vent material	Single-wall metal pipe	Factory-built chimney sections
Listed appliances with draft hoods and appliances listed for use with Type B gas vents	As listed	As listed	6 inches	As listed
Residential boilers and furnaces with listed gas conversion burner and with draft hood	6 inches	6 inches	9 inches	As listed

<u>Residential appliances listed for use with Type L vents</u>	<u>Not permitted</u>	<u>As listed</u>	<u>9 inches</u>	<u>As listed</u>
<u>Listed gas-fired toilets</u>	<u>Not permitted</u>	<u>As listed</u>	<u>As listed</u>	<u>As listed</u>
<u>Unlisted residential appliances with draft hood</u>	<u>Not permitted</u>	<u>6 inches</u>	<u>9 inches</u>	<u>As listed</u>
<u>Residential and low-heat appliances other than above</u>	<u>Not permitted</u>	<u>9 inches</u>	<u>18 inches</u>	<u>As listed</u>
<u>Medium-heat appliances</u>	<u>Not permitted</u>	<u>Not permitted</u>	<u>36 inches</u>	<u>As listed</u>

For SI: 1 inch = 25.4 mm.

a. These clearances shall apply unless the manufacturer's installation instructions for a listed appliance or connector specify different clearances, in which case the listed clearances shall apply.

**503.10.9 Length of vent connector.** A vent connector shall be as short as practical and the [equipment] appliance located as close as practical to the chimney or vent. [Except as provided for in Section 503.10.3, the] The maximum horizontal length of a single-wall connector shall be 75 percent of the height of the chimney or vent except for engineered systems. [Except as provided for in Section 503.10.3, the] The maximum horizontal length of a Type B double-wall connector shall be 100 percent of the height of the chimney or vent except for engineered systems. [For a chimney or vent system serving multiple appliances, the maximum length of an individual connector, from the appliance outlet to the junction with the common vent or another connector, shall be 100 percent of the height of the chimney or vent.]

**503.10.13 Fireplaces.** A vent connector shall not be connected to a chimney flue serving a fireplace.

**503.10.14 Passage through ceilings, floors, or walls.** [A vent connector] Single-wall metal pipe connectors shall not pass through any [ceiling] wall, floor or ceiling except as permitted by Section 503.7.4. [A single-wall metal pipe connector shall not pass through any interior wall.]

**[Exception:** Vent connectors made of listed Type B or Type L vent material and serving listed equipment with draft hoods and other equipment listed for use with Type B gas vents shall be permitted to pass through walls or partitions constructed of combustible material if the connectors are installed with not less than the listed clearance to combustible material.

**503.10.15 Single-wall connector penetrations of combustible walls.** A vent connector made of a single-wall metal pipe shall not pass through a combustible exterior wall unless guarded at the point of passage by a ventilated metal thimble not smaller than the following:

1. For listed appliances equipped with draft hoods and appliances listed for use with Type B gas vents, the thimble shall be not less than 4 inches (102 mm) larger in diameter than the vent connector. Where there is a run of not less than 6 feet (1829 mm) of vent connector in the open between the draft hood outlet and the thimble, the thimble shall be permitted to be not less than 2 inches (51 mm) larger in diameter than the vent connector.
2. For unlisted appliances having draft hoods, the thimble shall be not less than 6 inches (152 mm) larger in diameter than the vent connector.

3. For residential and low-heat appliances, the thimble shall be not less than 12 inches (305 mm) larger in diameter than the vent connector.

**Exception:** In lieu of thimble protection, all combustible material in the wall shall be removed from the vent connector a sufficient distance to provide the specified clearance from such vent connector to combustible material. Any material used to close up such opening shall be noncombustible.]

**503.12.2 Installation.** A draft hood supplied with or forming a part of a listed vented [equipment] appliance shall be installed without alteration, exactly as furnished and specified by the [equipment] appliance manufacturer. Draft hoods shall be equipped with a thermal safety (spill) switch installed in accordance with its listing and the manufacturer's instructions.

**503.12.4 Additional devices.** [Equipment] Appliances requiring a controlled chimney draft shall be permitted to be equipped with a listed double-acting barometric-draft regulator installed and adjusted in accordance with the manufacturers' instructions. Barometric-draft regulators shall be equipped with a thermal safety (spill) switch installed in accordance with its listing and the manufacturer's instructions.

**503.15 Obstructions.** Devices that retard the flow of vent gases shall not be installed in a vent connector, chimney, or vent. The following shall not be considered as obstructions:

1. Draft regulators and safety controls specifically listed for installation in venting systems and installed in accordance with the terms of their listing and manufacturer's installation instructions.
2. Approved draft regulators and safety controls that are designed and installed in accordance with approved engineering methods.
3. Listed heat reclaimers and automatically operated vent dampers installed in accordance with the terms of their listing and manufacturer's installation instruction.

**503.16 Outside wall penetrations.** Where vents, including those for direct-vent appliances, penetrate outside walls of buildings, the annular spaces around such penetrations shall be permanently sealed using approved materials to prevent entry of combustion products into the building.

**504.2.3 Vent offsets.** [Single-appliance venting configurations with zero (0) lateral lengths in Tables 504.2(1), 504.2(2), and 504.2(5) shall not have elbows in the venting system. For vent configurations with lateral lengths, the venting tables include allowance for two 90-degree (1.57 rad) turns. For each elbow up to and including 45 degrees (0.79 rad), the maximum capacity listed in the venting tables shall be reduced by 5 percent. For each elbow greater than 45 degrees (0.79 rad) up to and including 90 degrees (1.57 rad), the maximum capacity listed in the venting tables shall be reduced by 10 percent.] Single-appliance venting configurations with zero (0) lateral lengths in Tables 504.2(1), 504.2(2) and 504.2(5) shall not have elbows in the venting system. Single-appliance venting configurations with lateral lengths include two 90-degree (1.57 rad) elbows. For each additional elbow up to and including 45 degrees (0.79 rad), the maximum capacity listed in the venting tables shall be reduced by 5 percent. For each additional elbow greater than 45 degrees (0.79 rad) up to and including 90 degrees (1.57 rad), the maximum capacity listed in the venting tables shall be

reduced by 10 percent. Where multiple offsets occur in a vent, the total lateral length of all offsets combined shall not exceed that specified in Tables 504.2(1) through 504.2(5).

**504.2.9 Chimney and vent locations.** Tables 504.2(1), 504.2(2), 504.2(3), 504.2(4) and 504.2(5) shall be used only for chimneys and vents not exposed to the outdoors below the roof line. A Type B vent or listed chimney lining system passing through an unused masonry chimney flue shall not be considered to be exposed to the outdoors. A Type B vent shall not be considered to be exposed to the outdoors where it passes through an unventilated enclosure or chase insulated to a value of not less than R8. Table 504.2(3) in combination with Table [504.3(6)] 504.2(6) shall be used for clay-tile-lined exterior masonry chimneys, provided that all of the following are met:

**504.2.13 Draft hood conversion accessories.** Draft hood conversion accessories for use with masonry chimneys venting listed Category I fan-assisted appliances shall be listed and installed in accordance with the manufacturer's installation instructions for such listed accessories.

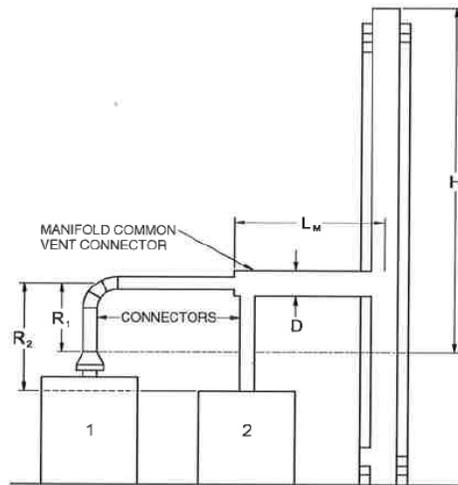
[504.2.13] **504.2.14 Table interpolation.** Interpolation shall be permitted in calculating capacities for vent dimensions that fall between the table entries.

[504.2.14] **504.2.15 Extrapolation prohibited.** Extrapolation beyond the table entries shall not be permitted.

[504.2.15] **504.2.16 Engineering calculations.** For vent heights less than 6 feet (1829mm) and greater than shown in the tables, engineering methods shall be used to calculate vent capacities. Signed and sealed calculations shall be submitted with filing application.

**FIGURE 504.3.4**

**USE OF A MANIFOLD COMMON VENT CONNECTOR**



Example: Manifolded Common Vent Connector  $L_m$  shall be no greater than 18 times the common vent connector manifold inside diameter; i.e., a 4-inch (102 mm) inside diameter common vent connector manifold shall not exceed 72 inches (1829 mm) in length (see Section 504.3.4).

**Note:** This is an illustration of a typical manifolded vent connector. Different appliance, vent connector, or common vent types are possible. Consult Section 502.3.

**504.3.5 Common vertical vent offset.** Where the common vertical vent is offset, the maximum capacity of the common vent shall be reduced in accordance with Section 504.3.6. The horizontal length of the common vent offset ( $L_o$ ) shall not exceed  $1\frac{1}{2}$  feet for each inch ([457]18 mm per mm) of common vent diameter ( $D$ ). Where multiple offsets occur in a common vent, the total horizontal length of all offsets combined shall not exceed  $1\frac{1}{2}$  feet for each inch (18 mm per mm) of common vent diameter ( $D$ ).

**504.3.9.1 Tee and wye fittings.** Tee and wye fittings connected to a common gas vent shall be considered as part of the common gas vent and shall be constructed of materials consistent with that of the common gas vent.

**[504.3.18] 504.3.19 Liner system sizing and connections.** Listed, corrugated metallic chimney liner systems in masonry chimneys shall be sized by using Table 504.3(1) or 504.3(2) for Type B vents, with the maximum capacity reduced by 20 percent ( $0.80 \times$  maximum capacity) and the minimum capacity as shown in Table 504.3(1) or 504.3(2). Corrugated metallic liner systems installed with bends or offsets shall have their maximum capacity further reduced in accordance with Sections 504.3.5 and 504.3.6. The 20-percent reduction for corrugated metallic chimney liner systems includes an allowance for one long-radius 90-degree (1.57 rad) turn at the bottom of the liner. Where double-wall connectors are required, tee and wye fittings used to connect to the common vent chimney liner shall be listed double-wall fittings. Connections between chimney liners and listed double-wall fittings shall be made with listed adapter fittings designed for such purpose.

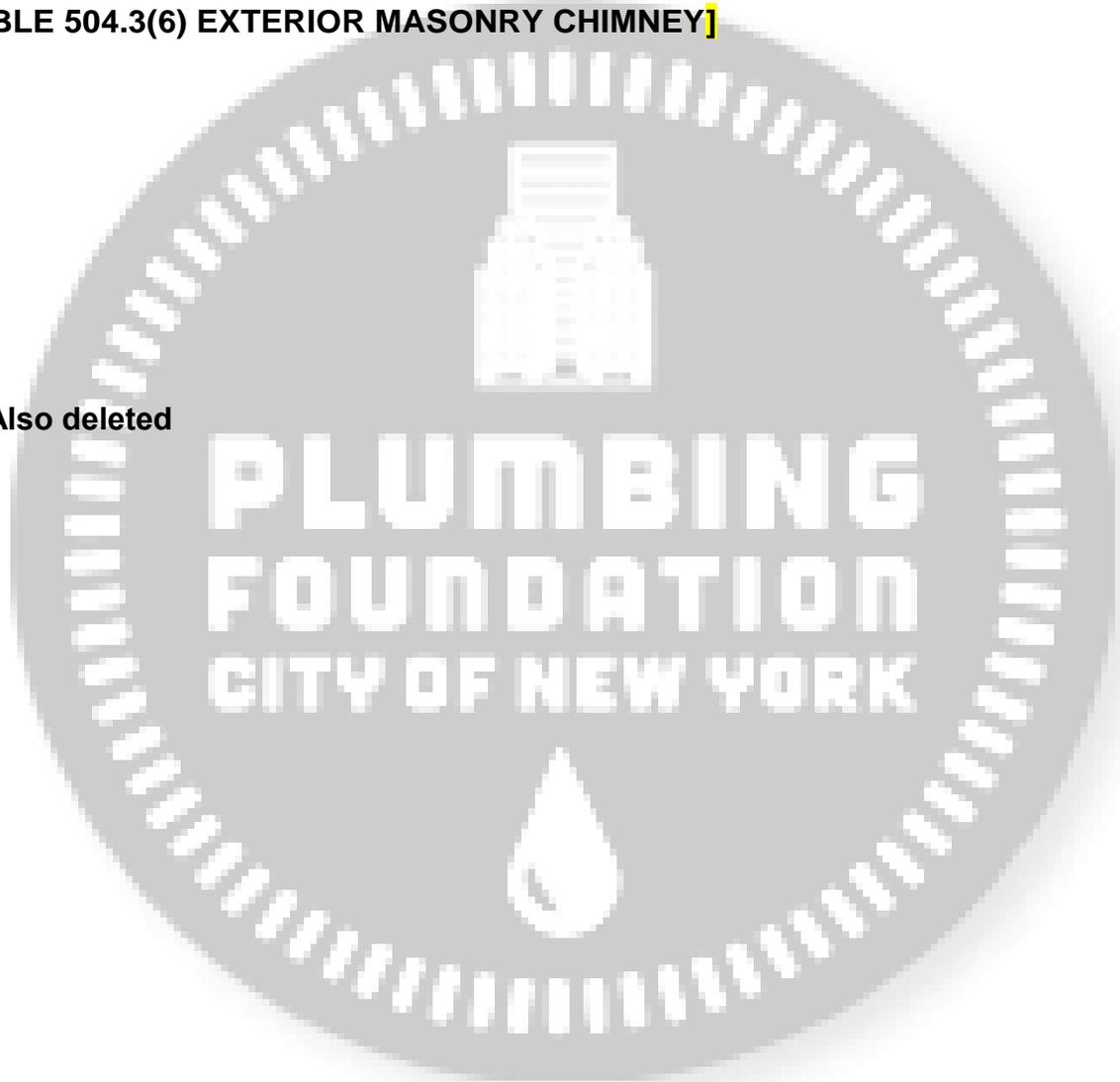
**[504.3.19] 504.3.20 Chimney and vent location.** Tables 504.3(1), 504.3(2), 504.3(3), 504.3(4), and 504.3(5) shall be used only for chimneys and vents not exposed to the outdoors below the roof line. A Type B vent or listed chimney lining system passing through an unused masonry chimney flue shall not be considered to be exposed to the outdoors. A Type B vent shall not be considered to be

exposed to the outdoors where it passes through an unventilated enclosure or chase insulated to a value of not less than R8. Tables [504.3(7)] 504.3(6) and [504.3(8)] 504.3(7) shall be used for clay-tile-lined exterior masonry chimneys, provided all of the following conditions are met:

**504.3.23 Draft hood conversion accessories.** Draft hood conversion accessories for use with masonry chimneys venting listed Category I fan-assisted appliances shall be listed and installed in accordance with the manufacturer's installation instructions for such listed accessories.

**[TABLE 504.3(6) EXTERIOR MASONRY CHIMNEY]**

**[...Also deleted**



**TABLE 504.3(7a)  
EXTERIOR MASONRY CHIMNEY**

Number of Appliances	Two or more
Appliance Type	NAT + NAT
Appliance Vent Connection	Type B double-wall connector

**Combined Appliance Maximum  
Input Rating in Thousands of Btu per Hour**

VENT HEIGHT (feet)	INTERNAL AREA OF CHIMNEY (square inches)							
	12	19	28	38	50	63	78	113
6	25	46	71	103	143	188	246	NA
8	28	53	82	119	163	218	278	408
10	31	56	90	131	177	236	302	454
15	NA	67	106	152	212	283	365	546
20	NA	NA	NA	NA	NA	325	419	648
30	NA	NA	NA	NA	NA	NA	496	749
50	NA	NA	NA	NA	NA	NA	NA	922
100	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE 504.3(7b)  
EXTERIOR MASONRY CHIMNEY**

Number of Appliances	Two or more
Appliance Type	NAT + NAT
Appliance Vent Connection	Type B double-wall connector

**Minimum Allowable Input Rating of  
Space-Heating Appliance in Thousands of Btu per Hour**

VENT HEIGHT (feet)	INTERNAL AREA OF CHIMNEY (square inches)							
	12	19	28	38	50	63	78	113
<b>37°F or Greater</b>								
Local 99% Winter Design Temperature: 37°F or Greater								
6	0	0	0	0	0	0	0	NA
8	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0
15	NA	0	0	0	0	0	0	0
20	NA	NA	NA	NA	NA	184	0	0
30	NA	NA	NA	NA	NA	393	334	0
50	NA	NA	NA	NA	NA	NA	NA	579
100	NA	NA	NA	NA	NA	NA	NA	NA
<b>27 to 36°F</b>								
Local 99% Winter Design Temperature: 27 to 36°F								
6	0	0	68	NA	NA	180	212	NA
8	0	0	82	NA	NA	187	214	263
10	0	51	NA	NA	NA	201	225	265
15	NA	NA	NA	NA	NA	253	274	305
20	NA	NA	NA	NA	NA	307	330	362
30	NA	NA	NA	NA	NA	NA	445	485
50	NA	NA	NA	NA	NA	NA	NA	763
100	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE 504.3(7b)  
EXTERIOR MASONRY CHIMNEY—continued**

**Minimum Allowable Input Rating of  
Space-Heating Appliance in Thousands of Btu per Hour**

VENT HEIGHT (feet)	INTERNAL AREA OF CHIMNEY (square inches)							
	12	19	28	38	50	63	78	113
<b>17 to 26°F</b>								
Local 99% Winter Design Temperature: 17 to 26°F								
6	NA	NA	NA	NA	NA	NA	NA	NA
8	NA	NA	NA	NA	NA	NA	264	352
10	NA	NA	NA	NA	NA	NA	278	358
15	NA	NA	NA	NA	NA	NA	331	398
20	NA	NA	NA	NA	NA	NA	387	457
30	NA	NA	NA	NA	NA	NA	NA	581
50	NA	NA	NA	NA	NA	NA	NA	862
100	NA	NA	NA	NA	NA	NA	NA	NA
<b>5 to 16°F</b>								
Local 99% Winter Design Temperature: 5 to 16°F								
6	NA	NA	NA	NA	NA	NA	NA	NA
8	NA	NA	NA	NA	NA	NA	NA	NA
10	NA	NA	NA	NA	NA	NA	NA	430
15	NA	NA	NA	NA	NA	NA	NA	485
20	NA	NA	NA	NA	NA	NA	NA	547
30	NA	NA	NA	NA	NA	NA	NA	682
50	NA	NA	NA	NA	NA	NA	NA	NA
100	NA	NA	NA	NA	NA	NA	NA	NA
<b>4°F or Lower</b>								
Local 99% Winter Design Temperature: 4°F or Lower								
Not recommended for any vent configurations								

Note: See Figure B-19 in Appendix B for a map showing local 99 percent winter design temperatures in the United States.

For SI: °C = (°F - 32)/1.8, 1 inch = 25.4 mm, 1 square inch = 645.16 mm<sup>2</sup>, 1 foot = 304.8 mm, 1 British thermal unit per hour = 0.2931 W.

**TABLE 504.3(8a)  
EXTERIOR MASONRY CHIMNEY**

Number of Appliances	Two or more
Appliance Type	FAN + NAT
Appliance Vent Connection	Type B double-wall connector

**Combined Appliance Maximum  
Input Rating in Thousands of Btu per Hour**

VENT HEIGHT (feet)	INTERNAL AREA OF CHIMNEY (square inches)							
	12	19	28	38	50	63	78	113
6	74	119	178	257	351	458	582	853
8	80	130	193	279	384	501	636	937
10	84	138	207	299	409	538	686	1,010
15	NA	152	233	334	467	611	781	1,156
20	NA	NA	250	368	508	668	858	1,286
30	NA	NA	NA	404	564	747	969	1,473
50	NA	NA	NA	NA	NA	831	1,089	1,692
100	NA	NA	NA	NA	NA	NA	NA	1,921

**TABLE 504.3(8b)  
EXTERIOR MASONRY CHIMNEY**

Number of Appliances	Two or more
Appliance Type	FAN + NAT
Appliance Vent Connection	Type B double-wall connector

**Minimum Allowable Input Rating of  
Space-Heating Appliance in Thousands of Btu per Hour**

VENT HEIGHT (feet)	INTERNAL AREA OF CHIMNEY (square inches)							
	12	19	28	38	50	63	78	113
<b>37°F or Greater</b> Local 99% Winter Design Temperature: 37°F or Greater								
6	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0
15	NA	0	0	0	0	0	0	0
20	NA	NA	123	190	249	184	0	0
30	NA	NA	NA	334	398	393	334	0
50	NA	NA	NA	NA	NA	714	707	579
100	NA	NA	NA	NA	NA	NA	NA	1,600
<b>27 to 36°F</b> Local 99% Winter Design Temperature: 27 to 36°F								
6	0	0	68	116	156	180	212	266
8	0	0	82	127	167	187	214	263
10	0	51	97	141	183	210	225	265
15	NA	111	142	183	233	253	274	305
20	NA	NA	187	230	284	307	330	362
30	NA	NA	NA	330	319	419	445	485
50	NA	NA	NA	NA	NA	672	705	763
100	NA	NA	NA	NA	NA	NA	NA	1,554

**TABLE 504.3(8b)  
EXTERIOR MASONRY CHIMNEY—continued**

**Minimum Allowable Input Rating of  
Space-Heating Appliance in Thousands of Btu per Hour**

VENT HEIGHT (feet)	INTERNAL AREA OF CHIMNEY (square inches)							
	12	19	28	38	50	63	78	113
<b>17 to 26°F</b> Local 99% Winter Design Temperature: 17 to 26°F								
6	0	55	99	141	182	215	259	349
8	52	74	111	154	197	226	264	352
10	NA	90	125	169	214	245	278	358
15	NA	NA	167	212	263	296	331	398
20	NA	NA	212	258	316	352	387	457
30	NA	NA	NA	362	429	470	507	581
50	NA	NA	NA	NA	NA	723	766	862
100	NA	NA	NA	NA	NA	NA	NA	1,669
<b>5 to 16°F</b> Local 99% Winter Design Temperature: 5 to 16°F								
6	NA	78	121	166	214	252	301	416
8	NA	94	135	182	230	269	312	423
10	NA	111	149	198	250	289	331	430
15	NA	NA	193	247	305	346	393	485
20	NA	NA	NA	293	360	408	450	547
30	NA	NA	NA	377	450	531	580	682
50	NA	NA	NA	NA	NA	797	853	972
100	NA	NA	NA	NA	NA	NA	NA	1,833
<b>-10 to 4°F</b> Local 99% Winter Design Temperature: -10 to 4°F								
6	NA	NA	145	196	249	296	349	484
8	NA	NA	159	213	269	320	371	494
10	NA	NA	175	231	292	339	397	513
15	NA	NA	NA	283	351	404	457	586
20	NA	NA	NA	333	408	468	528	650
30	NA	NA	NA	NA	NA	603	667	805
50	NA	NA	NA	NA	NA	NA	955	1,003
100	NA	NA	NA	NA	NA	NA	NA	NA
<b>-11°F or Lower</b> Local 99% Winter Design Temperature: -11°F or Lower <b>Not recommended for any vent configurations</b>								

Note: See Figure B-19 in Appendix B for a map showing local 99 percent winter design temperatures in the United States.

For SI: °C = [(°F - 32)/1.8], 1 inch = 25.4 mm, 1 square inch = 645.16 mm<sup>2</sup>, 1 foot = 304.8 mm, 1 British thermal unit per hour = 0.2931 W.

**SECTION FGC 505**  
**DIRECT-VENT, INTEGRAL VENT, MECHANICAL VENT AND**  
**VENTILATION/EXHAUST HOOD**  
**VENTING**

**505.1.2 Interlock requirements.** Where commercial cooking appliances are vented by means of the Type I or Type II kitchen exhaust hood system that serves such appliances, the exhaust system shall be fan powered and the appliances shall be interlocked with the exhaust hood system to prevent appliance operation when the exhaust hood system is not operating. The method of interlock between the exhaust hood system and the appliances equipped with standing pilot burner ignition systems shall not cause such pilots to be extinguished. Where a solenoid valve is installed in the gas piping as part of an interlock system, gas piping shall not be installed to bypass such valve. Dampers shall not be installed in the exhaust system.

**Exception:** An interlock between the cooking appliances and the exhaust hood system shall not be required where heat sensors or other approved methods automatically activate the exhaust hood system when cooking operations occur.

**SECTION FGC 507**  
**CHANGES IN APPLIANCE FUELS**

**507.1 Changes in appliance fuels.** Conversion of appliances from solid or liquid fuel to natural gas or the addition of natural gas, shall be made in accordance with this code. Conversion from natural gas to, or the addition of, #2 fuel oil for a heating appliance shall be made only if:

1. The chimney design meets the requirements of this chapter for the conversion fuel and the chimney is test run and smoke tested in accordance with Section 503.5.6.4 and 503.5.6.5.
2. The chimney is sized to provide adequate draft and to vent the combustion products for the new fuel.
3. The chimney is thoroughly cleaned prior to the conversion to remove collected flue deposits.

**SECTION FGC 508**  
**EXHAUST GASES FROM INTERNAL COMBUSTION ENGINES AND TURBINES**

**508.1 Exhaust pipe construction.** The exhaust pipe from internal combustion engines shall be constructed in accordance with NFPA 211, NFPA 37, and based on the temperature of the gases entering the exhaust pipe, and in accordance with the following:

1. The exhaust pipe, if factory fabricated, shall be installed in accordance with its listing and the manufacturer's instructions.
2. The exhaust pipe, if field fabricated, shall be constructed of at least  $3/16$ -inch (5 mm) steel, or of

other equivalent metal of similar strength and resistance to the temperature and corrosive action of the exhaust gases. No lining shall be required.

3. Where the exhaust pipe runs inside a building, it shall be insulated with insulation adequate for the temperature of the pipe, so that the surface temperature shall be not more than 200°F (93°C).
4. Where the exhaust pipe runs inside a building outside of the generator room, it shall be enclosed in fire-rated construction equal to the construction of the generator room.
5. All joints shall be constructed so as to be gas tight under all operating conditions and tested in accordance with Section 503.5.6.4 and Section 503.5.6.5.

**SECTION FGC 607  
COMMERCIAL-INDUSTRIAL INCINERATORS  
AND CREMATORIES**

**607.2 Compliance.** All new and existing refuse disposal systems shall be installed, altered and maintained in buildings in conformity with the applicable provisions of the Administrative Code and the New York City Air Pollution Control Code.

**SECTION FGC 614  
CLOTHES DRYER EXHAUST**

**[614.6 Domestic clothes dryer ducts.** Exhaust ducts for domestic clothes dryers shall be constructed of metal and shall have a smooth interior finish. The exhaust duct shall be a minimum nominal size of 4 inches (102 mm) in diameter. The entire exhaust system shall be supported and secured in place. The male end of the duct at overlapped duct joints shall extend in the direction of airflow. Clothes dryer transition ducts used to connect the appliance to the exhaust duct system shall be metal and limited to a single length not to exceed 8 feet (2438 mm) and shall be listed and labeled for the application. Transition ducts shall not be concealed within construction.

**614.6.1 Maximum length.** The maximum length of a clothes dryer exhaust duct shall not exceed 25 feet (7620 mm) from the dryer location to the outlet terminal. The maximum length of the duct shall be reduced 2.5 feet (762 mm) for each 45-degree (0.79 rad) bend and 5 feet (1524mm) for each 90-degree (1.6 rad) bend.

**Exception:** Listed clothes dryers may be installed in accordance with the manufacturer's installation instructions.

**614.6.2 Rough-in required.** Where a compartment or space for a domestic clothes dryer is provided, an exhaust duct system shall be installed.]

**614.6 Domestic clothes dryer exhaust ducts.** Exhaust ducts for domestic clothes dryers shall conform to the requirements of Sections 614.6.1 through 614.6.7.

**614.6.1 Material and size.** Exhaust ducts shall have a smooth interior finish and shall be constructed of metal that is a minimum of 0.016 inches (0.4 mm) thick. The exhaust duct size shall be 4 inches minimum (102 mm) nominal diameter, unless a larger duct size is specifically required by the dryer manufacturer.

**614.6.2 Duct installation.** Exhaust ducts shall be supported at 4-foot (1219 mm) intervals and secured in place. The inserted end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude into the inside of the duct.

**614.6.3 Protection required.** Protective shield plates shall be placed where nails or screws from finish or other work are likely to penetrate the clothes dryer exhaust duct. Shield plates shall be placed on the finished face of all framing members where there is less than 1¼ inches (32 mm) between the duct and the finished face of the framing member. Protective shield plates shall be constructed of steel, shall have a minimum thickness of 0.062 inch (1.6mm) and shall extend a minimum of 2 inches (51 mm) above sole plates and below top plates.

**614.6.4 Transition ducts.** Transition ducts used to connect the dryer to the exhaust duct system shall be a single length that is listed and labeled in accordance with UL 2158A. Transition ducts shall be a maximum of 8 feet (2438 mm) in length, and shall not be concealed within construction.

**614.6.5 Duct length.** The maximum allowable exhaust duct length shall be determined by one of the methods specified in Section 614.6.5.1 or 614.6.5.2.

**614.6.5.1 Specified length.** The maximum length of the exhaust duct shall be 35 feet (10 668 mm) from the connection to the transition duct from the dryer to the outlet terminal. Where fittings are utilized, the maximum length of the exhaust duct shall be reduced in accordance with Table 614.6.5.1.

[M] TABLE 614.6.5.1  
DRYER EXHAUST DUCT FITTING EQUIVALENT LENGTH

DRYER EXHAUST DUCT FITTING TYPE	EQUIVALENT LENGTH
4 inch radius mitered 45-degree elbow	2 feet, 6 inches
4 inch radius mitered 90-degree elbow	5 feet
6 inch radius smooth 45-degree elbow	1 foot
6 inch radius smooth 90-degree elbow	1 foot, 9 inches
8 inch radius smooth 45-degree elbow	1 foot
8 inch radius smooth 90-degree elbow	1 foot, 7 inches
10 inch radius smooth 45-degree elbow	9 inches
10 inch radius smooth 90-degree elbow	1 foot, 6 inches

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 degree = 0.01745 rad.

❖ The equivalent length column of the table indicates how much length must be added to the exhaust duct total length for each fitting used.

**614.6.5.2 Manufacturer’s instructions.** The maximum length of the exhaust duct shall be determined by the dryer manufacturer’s installation instructions. The special inspector shall be provided with a copy of the installation instructions for the make and model of the dryer. Where the exhaust duct is to be concealed, the installation instructions shall be provided to the special inspector prior to the

concealment inspection. In the absence of fitting equivalent length calculations from the clothes dryer manufacturer, Table 614.6.5.1 shall be utilized.

**614.6.6 Length identification.** Where the exhaust duct is concealed within the building construction, the equivalent length of the exhaust duct shall be identified on a permanent label or tag. The label or tag shall be located within 6 feet (1829 mm) of the exhaust duct connection.

**614.6.7 Exhaust duct required.** Where space for a clothes dryer is provided, an exhaust duct system shall be installed.

Where the clothes dryer is not installed at the time of occupancy, the exhaust duct shall be capped at the location of the future dryer.

**Exception:** Where a listed condensing clothes dryer is installed prior to occupancy of the structure.

**614.8 Common exhaust systems for clothes dryers located in multistory structures.** Where a common multistory duct system is designed and installed to convey exhaust from multiple clothes dryers, the construction of such system shall be in accordance with all of the following:

1. The shaft in which the duct is installed shall be constructed and fire-resistant rated as required by the *New York City Building Code*.
2. Dampers shall be prohibited in the exhaust duct.
3. Rigid metal ductwork shall be installed within the shaft to convey the exhaust. The ductwork shall be constructed of sheet steel having a minimum thickness of 0.0187 inch (0.471 mm) (No. 26 gage) and in accordance with *SMACNA Duct Construction Standards*.
4. Exhaust ducts 20 square inches or less connected into dryer exhaust shaft shall not require fire dampers when the exhaust fan runs continuously.
5. The exhaust fan motor design shall be in accordance with Section 503.2 of the *New York City Mechanical Code*.
6. The exhaust fan motor shall be located outside of the airstream.
7. The exhaust fan shall run continuously, and shall be connected to a standby power source, where a building emergency or standby power source is required by the *New York City Building Code*.
8. The exhaust fan operation shall be monitored in an approved location and shall initiate an audible or visual signal when the fan is not in operation.
9. Makeup air shall be provided for the exhaust system.
10. Cleanout openings shall be located at the base of the shaft and the bases of all offsets to provide

access to the duct to allow for cleaning and inspection. The finished opening shall be not less than 12 inches by 12 inches (305 mm by 305 mm).

11. Screens shall not be installed at the termination.

### **SECTION FGC 616 ENGINE AND GAS TURBINE-POWERED EQUIPMENT AND APPLIANCES**

**616.1 Powered equipment.** Permanently installed equipment powered by internal combustion engines and turbines shall be installed in accordance with the manufacturer's installation instructions and NFPA 37. Stationary engine generator assemblies shall meet the requirements of UL 2200.

**616.2 Gas supply connection.** Equipment powered by internal combustion engines and turbines shall not be rigidly connected to the gas supply piping.

### **SECTION FGC 618 FORCED-AIR WARM-AIR FURNACES**

**618.5 Prohibited sources.** [Outside] Outdoor or return air for a forced-air heating system shall not be taken from the following locations:

**Exception:** This shall not apply where:

6. A closet, bathroom, toilet room, kitchen, garage, mechanical room, boiler room [or], furnace room or attic.

**Exception:** Where return air intakes are located not less than 10 feet (3048 mm) from cooking appliances and serve only the kitchen area, taking return air from a kitchen area shall not be prohibited.

7. A crawl space by means of direct connection to the return side of a forced air system. Transfer openings in the crawl space enclosure shall not be prohibited.

**618.8 Furnace plenums and air ducts.** Where a furnace is installed so that supply ducts carry air circulated by the furnace to areas outside of the space containing the furnace, the return air shall also be handled by a duct(s) sealed to the furnace casing and terminating outside of the space containing the furnace.

### **SECTION FGC 620 UNIT HEATERS**

**620.5 Installation in commercial garages and aircraft hangars.** Unit heaters installed in garages for more than three motor vehicles or in aircraft hangars shall be installed in accordance with Sections 305.9, 305.10 and 305.11.

## SECTION FGC 623 COOKING APPLIANCES

**623.2.1 Barbecue grills.** Barbecue grills piped to natural gas shall not be installed or operated within 10 feet (3048 mm) of any combustible waste or combustible material including combustible building surfaces, balconies and decks.

**623.7 Domestic ventilation.** When a hood is provided for a domestic cooking appliance, the exhaust and make-up air systems shall be properly engineered and designed in accordance with Chapter 5 of this code and the *New York City Mechanical Code*. Household cooking appliances shall have a vertical clearance above the cooking top of not less than 30 inches (760mm) to combustible material and metal cabinets. A minimum clearance of 24 inches (610 mm) is permitted where one of the following is installed:

1. The underside of the combustible material or metal cabinet above the cooking top is protected with not less than ¼-inch (6 mm) insulating millboard covered with sheet metal not less than 0.0122 inch (0.3 mm) thick.
2. A metal ventilating hood constructed of sheet metal not less than 0.0122 inch (0.3 mm) thick is installed above the cooking top with a clearance of not less than ¼ inch (6.4 mm) between the hood and the underside of the combustible material or metal cabinet. The hood shall have a width not less than the width of the appliance and shall be centered over the appliance.
3. A listed cooking appliance or microwave oven is installed over a listed cooking appliance and in compliance with the terms of the manufacturer's installation instructions for the upper appliance.

## SECTION FGC 624 WATER HEATERS

**624.1 General.** Water heaters shall be tested in accordance with ANSI Z 21.10.1 and ANSI Z 21.10.3 and shall be installed in accordance with the manufacturer's installation instructions. Water heaters utilizing fuels other than fuel gas shall be regulated by the *New York City Mechanical Code*. Approval for water heaters 350,000Btu/h input (1025kW) and above shall be obtained from the New York City Department of Environmental Protection.

**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 built in accordance with Section IV of the *ASME Boiler and Pressure Vessel Code* with an "H" code stamp. [and] They shall be installed in accordance with the manufacturer's installation instructions, the *ASME Boiler and Pressure Vessel Code* and the *New York City Plumbing Code*.

**SECTION FGC 630**  
**INFRARED RADIANT HEATERS**

**630.3 Combustion and ventilation air.** Where unvented infrared heaters are installed, natural or mechanical means shall provide outdoor ventilation air at a rate of not less than 4 cfm per 1,000 Btu/h (0.38 m<sup>3</sup>/min/kW) of the aggregate input rating of all such heaters installed in the space. Exhaust openings for removing flue products shall be above the level of the heaters.

**630.4 Installation in commercial garages and air-craft hangars.** Overhead infrared heaters installed in garages for more than three motor vehicles or in aircraft hangars shall be installed in accordance with Sections 305.9, 305.10 and 305.11.

**SECTION FGC 631**  
**BOILERS**

**631.2 Installation.** In addition to the requirements of this code, the installation of boilers shall be in accordance with the manufacturer's instructions and the *New York City Mechanical Code*. Operating instructions of a permanent type shall be attached to the boiler. Spill switches must be installed on all flue gas draft openings and interlocked with all vented appliances. Boilers shall have all controls set, adjusted and tested by the installer. A complete control diagram together with complete boiler operating instructions shall be furnished by the installer. The manufacturer's rating data and the nameplate shall be attached to the boiler.

**SECTION FGC 633**  
**FUEL CELL POWER [PLANTS] SYSTEMS**

**633.1 General.** Stationary fuel-cell power [plants] systems having a power output not exceeding [1,000 kW] 1 MW shall be tested in accordance with [ANSI Z21 .83] CSA America FC 1 and shall be installed in accordance with the manufacturer's installation instructions [and], NFPA 853, the New York City Building Code, the New York City Fire Code, and comply with National Electric Code Article 692 Fuel Cell Systems.

**SECTION FGC 635**  
**GASEOUS HYDROGEN SYSTEMS**

**635.1 Installation.** The installation of gaseous hydrogen systems shall be in accordance with the applicable requirements of the New York City Fire Code, the New York City Building Code, and Chapter 7 of this code.,

**CHAPTER 7 [RESERVED]**  
**GASEOUS HYDROGEN SYSTEMS**  
**SECTION FGC 701**  
**GENERAL**

**701.1 Scope.** The installation of gaseous hydrogen systems shall comply with this chapter and Chapters 30 and 35 of the *New York City Fire Code*. Compressed gases shall also comply with Chapter 27 of the *New York City Fire Code* for general requirements.

**701.2 Permits.** Permits shall be required as set forth in Section 105 of this code and as required by the *New York City Fire Code*.



§1. Section 802 of the New York City fuel gas code, as added by local law number 33 for the year 2007, is REPEALED, and a new Section 802 is added to read as follows:

**SECTION FGC 809 STANDARDS**

<b>ANSI</b>	American National Standards Institute 25 West 43rd Street, Fourth Floor New York, NY 10036	
<u>Standard reference number</u>	<u>Title</u>	<u>Referenced in code section number</u>
NSF/ANSI 169—09	Special Purpose Food Equipment and Devices . . . . .	
Z21.1—03	Household Cooking Gas Appliances with Addenda Z21a-2003 and Z21.1b-2003 . . . . .	
Z21.5.1—02	Gas Clothes Dryers - Volume I -Type 1 Clothes Dryers. . . . .	
Z21.5.2—01	Gas Clothes Dryers - Volume II- Type 2 Clothes Dryers with Addenda Z21.5.2a-03 and Z21.5.2b-03 . . . . .	613.1, 614.3
Z21.8—94 (R2002)	Installation of Domestic Gas Conversion Burners . . . . .	
Z21.10.1—04	Gas Water Heaters - Volume I - Storage, Water Heaters with Input Ratings of 75,000 Btu per Hour or Less . . . . .	
Z21.10.3—01	Gas Water Heaters - Volume III - Storage, Water Heaters with Input Ratings Above 75,000 Btu per hour, Circulating and Instantaneous - with Addenda Z21.10.3a-2003 and Z21.10.3b-2004 . . . . .	
Z21.13—04	Gas-fired Low-pressure Steam and Hot Water Boilers. . . . .	
Z21.19—02	Refrigerators Using Gas (R 1999) Fuel . . . . .	
Z21.21—05	Automatic Valves for Gas Appliances . . . . .	
Z21.24—97	Connectors for Gas Appliances . . . . .	411.1, 411.3
Z21.40.1—96 (R2002)	Gas-fired Heat Activated Air Conditioning and Heat Pump Appliances—with Addendum Z21.40.1a-97(R2002) . . . . .	
Z21.40.2—96 (R2002)	Gas-fired Work Activated Air Conditioning and Heat Pump Appliances (Internal Combustion)—with Addendum Z21.40.2a-97 (R2002) . . . . .	
Z21.42—93 (R2002)	Gas-fired Illuminating Appliances. . . . .	
Z21.47—03	Gas-fired Central Furnaces. . . . .	
Z21.50—03	Vented Gas Fireplaces-with Addenda Z21.50a-2003 . . . . .	601.2, 604.1
Z21.56—01	Gas-fired Pool Heaters—with Addenda Z21.56a-2004 and Z21.56b-2004 . . . . .	
Z21.58—95 (R2002)	Outdoor Cooking Gas Appliances—with Addendum Z21.58a-1998(R2002) and Z21.58b-2002 . . . . .	
Z21.60—03	Decorative Gas Appliances for Installation in Solid-fuel Burning Fireplaces –with Addenda Z21.60a-2003 . . . . .	601.2, 602.1
Z21.69—02	Connectors for Movable Gas Appliances—with Addenda Z21.69a-2003 . . . . .	
Z21.75/CSA6.27—01	Connectors for Outdoor Gas Appliances and Manufactured Homes . . . . .	411.1, 411.2
Z21.80—03	Line Pressure Regulators . . . . .	
Z21.84—02	Manually-lighted, Natural Gas Decorative Gas Appliances for Installation in Solid Fuel Burning Fireplaces with Addenda Z21.84a-2003 . . . . .	602.1, 602.2
Z21.86—04 / CSA 2.32	Gas-fired Vented Space Heating Appliances . . . . .	608.1, 609.1, 622.1
Z21.88—02	Vented Gas Fireplace Heaters-with Addenda Z21.88a-2003 and Z21.88b-2004 . . . . .	
Z83.4—03/CSA 3.7-03	Nonrecirculating Direct-gas-fired Industrial Air Heaters . . . . .	
Z83.6—90 (R 1998)	Gas-fired Infrared Heaters . . . . .	630.1

Z83.8—02	Gas Unit Heaters and Gas-fired Duct Furnaces . . . . .	610.1, 620.1
Z83.11—02	Gas Food Service Equipment- with Addenda Z83.11a-2004 . . . . .	623.1
Z83.18—00	Recirculating Direct Gas-fired Industrial Air Heaters-with Addenda Z83.18a-2001 and Z83.18b-2003 . . . . .	612.1

<b>ASME</b>	American Society of Mechanical Engineers Three Park Avenue New York, NY 10016-5990	
	<u>Standard reference number</u>	<u>Title</u> <span style="float: right;"><u>Referenced in code section number</u></span>
A13.1—07	Scheme for the Identification of Piping Systems . . . . .	401.5, G.5.3
B1.20.1—83 (R2006)	Pipe Threads, General Purpose (inch) . . . . .	403.9
B16.1—05 (R2004)	Cast Iron Pipe Flanges and Flanged Fittings, Class 25, 125 and 250 . . . . .	403.12
B16.20—98	Metallic Gaskets for Pipe Flanges Ring-Joint, Spiral-Wound, and Jacketed . . . . .	403.12
B31.1—12	Power Piping Code . . . . .	G.5.1
B36.10M—04	Welded and Seamless Wrought-Steel Pipe . . . . .	403.4.2
B40.100—05	Pressure Gauges and Gauge Attachments . . . . .	406.4.1
BPVC—10	ASME Boiler & Pressure Vessel Code . . . . .	406.1.1.1, 406.1.1.2, 624.2, 631.1
CSD-1—04	Controls and Safety Devices for Automatically Fired Boilers . . . . .	619.1, 631.1

<b>ASNT</b>	American Society for Nondestructive Testing 3200 Riverside Drive Columbus, OH 43221	
	<u>Standard reference number</u>	<u>Title</u> <span style="float: right;"><u>Referenced in code section number</u></span>
SNT-TC-1A—11	Recommended Practice . . . . .	406.1.1.1

<b>ASTM</b>	ASTM International 100 Barr Harbor Drive West Conshohocken, PA 19428-2959	
	<u>Standard reference number</u>	<u>Title</u> <span style="float: right;"><u>Referenced in code section number</u></span>
A53/A 53M—06a	Specification for Pipe, Steel, Black and Hot Dipped Zinc-coated Welded and Seamless . . . . .	403.4.2
A106/A 106M—06a	Specification for Seamless Carbon Steel Pipe for High-temperature Service . . . . .	403.4.2
C64—72 (1977)	Withdrawn No Replacement (Specification for Fireclay Brick Refractories for Heavy Duty Stationary Boiler Service) . . . . .	503.10.2.5
C315—07	Specification for Clay Flue Liners and Chimney Pots . . . . .	501.12

<b>CAN/ ULC</b>	Standards Council of Canada 270 Albert Street, Suite 200 Ottawa, ON K1P 6N7 Canada	
	<u>Standard reference number</u>	<u>Title</u> <span style="float: right;"><u>Referenced in code section number</u></span>
S635—00	Standard for Lining Systems for Existing Masonry or Factory-built Chimneys and Vents . . . . .	501.12,

	501.15.4
S640—91	Standard for Lining Systems for New Masonry Chimneys. . . . . 501.12

<b>CSA</b>	CSA America Inc. 8501 E. Pleasant Valley Rd. Cleveland, OH USA 44131-5575	
	Standard reference number	Title <span style="float: right;">Referenced in code section number</span>
	CSA America FC 1-12	Fuel Cell Power Systems . . . . . 633.1
CSA 8—93	Requirements for Gas-fired Log Lighters for Wood Burning Fireplaces –with Revisions through January 1999 . . . . . 603.1	

<b>MSS</b>	Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. 127 Park Street, Northeast Vienna, Virginia 22180-4602	
	Standard reference number	Title <span style="float: right;">Referenced in code section number</span>
	SP-6—01	Standard Finishes for Contact Faces of Pipe Flanges and Connecting-end Flanges of Valves and Fittings . . . . . .403.12
SP-58—93	Pipe Hangers and Supports—Materials, Design and Manufacture . . . . . 407.2	

<b>NEC</b>	National Fire Protection Association 1 Batterymarch Park Quincy, MA 02269-9101	
	Standard reference number	Title <span style="float: right;">Referenced in code section number</span>
	NEC Article 692—11	National Electric Code (Fuel Cell Systems) . . . . . 633.1

<b>NFPA</b>	National Fire Protection Association 1 Batterymarch Park Quincy, MA 02269-9101	
	Standard reference number	Title <span style="float: right;">Referenced in code section number</span>
	30A—03	Code for Motor Fuel Dispensing Facilities and Repair Garages . . . . . 305.4, 305.10
37—10	Installation and Use of Stationary Combustion Engines and Gas Turbines . . . . . 508.1, 616.1, G.3.1.1	
54—06	National Fuel Gas Code . . . . . 501.2.2, 609.9	
56PS—12	Standard for Fire and Explosion Prevention During Cleaning and Purging of Flammable Gas Piping Systems. . . . . G.7	
68—07	Standard for Explosion Protection by Deflagration Venting . . . . . E.2.1, G.3.1	
69—08	Standard on Explosion Prevention Systems . . . . . E.2.1,G.2.5.1, G.3.2	
72—10	National Fire Alarm and Signaling Code . . . . . G.2.4.3	
82—04	Incinerators, Waste and Linen Handling Systems and Equipment . . . . . 607.1	
88A—02	Parking Structures . . . . . 305.9	
211—10	Chimneys, Fireplaces, Vents, and Solid Fuel-burning Appliances . . . . . 502.1, 503.5.2, 503.5.3, 503.5.6.1, 503.5.6.3, 508.1	
409—01	Aircraft Hangars . . . . . 305.11	
853—07	Installation of Stationary Fuel Cell Power Systems . . . . . 633.1	
8501—97	Standard for Single Burner Boiler Operations . . . . . 631.1	
8502—99	Standard for the Prevention of Furnace Explosions/Implosions in Multiple Burner Boilers . . . . . 631.1	

8504—96	Standard on Atmospheric Fluidized-bed Boiler Operations ..... .631.1
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<b>SMACNA</b>	Sheet Metal & Air Conditioning Contractors National Association, Inc. 4021 Lafayette Center Road Chantilly, VA 22021	
Standard reference number	Title	Referenced in code section number
SMACNA—95	HVAC Duct Construction Standards-Metal and Flexible.....	614.8

<b>UL</b>	Underwriters Laboratories Inc. 333 Pfingsten Road Northbrook, IL 60062	
Standard reference number	Title	Referenced in code section number
103—01	Factory-built Chimneys, Residential Type and Building Heating Appliances—with Revisions through June 2006.....	506.1
441—96	Gas Vents—with Revisions through August 2006.....	502.1
536—03	Flexible Metallic Hose.....	405.5
641—95	Type L Low-temperature Venting Systems—with Revisions through April 1999.....	502.1
795—06	Commercial-industrial Gas Heating Equipment.....	610.1, 618.1, 631.1
959—01	Medium Heat Appliance Factory-built Chimneys.....	506.3
1738—06	Venting Systems for Gas Burning Appliances, Categories II, III and IV..... 502.1	
1777—04	Standard for Chimney Liners..... 501.15.4	501.12
2158A—06	Clothes Dryer Transition Duct..... 614.6.4	
2200—04	Stationary Engine Generator Assemblies.....	616.1

Subpart 9 (Appendix E of the New York City Fuel Gas Code)

**E.1 General.** This appendix addresses the requirements for meters and service piping, underground or aboveground, as the piping enters the building. Service piping includes fuel-gas piping, valves, and fittings upstream of the point of delivery. Service piping may include piping supplied by the gas service utility [ ], as well as other service piping furnished by the owner serving multiple buildings on the same lot].

**E.3 Gas meter location.** Gas meter location shall comply with the following:

1. When located inside the building, meters shall be located as near as practicable to the point of entrance of the service and, where possible, the meters shall be located in the cellar or basement unless otherwise permitted by the commissioner. The meter location shall be clean, dry, and free of refuse, steam or chemical fumes and located not less than 3 feet (914 mm) from any source of ignition or any source of heat which might cause damage to the meter. Meters shall be adequately protected against extreme cold or heat and shall be readily accessible for reading and inspection. The area in which the meter is located shall be properly ventilated as per Section E.4. Notwithstanding the foregoing, outside meter installation shall be permitted in areas where the utility company certifies that dry gas is being distributed.
2. [In a multiple dwelling, no] No gas meter, other than the replacement of an existing meter shall

be located in any boiler room or other room or space containing a heating boiler, in any stair hall, nor in any public hall above the cellar or above the lowest story if there is no cellar. However, [in any multiple dwelling] where there is an existing gas meter located in any boiler room or other room or space containing a heating boiler, one additional gas meter may be installed in such room or space, provided such additional gas meter is installed adjacent to the existing gas meter and is used in conjunction with the supply of gas for a gas-fired heating boiler or a gas-fired water heater used as a central source of supply of heat or hot water for the tenants [residing in such multiple dwelling]. Such additional gas meter may be installed only upon the condition that space heaters or hot water appliances in the [dwelling units] tenant spaces are eliminated.

**§1. Appendix F of the New York City fuel gas code is REPEALED. (Dealt with Plastic Fuel Gas Piping)**

## **FGC APPENDIX G**

### **HIGH PRESSURE NATURAL GAS INSTALLATIONS**

**G.1 General.** This Appendix addresses natural gas distribution piping requirements for systems where the gas pressure is at or above 15 psig (103 kPa gauge). Installations of gas piping at pressures at or above 15 psig (103 kPa gauge) and equipment and appliances using gas with an inlet pressure at or above 15 psig (103 kPa gauge) shall be considered as high pressure natural gas installations.

**G.1.1 Fire Department approval.** High pressure natural gas installations shall be approved by the Fire Department. All design documents associated with the installation shall be submitted to the Fire Department for approval. The Fire Department shall witness and approve final testing of the installation.

**G.1.2 Certificate of fitness.** High pressure natural gas installations shall be operated under the supervision of a person holding a Certificate of Fitness issued by the Fire Department when required by the *New York City Fire Code*.

**G.2 Construction requirements.** Buildings with high pressure natural gas installations shall meet the requirements of this section.

**G.2.1 Structural requirements.** The structural integrity of the building shall meet the requirements of Section 1615.6 of the *New York City Building Code* for gas explosions. An explosion analysis shall be conducted where the gas pressure exceeds 125 psig (862 kPa gauge). Where an explosion analysis shows explosion pressure exceeding 430 psf (20.5 kPa gauge), the building's structural integrity shall be maintained at pressure levels determined by the explosion analysis. The explosion scenario and explosion analysis shall be approved by the Fire Department.

**G.2.2 Fire-resistance rated rooms and spaces.** Rooms and spaces containing high pressure natural gas piping shall be separated from all other areas of the building by fire barriers or horizontal assemblies, or both, having a fire-resistance rating of not less than 3 hours.

**G.2.2.1 Shaft requirements.** Vertical runs of high pressure gas piping within a building shall be enclosed in masonry shafts constructed of walls not less than 4 inches in thickness and sealed to prevent

any gas leakage from the shaft. Such shaft shall be vented to the outdoors at the top. Such shaft shall not be located adjacent to an exit stairway or exit passageway unless the shaft wall separating the exit stairway or exit passageway from the shaft is designed to resist a potential gas explosion in accordance with Section 1615.6 of the *New York City Building Code*.

**G.2.3 Automatic sprinkler system.** Buildings and structures shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the *New York City Building Code*, except where an alternative fire-extinguishing system is approved in accordance with Section 904.1 of the *New York City Building Code*.

**G.2.4 Gas detection.** Rooms and spaces containing the high pressure gas piping must be equipped with an approved and listed gas detection alarm system.

**G.2.4.1 Gas detection system.** A gas detection system including placement of gas detectors shall be installed in accordance with the manufacturer's recommendations, its listing and Section 908 of the *New York City Building Code*.

**G.2.4.2 Supervision.** Gas detectors shall be supervised by a building fire alarm system in buildings where fire alarm systems are required or installed.

**G.2.4.3 Power supply.** Power supply to the system, wiring of the system, its associated components and outputs shall be in accordance with NFPA 72 and Section 907 of the *New York City Building Code*.

**G.2.4.4 Alarm.** An audible and visual alarm shall be provided at the gas detection panel with an audible silence switch only.

**G.2.4.5 Alarm transmission.** The gas detection system shall transmit a trouble signal and an alarm to the supervising station and to a 24-hour supervised location within the building.

**G.2.4.6 Shutoff valves closure.** The gas detection system alarm activation shall trigger emergency gas shutoff valves serving the affected area to close and stop the gas flow.

**G.2.5 Ventilation.** Rooms containing appliances or equipment operating with gas pressure at or above 15 psig (103 kPa gauge) shall be provided with ventilation in accordance with the requirements of Chapter 4 of the *New York City Mechanical Code*.

**G.2.5.1 Explosion prevention.** For rooms or spaces containing appliances operating with gas pressure at or above 15 psig (103 kPa gauge) and less than 125 psig (862 kPa gauge), explosion prevention systems shall be provided in accordance with NFPA 69.

**G.3 High hazard.** Rooms and areas containing appliances and equipment operating with gas pressure at or above 125 psig (862 kPa gauge) shall be classified as a Group H-2 occupancy and shall comply with the requirements of this section.

**G.3.1 Explosion venting.** Appliances and equipment using gas at or above 125 psig (862 kPa gauge) shall be located in rooms provided with explosion venting in accordance with NFPA 68.

**G.3.1.1 Gas turbines.** Gas turbine installations shall comply with the requirements of NFPA 37 and the requirements of Title 28 of the *Administrative Code*.

**G.3.1.2 Gas turbine rooms.** For rooms containing gas turbines and fuel gas compressors, the design of the explosion venting system shall be based on the explosion resulting from the lower explosion limit being achieved within the room housing the turbine or fuel gas compressor, including its enclosure. All control valve stations, filters, and related accessories shall be placed in the gas turbine room or a separately protected room.

**G.3.2 Emergency ventilation.** An emergency ventilation system shall be provided in accordance with NFPA 69 and shall be approved by the Fire Department. Ventilation calculations as listed in Annex D Ventilation Calculations of NFPA 69 shall be provided, and the gas release rate shall be approved.

**G.3.3 Electrical equipment.** Electrical equipment within rooms and enclosures requiring emergency ventilation shall conform to the *New York City Electrical Code* for Class 1 Division 2 requirements.

**G.4 Gas meter room.** A gas meter room served by gas at a pressure at or above 15 psig (103 kPa gauge) shall meet the requirements of Appendix E of this code and the *New York City Electrical Code* for Class 1 Division 2 requirements.

**G.5 Piping requirements.** High pressure gas piping shall comply with the requirements of this section.

**G.5.1 Piping material.** Installations of natural gas piping operating at pressures of 125 psig (862 kPa gauge) and above shall comply with the requirements of ASME B 31.1.

**G.5.2 Double wall piping.** Horizontal piping that traverses within a building from a protected room or shaft to a protected room or shaft shall be run in an outer pipe of the same pressure rating as the inner pipe. The outer pipe shall be welded and the annular space between the inner and outer pipe shall be equal to or greater than the inside diameter of the inner pipe. The annular space shall be monitored for natural gas with an approved gas detection alarm system and shall be vented to the exterior of the building. The outer pipe must open to the shaft and/or protected room or to the outside air.

**G.5.3 Piping identification.** Piping shall be identified with markings in accordance with ASME A13.1.

**G.5.4 Emergency gas shutoff.** An emergency gas shutoff valve shall be provided on the gas supply outside of any room containing an appliance utilizing gas at a pressure at or above 15 psig (103 kPa gauge). The emergency shutoff valve shall be controlled from a break glass station located outside the room served and from the gas detection system monitoring the room. The emergency shutoff valve shall automatically stop the gas flow to the room(s) containing the appliance(s) in the event of an unsafe condition. The emergency shutoff valve shall be manually operable. Emergency gas shutoff valve bypasses shall be prohibited.

**G.6 Special inspection required.** The entire high pressure natural gas installation, including piping, equipment, appliances, gas detection and control systems, shall be subject to special inspection as set forth in Section 1704.19 of the *New York City Building Code*.

**G.7 Cleaning and purging procedures.** Cleaning and purging procedures for high pressure natural gas piping, equipment and appliances shall be in accordance with NFPA 56PS.

Notwithstanding any other law or rule, tables, figures or equations in PDF or other electronic format to be added to the New York City construction codes or amended pursuant to this local law need not be underlined to denote new matter being added. The absence of underlining to denote new matter being added shall not affect the validity of new tables, figures or equations in PDF or other electronic format to be added to the New York City construction codes or amended pursuant to this local law.

This local law shall take effect [on the same date as the effective date of a local law amending the administrative code of the city of New York in relation to bringing the New York city building code up to date with the 2009 edition of the International Building Code published by the International Code Council] on October 1, 2014 except that this local law shall not apply to plumbing work related to applications for construction document approval filed prior to such effective date.

This local law shall take effect [on the same date as a local law of the city of New York for the year 2013 amending the administrative code of the city of New York, the New York city plumbing code, the New York city building code, the New York city mechanical code and the New York city fuel gas code, relating to bringing such codes up to date with the 2009 editions of the international building, mechanical, fuel gas and plumbing codes, as proposed in Intro. 1056, takes effect] on October 1, 2014 except that this local law shall not apply to work related to applications for construction document approval filed prior to such effective date.

This local law shall take effect on [the same date that a local law of the city of New York for the year 2013 amending the administrative code of the city of New York, the New York City plumbing code, the New York city building code, the New York city mechanical code and the New York city fuel gas code, relating to bringing such codes up to date with the 2009 editions of the international building, mechanical, fuel gas and plumbing codes, as proposed in introduction number

1056, takes effect] October 1, 2014 except that this local law shall not apply to work related to applications for construction document approval filed prior to such effective date.

This local law shall take effect [on the same date as a local law of the city of New York for the year 2013 amending the administrative code of the city of New York, the New York city plumbing code, the New York city building code, the New York city mechanical code and the New York city fuel gas code, relating to bringing such codes up to date with the 2009 editions of the international building, mechanical, fuel gas and plumbing codes, as proposed in Intro. 1056, takes effect] on October 1, 2014 except that this local law shall not apply to work related to applications for construction document approval filed prior to such effective date.

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**Section 10. Sections 27-123.1 and 27-123.2 of the administrative code of the city of New York are REPEALED.**

**Section 11. Subarticle 2 of article 2 of subchapter 4 of chapter 1 of title 27 of the administrative code of the city of New York is REPEALED.**

**Section 12. Articles 8, 9 and 10 of subchapter 4 of chapter 1 of title 27 of the administrative code of the city of New York are REPEALED.**

**Section 13. Reference Standard RS 4 of the Building Code Reference Standards set forth in the appendix to chapter 1 of title 27 of the administrative code of the city of New York is REPEALED.**

**This local law shall take effect on October 1, 2014** except (i) that this local law shall not apply to construction work related to applications for construction document approval filed prior to such effective date (ii) sections 28-304.6.4, 28-304.6.5 and 28-304.6.6 of the administrative code of the city of New York as amended by section 61 of part A of this local law and sections 2 through 9 of this local law shall take effect immediately and (iii) section 403.5.2 of the New York city building code as added by section 1 of subpart 4 of part C of this local law shall take effect the later of 18 months after the date of enactment of this local law or the date of an amendment of the definition of floor area in the New York City zoning resolution providing for the exclusion of the floor area of the additional exit stairway and additional exit stairway width from the calculation of floor area for purposes of the New York city

zoning resolution. The commissioner of buildings may promulgate rules or take other actions for the implementation of this local law prior to such effective date.

