CHAPTER 1
ADMINISTRATION

SECTION 101 (IFGC)
GENERAL

101.1 Title.
These regulations shall be known as the North Carolina Fuel Gas Code as adopted by the North Carolina Building Code Council on March 11, 2008, to be effective January 1, 2009. References to the International Codes shall mean the North Carolina Codes. The North Carolina amendments to the International Codes are underlined.

101.2 Scope.
This code shall apply to the installation of fuel-gas piping systems, fuel-gas utilization equipment, gaseous hydrogen systems and related accessories in accordance with Sections 101.2.1 through 101.2.5.
Exceptions:
1. Deleted.
2. As an alternative to the provisions of this code, fuel-gas piping systems, fuel-gas utilization equipment and related accessories in existing buildings that are undergoing repairs, alterations, changes in occupancy or construction of additions shall be permitted to comply with the provisions of the International Existing Building Code.

101.3 Appendices.
Provisions in the appendices shall not apply unless specifically adopted or referenced in this Code.

101.6 Requirements of other State agencies, occupational licensing boards, or commissions.
The North Carolina State Building Codes do not include all additional requirements for buildings and structures that may be imposed by other State agencies, occupational licensing boards, and commissions. It shall be the responsibility of a permit holder, design professional, contractor, or occupational license holder to determine whether any additional requirements exist.

SECTION 103 (IFGC)
DEPARTMENT OF INSPECTION
Deleted. See the North Carolina Administrative Code and Policies.

SECTION 104 (IFGC)
DUTIES AND POWERS OF THE CODE OFFICIAL
Deleted. See the North Carolina Administrative Code and Policies.

106.1 When required.
An owner, authorized agent or contractor who desires to erect, install, enlarge, alter, repair, remove, convert or replace an installation regulated by this code, or to cause such work to be done, shall first make application to the code official and obtain the required permit for the work.
Exception: Where equipment replacements and repairs are required to be performed in an emergency situation, the permit application shall be submitted within the next working business day of the Department of Inspection.
106.2 Permits not required.
Permits shall not be required for the following:
1. Any portable heating appliance.
2. Replacement of any minor component of equipment that does not alter approval of such equipment or make such equipment unsafe.
Exemption from the permit requirements of this code shall not be deemed to grant authorization for work to be done in violation of the provisions of this code or of other laws or ordinances of this jurisdiction.

Remainder deleted. See the North Carolina Administrative Code and Policies.

SECTION 107 (IFGC)
INSPECTIONS AND TESTING
Deleted. See the North Carolina Administrative Code and Policies.

SECTION 108 (IFGC)
VIOLATIONS
Deleted. See the North Carolina Administrative Code and Policies.

SECTION 109 (IFGC)
MEANS OF APPEAL
Deleted. See the North Carolina Administrative Code and Policies.

CHAPTER 2
DEFINITIONS

APPLIANCE. Any apparatus or device that utilizes gas as a fuel or raw material to produce light, heat, power, refrigeration or air conditioning.

APPROVED. Acceptable to the code official or other authority having jurisdiction for compliance with the provisions of the applicable Code or referenced Standard.

CLOSET. An enclosed or recessed area used to store clothing, linens or other household items.

DRIP. Deleted.

EQUIPMENT. Apparatus and devices other than appliances. See also the North Carolina Mechanical Code.

FUEL GAS UTILIZATION EQUIPMENT. Deleted.

GAS UTILIZATION EQUIPMENT. Deleted.

REGISTERED DESIGN PROFESSIONAL. An individual who is registered or licensed to practice his respective design profession as defined by the statutory requirements of the professional registration laws of the state or jurisdiction in which the project is to be constructed. Design by a Registered Design Professional is not required where exempt under the registration or licensure laws.

CHAPTER 3
GENERAL REGULATIONS

301.8 Vibration isolation. Deleted.

303.3 Prohibited locations. Appliances shall not be located in sleeping rooms, bathrooms, toilet rooms, closets used for storage or surgical rooms, or in a space that opens only into such rooms or spaces, except where the installation complies with one of the following:
1. The appliance is a direct-vent appliance installed in accordance with the conditions of the listing and the manufacturer's instructions.
2. Vented room heaters, wall furnaces, vented decorative appliances, vented gas fireplaces, vented gas fireplace heaters and decorative appliances for installation in vented solid fuel-burning fireplaces are installed in rooms that meet the required volume criteria of Section 304.5.
3. A single wall-mounted unvented room heater is installed in a bathroom and such unvented room heater is equipped as specified in Section 621.6 and has an input rating not greater than 6,000 Btu/h (1.76 kW). The bathroom shall meet the required volume criteria of Section 304.5.
4. Deleted.
5. The appliance is installed in a room or space that opens only into a bedroom or bathroom, and such room or space is used for no other purpose and is provided with a solid weather-stripped door equipped with an approved self-closing device. All combustion air shall be taken directly from the outdoors in accordance with Section 304.6.

303.4 Protection from vehicle impact damage.
Appliances shall not be installed in a location subject to vehicle impact damage except where protected by an approved means. Protection is not required for appliances located out of the vehicle's normal travel path.

303.8 Drainage.

Below grade installations shall be provided with a natural drain or an automatic lift or sump pump.

305.3.1 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.

Exceptions:

1. This section shall not apply to appliance installations complying with Section 305.4.
2. This section shall not apply to one-and two-family dwellings.

305.4 Public 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 are capable of passing under an appliance, the appliances shall be installed at clearances required by the appliance manufacturer and not less than 1 foot (305 mm) higher than the tallest vehicle garage door opening.

Exception: The requirements of this section shall not apply where the appliances are protected from motor vehicle impact and installed in accordance with Section 305.3 and NFPA 30A.

305.7 Under floor and exterior grade installations.

305.7.1 Exterior Grade Installations. Equipment and appliances installed above grade level shall be supported on a solid base or approved material a minimum of 2 inches thick.

305.7.2 Underfloor installation. Suspended equipment shall be a minimum of 6 inches (152 mm) above the adjoining grade.

305.7.3 Crawlspace supports. In a crawl space, a minimum of 4x8x16 inch block or brick supports shall be held in place with mortar. Formed concrete or approved prefabricated steel units are acceptable.

305.7.4 Drainage. Below grade installations shall be provided with a natural drain or an automatic lift or sump pump.

305.8 Clearances to combustible construction.

Heat-producing equipment and appliances shall be installed to maintain the required clearances to combustible construction as specified in the listing and manufacturer's instructions. Clearances to combustibles shall include such considerations as door swing, drawer pull, overhead projections or shelving and window swing. Devices, such as door stops or limits and closers, shall not be used to provide the required clearances.

[M] 306.3 Appliances in attics.

Attics containing appliances requiring access shall be provided with an opening and unobstructed passageway large enough to allow removal of the largest component of the appliance. The passageway shall not be less than 30 inches (762 mm) high and 22 inches (559 mm) wide and not more than 20 feet (6096 mm) in length when measured along the centerline of the passageway from the opening to the equipment. The passageway shall

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

Exceptions:

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

[M] 306.3.1 Electrical requirements. Deleted.

[M] 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 22 inches (559 mm) high and 36 inches (914 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. 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 large enough to allow removal of the largest component of the appliance.

Exceptions:

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

[M] 306.4.1 Electrical requirements. Deleted.

[M] 306.5.2 Electrical requirements. Deleted.

[M] 306.6 Guards.

Guards shall be provided where appliances or other components that require service are located within 6 feet (1829 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, 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 International Building Code.

307.2 Fuel-burning appliances.
Liquid combustion by-products of condensing appliances shall be collected and discharged to an approved 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 slope in the direction of discharge of not less than one-eighth unit vertical in 12 units horizontal (1-percent slope).

307.5 Auxiliary drain pan. All 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 *International Mechanical Code.*
Exception: Deleted.

SECTION 308 (IFGS)
CLEARANCE REDUCTION FOR UNLISTED EQUIPMENT

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 manufacturer's equipment listing and installation instructions.

308.3.3 Clearance reduction. Deleted.

308.4.3 Clearance reduction. Deleted.

CHAPTER 4
GAS PIPING INSTALLATIONS

401.1 Scope.
This chapter and Appendix A shall govern the design, installation, modification and maintenance of piping systems. The applicability of this code to piping systems extends from the point of delivery to the connections with the equipment and includes the design, materials, components, fabrication, assembly, installation, testing, inspection, operation and maintenance of such piping systems.

401.2 Liquefied petroleum gas storage.

The enforcement of the location of undiluted liquefied petroleum gas containers shall be the responsibility of the North Carolina Department of Agriculture and Consumer Services in accordance with Article 5 of Chapter 119 of the General Statutes.

401.5 Identification. Exposed piping shall be identified by a yellow label marked "Gas" in black letters. The marking shall be spaced at intervals not exceeding 5 feet (1524 mm). All piping and tubing systems, greater than 0.5-psi service pressure, shall be identified by a yellow label with black letters indicating the piping system pressure. The system shall be marked at the beginning, all ends and at intervals not exceeding 5 feet (1524 mm) along its exposed length.
Exception: Gas lines extending from the undiluted liquefied petroleum gas storage tanks to the building are not required to be labeled.

401.9 Meter location.
When required, a meter shall be provided for the building or residence to be served. The location shall be such that the meter can be read, serviced, or changed. The location, space requirements, dimensions, and proper clearances shall be acceptable to the local gas company.

402.2 Maximum gas demand.
The volume of gas to be provided shall be determined directly from the manufacturer's input ratings of the gas utilization equipment served. Where an input rating is not indicated, the gas supplier, appliance manufacturer or a qualified agency shall be contacted, or the rating from Table 402.2 shall be used for estimating the volume of gas to be supplied.
The total connected hourly load shall be used as the basis for pipe sizing, assuming that all equipment could be operating at full capacity simultaneously. Where a diversity of load can be established, pipe sizing shall be permitted to be based on such loads.

402.4 Sizing tables and equations.
Where Tables 402.4(1) through 402.4(37) are used to size piping or tubing, the pipe length shall be determined in accordance with Section 402.4.1, 402.4.2 or 402.4.3.

Where Equations 4-1 and 4-2 are used to size piping or tubing, the pipe or tubing shall have smooth inside walls and the pipe length shall be determined in accordance with Section 402.4.1, 402.4.2 or 402.4.3.

(Equations 4-1 and 4-2 remain)

Tables 402.4(1, 4, 6, 9, 11, 14, 15, 18, 21) Deleted.

(2006 NCFGC Table 402.4(34). *This table should be inserted in the 2006 IFGC and renumbered to 402.4(36).)*
(2006 NCFGC Table 402.4(35). *This table should be inserted in the 2006 IFGC and renumbered to 402.4(37).)*

403.5.2 Copper and brass tubing.
Copper tubing shall comply with Standard Type K or L of ASTM B 88 or ASTM B 280. ***(second sentence deleted)***

404.7 Above-ground outdoor piping.
All piping installed outdoors shall be elevated not less than 31/2 inches (152 mm) above ground and where installed across roof surfaces, shall be elevated not less than 31/2 inches (152 mm) above the roof surface. Piping installed above ground, outdoors, and installed across the surface of roofs shall be securely supported and located where it will be protected from physical damage (see Table 415.1 for piping support intervals). Where passing through an outside wall, the piping shall also be protected against corrosion by coating or wrapping with an inert material. Where piping is encased in a protective pipe sleeve, the annular space between the piping and the sleeve shall be sealed. Ferrous metal exposed in exterior locations shall be protected from corrosion.

404.8 Protection against corrosion underground.
Metallic pipe or tubing exposed to corrosive action, such as soil condition or moisture, shall be protected in an approved manner. Zinc coatings (galvanizing) shall not be deemed adequate protection for gas piping underground. Ferrous metal exposed in exterior locations shall be protected from corrosion. Where dissimilar metals are joined underground, an insulating coupling or fitting shall be used. Piping shall not be laid in contact with cinders.

404.8.2 Protective coatings and wrapping.
Pipe protective coatings and wrappings shall be approved for the application.
Exception: Where installed in accordance with the manufacturer's installation instructions, field application of coatings and wrappings shall be permitted for pipe nipples, fittings and locations where the factory coating or wrapping has been damaged or necessarily removed at joints.

404.14.3 Tracer.
An insulated copper tracer wire or other approved conductor shall be installed adjacent to underground nonmetallic piping. Access shall be provided to the tracer wire or the tracer wire shall terminate above ground at each end of the nonmetallic piping. The tracer wire size shall not be less than 18 AWG and the insulation type shall be suitable for direct burial.

406.4.1 Method of Testing.
Low pressure gas piping shall withstand a pressure of at least 10 psi for a period of not less than 10 minutes without showing any drop in pressure. High pressure piping, 5 psi and greater must withstand a pressure of at least 50 psi for a period of not less than 10 minutes without showing any drop in pressure.

406.4.2 Test instruments.
For these tests, pressure shall be measured with a manometer or slope gauge or other accurate and sensitive pressure indicating device, the scale of which is so graduated that

variations in pressure may be accurately read. All necessary apparatus for conducting the pressure test shall be furnished by the installer.

408.1 Slopes. Deleted.

408.2 Drips. Deleted.

408.3 Location of drips. Deleted.

408.4 Sediment trap.
Where a sediment trap is not incorporated as part of the gas utilization equipment, a sediment trap, if required by the manufacturer's installations, shall be installed as close to the inlet of the equipment as practical. The sediment trap shall be either a tee fitting with a capped nipple in the bottom opening of the run of the tee or other device approved as an effective sediment trap. Illuminating appliances, ranges, clothes dryers, gas logs, log lighters and outdoor grills need not be so equipped.

409.2 Meter valve. Deleted.

409.3 Shutoff valves for multiple building line systems.
Where a single meter is used to supply gas to more than one building or tenant, a separate shutoff valve shall be provided for each building or tenant.

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. This Section shall not prohibit the use or the installation of gas shut-off valves in the firebox of fireplaces serving listed gas appliances.

410.2 MP regulators.
MP pressure regulators shall comply with the following:
1. The MP regulator shall be approved and shall be suitable for the inlet and outlet gas pressures for the application.
2. The MP regulator shall maintain a reduced outlet pressure under lockup (no-flow) conditions.
3. The capacity of the MP regulator, determined by published ratings of its manufacturer, shall be adequate to supply the appliances served.
4. The MP pressure regulator shall be provided with access.
Where located indoors, the regulator shall be vented to the outdoors or shall be equipped with a leak-limiting device, in either case complying with Section 410.3.
5. A tee fitting with one opening capped or plugged shall be installed between the MP regulator and its upstream shutoff valve. Such tee fitting shall be positioned to allow connection of a pressure-measuring instrument and to serve as a sediment trap.
6. A means to test pressure shall be installed not less than 10 pipe diameters downstream of the MP regulator outlet. Such fitting shall be positioned to allow connection of a pressure-measuring instrument.

410.3.1 Vent piping.
Vent piping shall be metallic and 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.

SECTION 411
APPLIANCE CONNECTIONS

412.1 General.
Motor fuel-dispensing facilities for LP-gas fuel shall be as regulated by the North Carolina Department of Agriculture and Consumer Services.

412.2 Storage and dispensing. Deleted.

412.3 Approved equipment. Deleted.

412.4 Listed equipment. Deleted.

412.5 Attendants. Deleted.

412.6 Location. Deleted.

412.7 Installation of dispensing devices and equipment. Deleted.

412.7.1 Valves. Deleted.

412.7.2 Hoses. Deleted.

412.7.3 Vehicle impact protection. Deleted.

412.8 Private fueling of motor vehicles. Deleted.

CHAPTER 5
CHIMNEYS AND VENTS

501.1 Scope.
This chapter, Appendix B and Appendix C shall govern the installation, maintenance, repair and approval of factory-built chimneys, chimney liners, vents and connectors and the utilization of masonry chimneys serving gas-fired appliances. The requirements for the installation, maintenance, repair and approval of factory built chimneys, chimney liners, vents and connectors serving appliances burning fuels other than fuel gas shall be

regulated by the International Mechanical Code. The construction, repair, maintenance and approval of masonry chimneys shall be regulated by the International Building Code.

501.8 Equipment not required to be vented.
The following listed appliances shall not be required to be vented.
1. Ranges.
2. Built-in domestic cooking units listed and marked for optional venting.
3. Hot plates and laundry stoves.
4. Type 1 clothes dryers (Type 1 clothes dryers shall be exhausted in accordance with the requirements of Section 613).
5. A single booster-type automatic instantaneous water heater, where designed and used solely for the sanitizing rinse requirements of a dishwashing machine, provided that the heater is installed in a commercial kitchen having a mechanical exhaust system. Where installed in this manner, the draft hood, if required, shall be in place and unaltered and the draft hood outlet shall be not less than 36 inches (914 mm) vertically and 6 inches (152 mm) horizontally from any surface other than the heater.
6. Refrigerators.
7. Counter appliances.
8. Room heaters listed for unvented use.
9. Direct-fired make-up air heaters.
10. Other equipment listed for unvented use and not provided with flue collars.
11. Specialized equipment of limited input such as laboratory burners and gas lights.
Where the appliances and equipment listed in Items 5 through 11 above are installed so that the aggregate input rating exceeds 20 British thermal units (Btu) per hour per cubic feet (207 watts per m3) of volume of the room or space in which such appliances and equipment are installed, one or more shall be provided with venting systems or other approved means for conveying the vent gases to the outdoor atmosphere so that the aggregate input rating of the remaining unvented appliances and equipment does not exceed the 20 Btu per hour per cubic foot (207 watts per m3) figure. Where the room or space in which the equipment is installed is directly connected to an-other room or space by a doorway, archway, or other opening of comparable size that cannot be closed, the volume of such adjacent room or space shall be permitted to be included in the calculations.

CHAPTER 6
SPECIFIC APPLIANCES

614.5 Makeup air.
Where a closet is designed for the installation of a clothes dryer, an opening having an area of not less than 100 square inches (645 mm2) for makeup air shall be provided in the closet enclosure, or makeup air shall be provided by other approved means.

614.6 Domestic clothes dryer ducts.
Exhaust ducts for domestic clothes dryers shall be constructed of metal and shall have a smooth interior finish. With the exception of the transition duct, flexible ducts are prohibited. 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 and shall terminate not less than 12 inches above finished grade. 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 limited to single lengths not to exceed 8 feet (2438 mm) and shall be listed and labeled for the application. Transition ducts shall not be concealed within construction and must remain entirely within the room in which the appliance is installed.

Exception: Where the duct termination is less than 12 inches above finished grade an area way shall be provided with a cross sectional area not less than 200 square feet. The bottom of the duct termination shall be no less than 12 inches above the area way bottom.

614.6.1 Maximum length.
The maximum length of a clothes dryer exhaust duct shall not exceed 45 feet (13716 mm) from the dryer location to the outlet terminal. The maximum length of the duct shall be reduced 5 feet (1524 mm) for each 45 degree (0.79 rad) bend and 10 feet (3048 mm) for each 90 degree (1.6 rad) bend. The maximum length of the exhaust duct does not include the transition duct.

Exception: Where the make and model of the clothes dryer to be installed is known and the manufacturer's installation instructions for such dryer are provided to the code official, the maximum length of the exhaust duct, including any transition duct, shall be permitted to be in accordance with the dryer manufacturer's installation instructions. Where exhaust ducts are installed in concealed locations, the developed length of the exhaust duct system shall be indicated by permanent labels or tags installed in an observable location.

618.2 Forced-air furnaces.
The minimum unobstructed total area of the outside and return air ducts or openings to a forced-air warm-air furnace shall be not less than 2 square inches for each 1,000 Btu/h (4402 mm^2/W) output rating capacity of the furnace and not less than that specified in the furnace manufacturer's installation instructions. The minimum unobstructed total area of supply ducts from a forced-air warm-air furnace shall be not less than 2 square inches for each 1,000 Btu/h (4402 mm^2/W) output rating capacity of the furnace and not less than that specified in the furnace manufacturer's installation instructions. With the addition of a cooling coil, the sizing criteria shall be based on 6 square inches for each 1,000 Btu/H (13206 mm^2/W) output.
Exception: The total area of the supply air ducts and outside and return air ducts shall not be required to be larger than the minimum size required by the furnace manufacturer's installation instructions.

618.5 Prohibited sources.
Outside or return air for a forced-air heating system shall not be taken from the following locations:
1. Closer than 10 feet (3048 mm) from an appliance vent outlet, a vent opening from a plumbing drainage system or the discharge outlet of an exhaust fan, unless the outlet is 3 feet (914 mm) above the outside air inlet.

2. Where there is the presence of objectionable odors, fumes or flammable vapors; or where located less than 10 feet (3048 mm) above the surface of any abutting public way or driveway; or where located at grade level by a sidewalk, street, alley or driveway.
3. A hazardous or insanitary location or a refrigeration machinery room as defined in the *International Mechanical Code.*
4. A room or space, the volume of which is less than 25 percent of the entire volume served by such system. Where connected by a permanent opening having an area sized in accordance with Section 618.2, adjoining rooms or spaces shall be considered as a single room or space for the purpose of determining the volume of such rooms or spaces.

Exception: The minimum volume requirement shall not apply where the amount of return air taken from a room or space is less than or equal to the amount of supply air delivered to such room or space.

5. A room or space containing a fuel burning appliance or fireplace where such a room or space serves as a source of return air.

Exception: This shall not apply where:

1. The appliance is a direct-vent appliance or an appliance not requiring a vent in accordance with Section 501.8.
2. The room or space complies with the following requirements:
2.1. The return air shall be taken from a room or space having a volume exceeding 1 cubic foot for each 10 Btu/h (9.6 L/W) of combined input rating of all fuel-burning appliances therein.
2.2. The volume of supply air discharged back into the same space shall be approximately equal to the volume of return air taken from the space.
2.3. Return-air inlets shall not be located within 10 feet (3048 mm) of any appliance firebox or draft hood in the same room or space.
3. Rooms or spaces containing solid fuel-burning appliances, provided that return-air inlets are located not less than 10 feet (3048 mm) from the firebox of such appliances.
4. Rooms or spaces containing fireplaces, provided that return-air inlets are located not less than 10 feet (3048 mm) from the firebox of such fireplaces.

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

618.8 Return-air intake (non-engineered systems). See the North Carolina Mechanical Code.

621.7 Unvented log heaters.
An unvented log heater shall not be installed in a factory-built fireplace unless the fireplace system has been specifically tested, listed and labeled for such use in accordance with UL 127.

621.7.1 Ventless firebox enclosures.
Ventless firebox enclosures used with unvented log heaters shall be listed as complying with ANSI Z21.91.

SECTION 634 (IFGS)

CHIMNEY DAMPER OPENING AREA
634.1 Free opening area of chimney dampers. Deleted.

TABLE 634.1
FREE OPENING AREA OF CHIMNEY DAMPER FOR VENTING FLUE GASES FROM UNLISTED DECORATIVE APPLIANCES FOR INSTALLATION IN VENTED FIREPLACES Deleted.

SECTION 635 (IFGC)
GASEOUS HYDROGEN SYSTEMS
635.1 Installation. See Chapter 7.

APPENDIX A (IFGS)
SIZING AND CAPACITIES OF GAS PIPING
(This appendix is adopted as part of the code.)

A.2.2 Low pressure natural gas tables. Capacities for gas at low pressure [less than 2.0 psig (13.8 kPa gauge)] in cubic feet per hour of 0.60 specific gravity gas for different sizes and lengths are shown in Tables 402.4(1) and 402.4(2) for iron pipe or equivalent rigid pipe; in Tables 402.4(6) through 402.4(9) for smooth wall semirigid tubing; and in Tables 402.4(13) through 402.4(15) for corrugated stainless steel tubing. Tables 402.4(1) and 402.4(6) are based upon a pressure drop of 0.3-inch w.c. (75 Pa), whereas Tables 402.4(2), 402.4(7) and 402.4(13) are based upon a pressure drop of 0.5-inch w.c. (125 Pa).

A.2.3 Undiluted liquefied petroleum tables. Capacities in thousands of Btu per hour of undiluted liquefied petroleum gases based on a pressure drop of 0.5-inch w.c. (125 Pa) for different sizes and lengths are shown in Table 402.4(26) for iron pipe or equivalent rigid pipe, in Table 402.4(28) for smooth wall semi-rigid tubing, in Table 402.4(30) for corrugated stainless steel tubing, and in Tables 402.4(33) and 402.4(35) for polyethylene plastic pipe and tubing.

T A B L E A . 2 . 2
EQUIVALENT LENGTHS OF PIPE FITTINGS AND VALVES
Deleted.

APPENDIX B
SIZING OF VENTING SYSTEMS SERVING APPLIANCES EQUIPPED WITH DRAFT HOODS, CATEGORY I APPLIANCES, AND APPLIANCES LISTED FOR USE AND TYPE B VENTS
(This appendix is adopted as part of the code.)

APPENDIX C (IFGS)
EXIT TERMINALS OF MECHANICAL DRAFT AND DIRECT-VENT VENTING SYSTEMS
(This appendix is adopted as part of the code.)

APPENDIX D (IFGS)
RECOMMENDED PROCEDURE FOR SAFETY INSPECTION OF AN EXISTING APPLIANCE INSTALLATION
Deleted.