AGENCY: NC Building Code Council

RULE CITATION: NC Fuel Gas Code

DEADLINE FOR RECEIPT: Tuesday, August 8, 2017

<u>NOTE:</u> This request when viewed on computer extends several pages. Please be sure you have reached the end of the document.

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

I note that "code" is not capitalized throughout this Code. So, I take it that it should remain lowercase everywhere is used as such?

Yes. Lowercase unless there is some specific reason otherwise.

So that I'm clear – this will be the 2018 Fuel Gas Code? Or is it the 2019 Code?

This adoption is the 2018 edition, effective 1/1/2019.

Please confirm that not submitting any amendments to Chapter 7 (and Appendices) means that you are adopting them from the International Fuel Gas Code (IFGC).

Correct. The NC amendments to 2015 IFGC are indicated by strikethrough/underline.

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina

Barry Gupton, PE Chief Code Consultant

AGENCY: NC Building Code Council

RULE CITATION: NC Fuel Gas Code, Preface

DEADLINE FOR RECEIPT: Tuesday, August 8, 2017

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In reviewing these rules, the staff determined that the following technical changes need to be made:

You have not deleted these prefaces for other codes, such as the International Building Code. Is there a reason you are doing so for this Code?

The Mechanical Ad Hoc Committee deleted portions of the "upfront" pages from the Fuel Gas and Mechanical Codes. They didn't give a reason, but these are informational pages and are not part of the Rule.

In "Legislation" on Page 3 of the packet, what do you mean by "See NC Administrative Code"

The North Carolina Administrative Code and Policies is a volume of the NC State Building Codes.

Deleted. See North Carolina Administrative Code and Policies.

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina

Barry Gupton, PE Chief Code Consultant

AGENCY: NC Building Code Council

RULE CITATION: NC Fuel Gas Code, 103, 104, 105.2, 106.2, 107, 108, 109

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In reviewing these rules, the staff determined that the following technical changes need to be made:

What are the Administrative Code and Policies you are referring to here? You need to specify this or the rules are unclear as written. If the intent is to state that that governing law and rules will apply, do you intend to state that at all or just not have these Sections within the code?

The North Carolina Administrative Code and Policies is a volume of the NC State Building Codes. The NCAC&P provides guidance on where to find the GS information.

Deleted. See North Carolina Administrative Code and Policies.

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina

Barry Gupton, PE Chief Code Consultant

AGENCY: NC Building Code Council

RULE CITATION: NC Fuel Gas Code, Chapter 1

DEADLINE FOR RECEIPT: Tuesday, August 8, 2017

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

101.1: Insert dates of adoption here. Was it June 13, 2017?

[A] 101.1 Title.

These regulations shall be known as the <u>North Carolina Fuel Gas Code</u> of <u>as adopted by the North Carolina Building Code Council on June 13, 2017</u> to be effective <u>January 1, 2019</u>.

References to the <u>International Codes</u> shall mean the North Carolina Codes. The North Carolina amendments to the <u>International Codes</u> are underlined.

110: Just so I am clear, you are adopting this Section?

Yes. Chapter 1 is the beginning of the Rule.

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina

Barry Gupton, PE Chief Code Consultant

AGENCY: NC Building Code Council

RULE CITATION: NC Fuel Gas Code, Chapter 2

DEADLINE FOR RECEIPT: Tuesday, August 8, 2017

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

<u>Listed:</u> In this definition, I do not see how G.S. 143-139.1 sets any requirements for the accredited labs. Instead, the statute directs the Council to adopt rules to set those requirements.

I agree. This GS reference will be deleted and reference provided as shown below.

[A] LISTED. Appliances, equipment, materials, products or services included in a list published by an organization acceptable to the code official and concerned with evaluation of products or services that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services and whose listing states either that the <u>appliance</u>, equipment, material, product or service meets identified standards or has been tested and found suitable for a specified purpose.

Refer to:

http://www.ncdoi.com/OSFM/Engineering and Codes/Default.aspx?field1=Code Enforcement - Third Party Testing Agencies&user=Code Enforcement Resources for a list of NC Approved Third-Party Certification Agencies for electrical and mechanical equipment categories.

§ 143-139.1. Certification of manufactured buildings, structures or components by recognized independent testing laboratory; minimum standards for modular homes.

(a) Certification. - The State Building Code may provide, in circumstances deemed appropriate by the Building Code Council, for testing, evaluation, inspection, and certification of buildings, structures or components manufactured off the site on which they are to be erected, by a recognized independent testing laboratory having follow-up inspection services approved by the Building Code Council. Approval of such buildings, structures or components shall be evidenced by labels or seals acceptable to the Council. All building units, structures or components bearing such labels or seals shall be deemed to meet the requirements of the State Building Code and this Article without further inspection or payment of fees, except as may be required for the enforcement of the Code relative to the connection of units and components and enforcement of local ordinances governing zoning, utility connections, and foundations permits. The Building Code Council shall adopt and may amend from time to time such reasonable and appropriate rules and regulations as it deems necessary for approval of agencies offering such testing, evaluation,

inspection, and certification services and for overseeing their operations. Such rules and regulations shall include provisions to insure that such agencies are independent and free of any potential conflicts of interest which might influence their judgment in exercising their functions under the Code. Such rules and regulations may include a schedule of reasonable fees to cover administrative expenses in approving and overseeing operations of such agencies and may require the posting of a bond or other security satisfactory to the Council guaranteeing faithful performance of duties under the Code.

The Building Code Council may also adopt rules to insure that any person that is not licensed, in accordance with G.S. 87-1, and that undertakes to erect a North Carolina labeled manufactured modular building, meets the manufacturer's installation instructions and applicable provisions of the State Building Code. Any such person, before securing a permit to erect a modular building, shall provide the code enforcement official proof that he has in force for each modular building to be erected a \$5,000 surety bond insuring compliance with the regulations of the State Building Code governing installation of modular buildings.

Further, where will this list be kept? How can the public and code officials see it? Is it the link provided in Third-Party Certification Agency?

The list of Third-Party Certification Agencies and Listing categories is maintained at this link.

[P] THIRD-PARTY CERTIFICATION AGENCY. An approved agency operating a product or material certification system that incorporates initial product testing, assessment and surveillance of a manufacturer's quality control system.

Refer to:

http://www.ncdoi.com/OSFM/Engineering_and_Codes/Default.aspx?field1=Code_Enforcement_- Third_Party_Testing_Agencies&user=Code_Enforcement_Resources for a list of NC Approved Third-Party Certification Agencies for electrical and mechanical equipment categories.

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina

Barry Gupton, PE Chief Code Consultant

AGENCY: NC Building Code Council

RULE CITATION: NC Fuel Gas Code, Chapter 3

DEADLINE FOR RECEIPT: Tuesday, August 8, 2017

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

<u>303.3:</u> Is the intent here to use "closet" as defined? If so, aren't all closets as defined "used for storage"?

Yes in a residential use, but not necessarily in a commercial use.

306.3.1, 306.4.1, 306.5.2: So that I am clear – there is no longer a set standard, just references?

NFPA 70 is the National Electrical Code. This is a more specific article reference.

Please consistently capitalize "Article" However, given the language in this Code, should the term be "section"?

Capitalize as shown below.

The NEC uses the term "Article" instead of "Section" like the ICC.

[M] 306.3.1 Electrical requirements. Lighting outlet and receptacle

A luminaire controlled by a switch located at the required passageway opening and a receptacle outlet shall be provided at or near the *appliance* location in accordance with NEPA 70.

For reference and coordination purposes only, refer to *North Carolina Electrical Code Article* 210.63 for receptacle, and Article 210.70 (3) for lighting outlet and switch location.

310.1.1: What is the use of the commentary? Is this per G.S. 143-138(d) or 143-138.1(b)?

Commentary will not be published in the Code.

And is the purpose of the statutory citation to ensure that your regulated public knows what will require the service of a licensed electrical contractor?

Deleted the GS reference from the rule.

310.1.1 CSST.

Corrugated stainless steel tubing (CSST) gas piping systems and piping systems containing

one or more segments of CSST shall be bonded to the electrical service grounding electrode system or, where provided, the lightning protection grounding electrode system.

Corrugated stainless steel tubing (CSST) gas *piping* systems and piping systems containing one or more segments of CSST shall be bonded to the electrical service grounding electrode system.

Exception

CSST with an arc-resistant jacket tested in accordance with LC 1/CSA 6.26b, and listed by an approved agency for installation without the direct bonding, as prescribed in this section, shall be installed in accordance with Section 310.1 and the manufacturer's installation instructions.

§ 87-43. Electrical contracting defined; licenses.

Electrical contracting shall be defined as engaging or offering to engage in the business of installing, maintaining, altering or repairing any electric work, wiring, devices, appliances or equipment. No person, partnership, firm or corporation shall engage, or offer to engage, in the business of electrical contracting within the State of North Carolina without having received a license in the applicable classification described in G.S. 87-43.3 from the State Board of Examiners of Electrical Contractors in compliance with the provisions of this Article, regardless of whether the offer was made or the work was performed by a qualified individual as defined in G.S. 87-41.1. In each separate place of business operated by an electrical contractor at least one listed qualified individual shall be regularly on active duty and shall have the specific duty and authority to supervise and direct all electrical wiring or electrical installation work done or made by such separate place of business. Every person, partnership, firm or corporation engaging in the business of electrical contracting shall display a current certificate of license in his principal place of business and in each branch place of business which he operates. Licenses issued hereunder shall be signed by the chairman and the secretary-treasurer of the Board, under the seal of the Board. A registry of all licenses issued to electrical contractors shall be kept by the secretarytreasurer of the Board, and said registry shall be open for public inspection during ordinary business hours. (1937, c. 87, s. 5; 1951, c. 650, ss. 1-2 1/2; 1953, c. 595; 1961, c. 1165; 1969, c. 669, s. 1; 1989, c. 709, s. 4.)

I take it that the Section 311 addition is to implement G.S. 143-138(b2)?

Yes, in part. CO requirements were introduced to the ICC several years prior to this GS change. This rule is also in the current 2012 NC Code.

- (b2) Carbon Monoxide Alarms. The Code (i) may contain provisions requiring the installation of either battery-operated or electrical carbon monoxide alarms in every dwelling unit having a combustion heater, appliance, or fireplace, and in any dwelling unit having an attached garage and (ii) shall contain provisions requiring the installation of electrical carbon monoxide alarms at a lodging establishment. Violations of this subsection and rules adopted pursuant to this subsection shall be punishable in accordance with subsection (h) of this section and G.S. 143-139. In particular, the rules shall provide:
- (1) For dwelling units, carbon monoxide alarms shall be those listed by a nationally recognized testing laboratory that is approved to test and certify to American National Standards Institute/Underwriters Laboratories Standards ANSI/UL2034 or ANSI/UL2075 and shall be installed in accordance with either the standard of the National Fire Protection Association or the

minimum protection designated in the manufacturer's instructions, which the property owner shall retain or provide as proof of compliance. A carbon monoxide alarm may be combined with smoke detectors if the combined alarm does both of the following: (i) complies with ANSI/UL2034 or ANSI/UL2075 for carbon monoxide alarms and ANSI/UL217 for smoke detectors; and (ii) emits an alarm in a manner that clearly differentiates between detecting the presence of carbon monoxide and the presence of smoke.

If so, then:

311.1: Won't this be "as directed by the alarm manufacturer or the NFPA."?

The NC Code requirements incorporate the necessary NFPA Standard specifications for CO alarms without further reference.

311.3: To comply with statute, add the reference to UL 2075 that is within the statute.

UL 2034 is a single/multi-station standard that is used most often with CO producing appliance installation. UL 2075 is the standard used for connection to a commercial central station and alarm system panel. UL 2075 is included in the Building/Fire Codes in more detail.

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina

Barry Gupton, PE Chief Code Consultant

AGENCY: NC Building Code Council

RULE CITATION: NC Fuel Gas Code, Chapter 4

DEADLINE FOR RECEIPT: Tuesday, August 8, 2017

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In reviewing these rules, the staff determined that the following technical changes need to be made:

402.2: What is a "qualified agency"? Does your regulated public know?

Change to "approved" as a defined term.

402.2 Maximum gas demand. The volume of gas to be provided, in cubic feet per hour, (MBtu for undiluted propane) shall be determined directly from the manufacturer's input ratings of the appliances served. Where an input rating is not indicated, the gas supplier, appliance manufacturer or an approved agency shall be contacted. The total connected hourly load shall be used as the basis for pipe sizing, assuming that all appliances 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.

What is the Table on Pages 23 – 24 of the packet? It doesn't seem to be an adoption of a new table, but it doesn't comport with the tables in the International Fuel Gas Code.

Footnote 2 (and the reference) is added to IFGC Tables 402.4(3) and 402.4(4). The first table should be labelled 402.4(3).

TABLE 402.4(3) SCHEDULE 40 METALLIC PIPE

403.4.3: Is the intention here to rename the Rule to state that brass is a copper alloy?

They are adding this parenthetical statement after the heading as shown.

403.4.3 Copper and copper alloy (brass is a copper alloy).

Copper and copper alloy pipe shall not be used if the gas contains more than an average of 0.3 grains of hydrogen sulfide per 100 standard cubic feet of gas (0.7 milligrams per 100 liters). Threaded copper, copper alloy and aluminum-alloy pipe shall not be used with gases corrosive to such materials.

<u>404.7.1:</u> Is there a reason you didn't change "member" to "member(s)" every time the term is used in this Rule?

Deleted the 3 NC plurals. All should be singular.

<u>404.7.2:</u> Please insert an "and" before "not diagonally" Then end the sentence and state "The measurement is..."

404.7.2 Piping installed in other locations. Where the *piping* is located within a framing member (i.e. steel studs) and is less than 1 / inches (38 mm) from the framing member face to which wall, ceiling or floor membranes will be attached, the *piping* shall be protected by shield plates that cover the width and length of the *piping*. Where the *piping* is located outside of a framing member and is located less than 1 / inches (38 mm) from the nearest edge of the face of the framing member to which the membrane will be attached, the *piping* shall be protected by shield plates that cover the width and length of the *piping*. When outside of the framing member, measurement shall be made on the horizontal or vertical axis for horizontal and vertical members, respectively, and not diagonally. The measurement is from the member's face edge, not the member's plane.

404.10: Delete the comma after "fitting" before "or dielectric regulator"

404.10 Isolation.

Metallic *piping* and metallic tubing that conveys fuel gas from an LP-gas storage container shall be provided with an *approved* a dielectric fitting or dielectric regulator to electrically isolate the underground portion of the pipe or tube from the above-ground portion that enters a building. Such dielectric fitting or dielectric regulator shall be installed above ground, outdoors.

406.1 Commentary: Please publish the citation as "N.C.G.S."

(Commentary: See N.C.G.S. 143-139.3 for alternate Inspection of liquefied propane gas piping systems for residential structures.)

406.4.1: In the Exception, either make "system" plural or change "are" to "is"

406.4.1 Test pressure.

The test pressure to be used shall be not less than 1 / times the proposed maximum working pressure, but not less than 3 psig (20 kPa gauge), 10 psig (69 kPa gauge) irrespective of design pressure. Where the test pressure exceeds 125 psig (862 kPa gauge), the test pressure shall not exceed a value that produces a hoop stress in the *piping* greater than 50 percent of the specified minimum yield strength of the pipe.

Exception: Fuel piping systems that are being tested with manifolds, regulator or other pressure regulating appliance in place at the time of the test shall be tested no less than 11/2 times the proposed maximum working pressure, but not less than 3 psig (20 kPa gauge), irrespective of design pressure.

406.7.1.1: What is "constantly attended"? Does your regulated public know?

Yes. Someone is present during the entire purging operation.

In the Exception, replace the semicolon after "outdoors" with a comma.

Change "effected" to "affected"

End the sentence after "lines." Then state "Quantities of..."

406.7.1.1.1 Any piping added to facilitate purging to the outdoors shall be limited to the piping materials allowed and installed per Section 403, or if constantly attended, the temporary use of flexible hose complying with ANSI/UL 21 standard shall be used in accordance with NFPA 58

Exception: If the line pressure cannot be vented to the outdoors, the building and all affected spaces shall be evacuated of personnel not involved with purging the gas lines. Quantities of flammable gas shall not exceed 25 percent of the lower explosive limit (1.0-percent fuel/air mixture for natural gas or 0.6-percent fuel/air mixture for LP-gas) as measured by a combustible gas detector, all ignition sources shall be eliminated, and adequate ventilation to prevent accumulation of flammable gases shall be provided.

406.7.4: What is this training? Does your regulated public know?

Yes. Purging operations are done by industry personnel.

410.3: In (a), when you publish, make sure you put a period after "intakes"

Acknowledged.

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina

Barry Gupton, PE Chief Code Consultant

AGENCY: NC Building Code Council

RULE CITATION: NC Fuel Gas Code, Chapter 6

DEADLINE FOR RECEIPT: Tuesday, August 8, 2017

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In reviewing these rules, the staff determined that the following technical changes need to be made:

614.8.5: In the first bullet, should this be "Labels" to be consistent with the next bullet?

[M] 614.8.5 Length identification.

Where the exhaust duct equivalent length exceeds 35 feet (10 668 mm), 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.

- <u>Labels</u> shall be permanently stenciled, laminated, or commercially available plastic or metal tags.
- Labels shall state, at a minimum (fill in the blank):
 - Caution: Equivalent length ____ft. Any installed dryer must be equipped with exhaust system that meets or exceeds this equivalent length requirement.
- Labels can be attached to wall or vent receptor.

And are there any requirements for tags at all?

No Code requirements. There may be industry standards.

614.8.7: In the Exception, insert a comma after "grade" before "an areaway"

614.8.7 Exhaust duct termination

Exhaust duct shall terminate not less than 12 inches (305 mm) above finished grade.

Exception: Where the duct termination is less than 12 inches (305 mm) above finished grade, an areaway shall be provided with a cross-sectional area not less than 200 square inches (1290 cm2). The bottom of the duct termination shall be no less than 12 inches (305 mm) above the areaway bottom.

618.8: Separate "a" and "cooling" on the first line.

On the fourth line, I believe you mean "exchangers"

Amanda J. Reeder

Commission Counsel

Date submitted to agency: July 25, 2017

618.8 Refrigeration coils in warm-air furnaces. When a cooling coil is located in the supply plenum of a warm-air furnace, the furnace blower shall be rated at not less than 0.5-inch water column (124 Pa) static pressure unless the furnace is listed and labeled for use with a cooling coil. Cooling coils shall not be located upstream from heat exchangers unless listed and labeled for such use. Conversion of existing furnaces for use with cooling coils shall be permitted, provided the furnace will operate within the temperature rise specified for the furnace. See 627.8 also.

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina

Barry Gupton, PE Chief Code Consultant

AGENCY: NC Building Code Council

RULE CITATION: NC Fuel Gas Code, Chapter 8

DEADLINE FOR RECEIPT: Tuesday, August 8, 2017

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In reviewing these rules, the staff determined that the following technical changes need to be made:

In 403.5.4, the reference is to ANSI LC1/CSA 6.26. 301.1.1 does not reference a specific standard at all. Why is this change being made?

Changed the reference in 403.5.4 and corrected to 310.1.1.

LC 1/CSA 6.26—13	Fuel Gas Piping Systems Using Corrugated Stainless	403.5.4
	Steel Tubing (CSST)	
LC 1-2014/CSA	Fuel Gas Piping Systems Using Corrugated Stainless	<u>310.1.1,</u>
<u>6.26b</u>	Steel Tubing (CSST)	403.5.4

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina

Barry Gupton, PE Chief Code Consultant