

NORTH CAROLINA BUILDING CODE COUNCIL

Rule-making Agency: North Carolina Building Code Council

Rule Citation: 2009 NC Fuel Gas Code, Section 406.7, Purging of Gas Piping

Effective Date: October 15, 2009

Findings Reviewed and Approved by the Codifier: October 6, 2009

Reason for Action: This amendment is in response to an inadequate performance procedure prescribed in the NC Fuel Gas code. Subsequent to an investigation by the US Chemical Safety Board following an explosion at the ConAgra Plant in the spring of 2009, it was determined that the procedure allowing a gas line to be purged within a building could lead to another accident before the Permanent Rule is completed. In short, the Code allows a technician to determine the amount of Natural or LP gas within a building by sense of smell. The new language requires equipment to detect the dangerous concentration of gas within the enclosed space. The odorant added to the gas was intended to determine the presence, not the concentration of the gas.

NC FUEL GAS CODE

406.7 Purging. Purging of piping shall comply with Sections 406.7.1 through 406.7.4.

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.

Exception: If the line pressure cannot be vented to the outdoors; the building and all effected spaces shall be evacuated of personnel not purging the gas lines, quantities of flammable gas shall not exceed 25% of the lower explosive limit as measured by a combustible gas detector, eliminate all ignition sources and provide adequate ventilation to prevent accumulation of flammable gases.

**TABLE 406.7.1
LENGTH OF PIPING REQUIRING PURGING WITH
INERT GAS FOR SERVICING OR MODIFICATION**

NOMINAL PIPE SIZE (Inches)	LENGTH OF PIPING REQUIRING PURGING
2½	> 50 feet
3	> 30 feet
4	> 15 feet
6	> 10 feet
8 or larger	Any length

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

406.7.2 Placing in operation. Where piping full of air is placed in operation, the air in the piping shall be displaced with fuel gas, except where such piping is required by Table 406.7.2 to be purged with an inert gas prior to introduction of fuel gas. The fuel gas flow shall be continued without interruption until the vented gas is free of air. After purging, the vent shall then be closed. Where required by Table 406.7.2, the air in the piping shall first be displaced with an inert gas, and the inert gas shall then be displaced with fuel gas.

**TABLE 406.7.2
LENGTH OF PIPING REQUIRING PURGING WITH
INERT GAS BEFORE PLACING IN OPERATION**

NOMINAL PIPE SIZE (Inches)	LENGTH OF PIPING REQUIRING PURGING
3	> 30 feet
4	> 15 feet
6	> 10 feet
8 or larger	Any length

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

406.7.3 Discharge of purged gases. The open end of piping systems being purged shall not discharge into confined spaces or areas where quantities of flammable gas can exceed 25% of the lower explosive limit as measured by a combustible gas detector. All potential sources of ignition shall be identified and eliminated or controlled. Precautions shall be taken to maintain the concentration of the flammable gas below 25% of the lower explosive limits, such as adequate ventilation, control of the purging rate and other measures, as appropriate.

406.7.4 Placing appliances and equipment in operation. After the piping system has been placed in operation, all appliances and equipment shall be purged and then placed in operation, as necessary.

406.7.5 Personnel Training. Personnel performing purging operation shall be trained to the hazards associated with purging and shall not rely on odor when monitoring the concentration of combustible gas.