

# MECHANICAL CODE

## Underground Gas Pipe Code Requirements

IN OUR PREVIOUS DISCUSSION, we addressed the sizing of underground plastic gas piping, noting that the International Fuel Gas Code (IFGC) tables are somewhat limited, as they offer sizing data only for pressures up to 2 psi and lengths up to 500 feet. In this issue, we will examine several IFGC code requirements pertaining to underground gas line installations. PLEASE review these sections and others not specifically mentioned for further details and exceptions. Also note, CSST manufacturer's offer CSST factor installed with code compliant sleeve, that may be used underground. Of course, you'll find the identical requirements in **IRC Chapter 24 – Fuel Gas.**

### **403.5 Plastic pipe, tubing and fittings.**

*Polyethylene plastic pipe, tubing and fittings used to supply fuel gas shall conform to ASTM D2513. Such pipe shall be marked "Gas"*

*and "ASTM D2513." Polyamide pipe, tubing and fittings shall be identified and conform to ASTM F2945. Such pipe shall be marked "Gas" and "ASTM F2945."*

The IFGC does not allow other plastic pipes including PVC, CPVC or PEX.

### **403.10 Plastic pipe, joints and fittings.**

*Plastic pipe, tubing and fittings shall be joined in accordance with the manufacturer's instructions.*

Details include requirements for pull-out resistance, heat-fusion and compression-type mechanical joints. When used for LP gas, compliance with NFPA is required.

### **404.6 Underground penetrations prohibited.**

*Gas piping shall not penetrate building foundation walls at any point below grade. Gas piping shall enter and exit a building at a point above grade and the annular space between the pipe and the*

*wall shall be sealed.*

For example, a gas line from a house to an accessory building (detached garage) must leave the house above grade and enter the garage through an above grade wall.

### **404.12 Minimum burial depth.**

*Underground piping systems shall be installed at a minimum depth of 12 inches (305 mm) below grade, except as provided for in Section 404.12.1.*

Please note the 12" depth is a minimum, which in my opinion needs a code change. Use wisdom and common sense, installing lines through flower beds, lawn and garden areas at least 18" or 24" below final grade. Correctly installing an anodeless risers will typically require a 24" depth.

### **404.14 Piping underground beneath buildings.**

*Piping installed underground beneath buildings is prohibited*

# DISCUSSION



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except where the piping is encased in a conduit of wrought iron, plastic pipe, steel pipe, a piping or encasement system listed for installation beneath buildings, or other approved conduit material designed to withstand the superimposed loads. The conduit shall be protected from corrosion in accordance with Section 404.11 and shall be installed in accordance with Section 404.14.1 or 404.14.2.

An example of this is a gas line to a gas range or cooktop on a kitchen island. If both ends of the line are within the home, the sleeve must be open and have access to both ends of the sleeve. If one end terminates inside the building and the other outside, the inside end must be sealed, while the outdoor termination must be

open to the atmosphere, but protected from the entrance of water and insects.



If for any reason you are considering metallic underground pipe gas lines, see IFGC 404.11 and my code discussion 16 years ago in the January/February Pipeline.

### **404.17.3 Tracer.**

*A yellow insulated copper tracer wire or other approved conductor;*

*or a product specifically designed for that purpose, 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 be not less than 18 AWG and the insulation type shall be suitable for direct burial.*

Too often we focus on gas pipe sizing, failing to follow the critical

installation requirements. We must do all we can to ensure all our gas pipe installations provide a reasonable level of safety, health, property protection and general welfare.

*Thanks for your continued support, comments and questions.*

*—Brent*