MECHANICAL CODE DISCUSSION

Cathodic Protection of Underground Fuel Lines


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Each of the International Code Council (ICC) Codes includes: "Section 102—Applicability," where we read:

> "**IBC, IRC (AND ALL THE OTHER CODES)—102.2 OTHER LAWS.** The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law."

These 'other' laws or requirements include State Amendments, local requirements and the requirements of the local gas and power utilities. This month we will discuss one of Questar's requirements that has appeared in their *Good Practices for Gas Piping and Appliance Installation Handbook* for many years. Referring to page 32, under the "Installation of Gas Piping" section:

"Ferrous gas piping installed underground in exterior locations shall be protected from corrosion by approved coatings. All gas pipe protective coatings shall be approved types, machine applied, and conform to recognized standards. Field primer and wrapping shall provide equivalent protection and is restricted to those short sections and fittings necessarily stripped for threading or welding. Zinc coatings (galvanizing) shall not be deemed adequate protection for piping below ground.

New installations of underground ferrous gas piping shall be cathodically protected. It is recommended existing underground ferrous gas piping be cathodically protected or replaced with approved plastic gas piping and anodeless risers."


Photo courtesy of Perfection Corporation

Figure 202(1)
ANODELESS RISERS

Cathodic protection is a method to provide protection or control the corrosion of a metal surface by making it work as a cathode of an electro-chemical cell. This is achieved by placing in contact with the metal to be protected another more easily corroded metal (typically magnesium in soil) to act as the anode. Because of a chemical electrolysis reaction that takes place in the soil, the anode is consumed in the reaction and the cathode is actually plated with the magnesium from the anode. This is the same type of process that is used to chrome plate a steel bumper. Cathodic protection systems are most commonly used to protect steel used for water or fuel pipelines, water heaters, ships, highway bridge reinforcing bars and offshore oil platforms and onshore oil well casings.

We find in the International Fuel Gas Code (IFGC) this definition:

> "**ANODELESS RISER:** A transition assembly in which plastic piping is installed and terminated above ground outside of a building."

These riser assemblies protect the steel riser from corrosion by means other than cathodic protection involving a sacrificial anode. Some anodeless risers allow the termination of plastic piping aboveground by encasing the piping in a steel conduit equipped with a plastic-to-steel transition fitting. These anodeless risers do not require cathodic protection, for the plastic pipe inside the riser is the fuel line. The coated steel underground is a sleeve to protect the fuel line from physical damage as the line rises up out of the ground.

RECOMMENDATION:

When an underground gas line is required for that back yard pool, garage, barbecue or fire pit, install an approved polyethylene pipe with approved anodeless risers. It will be less expensive and easier to install. Don't forget to include the yellow tracer wire in the trench above the pipe.

Thanks for your positive comments, suggestions. Please feel free to contact me with questions or comments. If you have a particular subject you would like me to address, please let me know. ✪