

Plastic Fuel Gas Pipe

For www.fireengineering.com

by Gregory Havel

Photos by Author

For decades, utility companies have been using plastic pipe buried in the ground to distribute natural gas from transmission lines and terminals to its customers. This material is more durable than steel or copper because it does not corrode, and needs no anti-corrosion protection. When buried with a tracer wire, it can be located as easily as metallic pipe. High-pressure natural gas transmission lines are still made of steel because plastic does not perform as well under these pressures (greater than 500 psi).

More than ten years ago, specific types of plastic pipe were approved for use as fuel gas lines inside residences and light commercial buildings. Two of these materials are chlorinated polyvinyl chloride (CPVC), which burns slowly but will not support combustion, and cross-linked polyethylene (PEX), which is a thermoset plastic that will not melt and that will burn only under extreme conditions. Both types of gas pipe are supplied as coils, and are intended to have fittings only at the ends, connecting them to metallic pipe or to appliances. Internet search "CPVC", "PEX", or "plastic gas pipe" for more information on these products, pipe, and fitting systems.



Photo1 shows a pair of plastic gas pipes supported by wood roof trusses in a strip mall under construction. Each will supply a water heater and heating unit for one of the mall's occupants. The large black steel pipe is the automatic fire sprinkler main, and the Victaulic elbow will be connected to the sprinkler riser.

Recently, plastic gas pipes have been permitted in schools and other types of buildings, with special requirements. Among these is that they cannot be buried in the ground, under

concrete floors, or installed in an exposed location, unless they are protected from the soil and mechanical damage by a continuous sleeve of at least Schedule 40 PVC pipe.

No more than a few inches of the plastic gas pipe can be exposed between the end of the plastic pipe sleeve and its connection to the appliance or to a metal distribution pipe.



Photo2 shows a white PVC sleeve containing a plastic gas pipe coming from below the floor. The upper end is exposed and connected to the copper gas distribution pipe that will feed a row of work stations in a high school chemistry laboratory. Note that the open end of the sleeve is filled with aerosol plastic foam that will not support combustion. The white PVC sleeve running to the right above the floor is a vent pipe that joins another vent pipe from another plastic gas pipe which will serve another set of work stations on another wall, and that is connected to a plastic vent stack rising through the roof. The PVC sleeves were laid under the floor and throughout the laboratory like ordinary plumbing drain pipes. The plastic gas lines were pulled into them after the walls and floor were completed, like wire into an

electrical conduit. The gas line in this photo is corrugated stainless-steel tubing covered with ultraviolet-resistant polyethylene, and uses special fittings to connect to threaded metal pipe. Internet search for "corrugated stainless steel gas pipe" for more information. These pipe and fitting systems are available from several manufacturers.

Any manufacturers or brand names noted above are used only as examples, and the websites only as sources of additional information. Reference to them is not an endorsement of either product or manufacturer.

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