



Coffee Break Training - Fire Protection Series

Automatic Sprinklers: Joining Nonmetallic Pipe

No. FP-2011-46 November 15, 2011

Learning Objective: The student shall be able to describe the requirements for joining nonmetallic pipe and fittings for sprinkler systems.

Today we show two pictures that illustrate sloppy workmanship by a careless sprinkler fitter. The excess plastic cement may cause the pipe to weaken and leak.

Sprinkler fitters should always carefully follow manufacturer's installation instructions. Here are some examples from one nonmetallic pipe manufacturer:

- For best results, installation shall be made at temperatures between 40° F (4° C) and 110° F (43° C).
- All components must be clean and dry.
- The cement must be compatible with the pipe and fitting products.
- Before assembling any pipe or fitting products, verify the manufactured date located on the cement container. The cement can be used for a period of 2 years from the date stamped on the container. Jelled or expired cement will not provide the strength needed to make a proper joint.
- Using an applicator no less than one-half the size of the pipe diameter, work the cement into the joining surfaces in a circular motion. Apply a liberal coat to the outside of the pipe end. Apply a medium coat to the inside of the fitting socket. Always apply a second coat of cement to the pipe for joints that are 1-1/4 inch (32 mm) and larger.
- Immediately following application of the cement and before it begins to set, insert the pipe into the fitting socket using a quarter-turn twisting motion until it meets the fitting pipe stop. A continuous bead of cement should form around the circumference of the joint.
- The cement coated surfaces of both the pipe and fitting socket must still be wet with solvent cement when assembled.
- If the bead is not continuous, insufficient cement was applied and the fitting must be cut out and discarded from the system.
- If the bead is acceptable, hold the joint together for approximately 30 seconds to make sure the pipe does not move or back out of the fitting socket. Any cement in excess of the bead can be wiped off using a cloth.



These pictures reveal careless work on behalf of the sprinkler fitter joining nonmetallic pipe and fittings. *Photos courtesy of Keith Heckler, Rockville Fire Department, MD.*

Look closely at the pipe supplying the sidewall sprinkler, and you will notice by the drip running on the exterior side of the hanger that the cement was applied after the fitting was in place. It is not known how the elbow above the pendent sprinkler was fractured.

For additional information and installation guidance, refer to the manufacturer's product literature.



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