



Recommended Cut-In Procedures for CPVC Sprinkler System Modification or Repair

The fire sprinkler industry has experienced water damage losses on systems with CPVC piping. Some of the losses relate to inadequate cure times. Additionally, renovation work to existing sprinkler systems is causing more water damage losses than new installation work. This is largely because cure times are typically longer in new installations and there is not a rush to get the sprinkler system 'back up and running'.

The good news is that modifications or repairs can be made safely to existing systems if proper procedures are followed including extended cure times. The following procedures are offered to assure that the modifications are done successfully.

Before Repair Work is Started †

Inform the building owner that the CPVC system will be shut down, in whole or in part, for at least 24 hours. A standard clause should be drafted stating that the system will be shut down and drained to allow CPVC resin to dry adequately. Obtain the signature of the property owner acknowledging their understanding that the sprinkler system will be shut down for 24 hours and that the building owner, or appropriate representative, is responsible for establishing a fire watch or other acceptable means of fire protection.

Additional reference materials concerning CPVC are available at www.relmark.net.

New Building Installation of CPVC †

Follow normal installation procedures except allow a minimum of 24 hours for cure time as described below. Keep in mind that longer times are needed for larger pipes.

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Cut-In Procedures for System Modifications or Repairs to Existing Buildings*

- Using proper tools, the cut-in should be made on the smallest diameter pipe section (that is capable of adequately supplying the system changes) in close proximity to the modification being made. This approach will expedite cure times prior to pressure testing.
- The cut-in connection to the existing system should be made first, prior to proceeding with additional work.
- Existing lines must be drained adequately prior to solvent cementing. Use a drain vac unit to be sure all water is removed from the system (moisture can slow the cure time and reduce joint strength).
- Carefully review and follow manufacturer's solvent cementing procedures for proper joining techniques prior to commencing with cut-in. (pipe must be cut square to proper length, deburred, beveled and dry to ensure proper insertion depth and highest integrity).
- Carefully measure and cut pipe to proper length to ensure complete insertion during assembly (check the dry fit of the components being joined).
- **Note:** During assembly of the cut-in tee (and other components) it is important to make a one-quarter turn when inserting the pipe into the fitting per the manufacturer's assembly instructions, particularly on 1 ½" pipe sizes and larger. This may require the use of several components assembled in combination with the cut-in tee to create a short spool piece assembly. This can be accomplished by using socket unions, flanges, or grooved coupling adapters that will ensure that a one-quarter turn can be obtained on all pipe connections being joined.
- Prior to applying solvent cement, use a clean *dry* rag to wipe moisture and dirt from the fitting socket and the pipe end (the presence of moisture on the joining surfaces will reduce joint integrity).
- Use a new can of solvent cement when making cut-in connections (verify expiration dates stamped on can prior to use).
- After all work is completed, the cut-in joints must be allowed to cure properly prior to pressure testing. Refer to the manufacturer's tables for specific pipe sizes and ambient temperatures that may require cure times in excess of 24 hours.[†]

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- Allow a minimum cure time of 24 hours, even though the resin label may state that the resin will cure in less time depending on temperature and humidity present at the location. A minimum cure time of 24 hours is recommended for all REPAIR work, SYSTEM MODIFICATIONS and NEW INSTALLATION.†

*Note: Manufacturers of CPVC glue, pipe and fittings may provide installation charts with cure times for listed CPVC plastic pipe. These charts are for ideal installations conditions. In footnotes, manufacturers advise additional cure time requirements for high humidity, system pressure, or lower temperatures. Pipe ends that are not square cut or pushed completely home also can require additional cure time. To assure the joint has sufficient time to properly cure regardless of such variables, we strongly recommend a 24-hour cure time. **Cure times may exceed 24 hours per the manufacturer for larger pipes, lower temperatures, and higher pressures.***

- A 24-hour cure time will obviously keep a system out of service overnight. Follow all impairment procedures as described in NFPA #25, notify the building owner. †
- After work is completed and cut-in cure times are met (at least 24 hours), inspect work for proper alignment and hanger placement prior to water pressure testing.†
- After cure times are met (at least 24 hours), the system must be slowly filled with water and the air bled from the furthest and highest sprinkler heads before test pressure is applied (refer to manufacturer's installation instructions regarding Hydrostatic Testing).†
- After all air is bled from the system, it is recommended that the portion of the sprinkler system containing the cut-in tee be pressure tested. Prior to pressure testing, the system must be sectioned off to its smallest area using floor valves, etc. to isolate the cut-in area. It is further recommended that the test water pressure applied should not exceed 50 psi over the system pressure. This approach will minimize the potential for water damage should a leak occur.

**The above noted Cut-In Procedures were developed by BlazeMaster and referenced here with their permission. The † notation indicates additional remarks set forth by RelMark Program Managers and are not part of published BlazeMaster Cut-In Procedures. Minimum cure time of 24 hours is a recommendation of RelMark Program Managers and may exceed manufacturer recommendations.*

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