

INSTALLATION GUIDE

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Installation in Concrete Best Practices

FELEVATION = 374

BlazeMaster[®] CPVC is acceptable for use in embedded concrete. The following are examples/best practices that have been used in the field.

Refer to individual manufacturer's installation and design manuals for specific listings, approvals, and limitations.

- 1. Pressure should remain in the system until the pour is finished. If the pour is taking place in the winter a compatible antifreeze shall be used.
- 2. Close open pipe and fittings prior to pouring the cement. During the covering process, lightly jostle the system to ensure there are no air pockets around the pipe to prevent abrasion of the pipe. Periodically check to ensure the pipe has not moved from its intended position.
- **3.** Avoid stepping on pipes during the pouring of the concrete.
- 4. It is recommended that the sprinkler head adapter not be encased in concrete in order to allow easier access to the sprinkler head adapter should the system require future modifications. Prior to pouring the concrete, protective coverings may be utilized to prevent the concrete from surrounding the sprinkler head adapter and the pipe immediately attached to it.
- 5. Contractors have found it useful to use 25 mm foam insulation pipe sleeves where the pipe comes out of the slab and at construction joints. Where foam insulation is used as pipe sleeves, chemical compatibility with BlazeMaster CPVC needs to be verified with the manufacturer of the insulation material.

The purpose of the foam insulation is to:

- Protect the piping from shear forces due to minor shifts in the slab at construction joints.
- Provide protection to the pipe where it emerges from the concrete slab during the construction phase.
- 6. Position the sprinkler fitting connection on the wooden construction where the sprinkler heads are to be located. Depending on the design of the cup, it may be fixed on the wooden floor with nails through the top or bottom, similar to cups used for lighting systems. This prevents the cup from moving during pouring of the cement.

The cup should consist of several parts which are mounted together before positioning the assembly on the wooden construction floor. The sprinkler fitting connection consists of:

- A cup: The cup should be strong enough (e.g. PVC) to resist against the pouring of the concrete. It should be slightly conical to make it easier to remove from the hardened concrete afterwards. It must have a hole at the top and bottom. The opening at the bottom should be the size of the inner diameter of the cup.
- A female CPVC sprinkler head adapter: (identified as CPVC Sprinkler Head Adapter in Figure 1) The adapter that rests on the upper part of the cup centered on the hole. The CPVC part of the adapter can be solvent cemented to a BlazeMaster pipe and fittings system.
- A metal screw: The screw will have a seal to allow screwing the female adapter and plastic cup together (see Figure 1).
- A shield: The opening in the bottom of the cup should allow a shield to be pushed in and out in order to protect the area from debris during construction.



Figure 1 – Typical installation of a sprinkler installed in a concrete deck.

After installation of the sprinkler connection cups, the connection of the piping to the sockets should be done through a solvent cement union. When joining BlazeMaster fire sprinkler systems with one-step solvent cement refer to individual manufacturer's installation and design manuals for specific instructions on the solvent welding process.

The sprinkler fitting connection (except for the BlazeMaster CPVC female adapter) should be completely removed after construction is finished. When removing the wood, nails can be removed or remain in the cup. The central screw into the female adapter can be unscrewed and the cup removed together with the remaining nails. 7. The connection of the BlazeMaster CPVC that has been installed in concrete to the supply (large diameter pipe) as a riser can be designed to allow the connection to be reached in case of emergencies. This can be done by not totally concreting the connection, but partially filling it with product of F90 quality (F90=time of fire resistance of wall of 90 min, e.g. sand). This area can be covered by a concrete cover which is marked to indicate that it is an access point to the connection between the riser and the branch line, offering the ability to review the connection to the main water supply (e.g. riser).

Precautionary measures should be taken when installing or embedding BlazeMaster CPVC in concrete as changes to the system are difficult to administer once the top layer of steel has been laid out. 8. Once the BlazeMaster CPVC connections have cured according to the appropriate cure timetable, they should be allowed to set for an additional 24 hours. Next a hydrostatic pressure test of the piping system must be performed. To properly perform a pressure test, only use measuring instruments on which a pressure difference of 0.1 bars is accurately readable. Concrete may be bored after acceptable pressure test results are achieved.

Please note that BlazeMaster fire sprinkler systems shall not be pneumatically or air pressure tested. The installation shall be slowly filled with water and completely vented prior to the hydrostatic pressure test.

- 9. It is essential that before, during and after pouring of the concrete, the test pressure of 6 bars is kept and checked continuously, as once the system is covered in concrete it will no longer be accessible. The company that installed the sprinkler system must be present at the building site constantly during the concreting work so that any damage can be repaired immediately. If a pressure decrease of > 0, 2 bars is noted, the concreting should be stopped and any leaks should be identified and repaired.
- **10.** BlazeMaster fire sprinkler systems do not conduct electricity, so there is no need for grounding the BlazeMaster CPVC.
- **11.** It is imperative that all local codes and standards related to the design and installation of concrete structures be followed in conjunction with these guidelines.





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