

Fire Sprinkler Systems Design Guidelines

System Description:

1. Water supply control valves shall be electrically supervised for proper position. Water flow and supervision circuits shall be in accordance with the requirements of electrical specifications. All valves and test points shall have individual addresses reported on the fire panel.

Fire Department Connection:

1. Provide locking FDC Caps (Type used: Knox FDC cap 2 ½") on all Fire Department connections. Must be approved by local Fire Department.

Main Alarm Valve Equipment:

1. Water flow indications shall be flow switch only (Pressure Switches will not be acceptable).

Sprinkler Equipment:

Sprinkler cabinets and spare sprinklers:

1. A wall mounted cabinet for spare sprinkler heads and sprinkler wrench shall be provided. A sprinkler wrench compatible for each type of sprinkler head used shall be provided in the sprinkler cabinet. Spare sprinkler heads of each type of used shall be provided in the cabinet.
2. Use of concealed sprinkler heads are discouraged (after a few years, the concealed cover assembly plates are obsolete and missing plate cannot be replaced).
3. Provide a stock of 12 spare sprinklers of each type used in the project. If more than 300 heads of a type are used, supply 24 spares.
4. Provide 24 escutcheon plates trims and caps for each type used for both fully concealed and semi concealed heads. If more than 300 heads of a type are used, supply 15% spare escutcheon plates trims and caps. Residential applications require a higher percentage of spares, discuss with FMS Fire Techs before bid time.

Test and Drain:

1. Combine test and drain valves, sight glass, and interchangeable restricting orifice, sized for smallest orifice sprinkler zone.

System Component Identification:

1. Control, drain and sectional valves shall be provided with permanently marked identification signs. The signs shall be permanently mounted on the piping or wall at the valve, or on the valve, but shall not be hung on the valve with wires or chains which permits easy removal of sign.

Installation:

1. Piping shall not pass directly over electric panel boards, switchboards, motor control centers, or similar electric equipment. However, protection for these spaces shall be provided.
2. All discharge water shall discharge either outside of the building onto a splash block or into a sump pit that will handle full flow for at least 4 minutes.

3. All risers and test points shall be in stairwells no higher than 6 feet above finished floor with a common drain line. A 2 inch full port ball valve shall be at the discharge end of the drain line allowing the drain to be charged to prevent water motion when tampering occurs.
4. Provide an accessible pressure gauge near the topmost outlet of each standpipe.
5. The Main Drain shall be 2" for drain tests.

Dry Systems:

1. All dry valves requiring manual reset must be externally reset-able.

Systems in Elevator shafts:

1. In elevator shafts where sprinklers may freeze, the sprinkler line to the shaft shall have a normally closed solenoid valve controlled by the fire panel so that no water may enter the sprinkler system in the elevator shaft until the elevator shunt trip has been activated. Discharge water for this system can be put into the elevator sump pit with a test and drain valve at the bottom of the sprinkler system to test and then drain the water from the sprinkler system when the solenoid is closed.

Piping and valves:

1. All piping shall be installed to permit drainage of the system through a main drain valve. Where a change in piping direction prevents drainage of the system, auxiliary drains shall be provided. The auxiliary drain assembly shall consist of a lockable ball valve, nipple and cap or plug. Pipe drain to an accessible location.
2. All Control / Sectional valves under 6 inches shall be Butterfly valves with monitoring contacts.

Tests:

1. Give the owner's representative advance notice of final test. All final testing shall be with RIT FMS Fire System Techs.

System Turnover:

1. Prior to Final Acceptance, instruct the FMS Fire System Techs in the proper operation, maintenance, testing, inspection, and emergency procedures for all systems provided.
2. Warranty shall be for One Year and include 4 hour response time 24 Hours Per day including weekends and Holidays.
3. Provide a complete set of drawings of the sprinkler system showing all valves and auxiliary additional complete set of drawings mounted on wall behind or near main sprinkler supply with a piece of plexi-glass protecting it.
4. A digital copy of the as-built drawings in AutoCAD format is to be provided to Owner.