

FIRE SUPPRESSION SYSTEMS DESIGN CRITERIA

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APPLICATION: ELEMENTARY, MIDDLE AND HIGH SCHOOL

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NOTES:

The purpose of this guideline is to provide for a uniform standard of fire suppression system installation in all District properties.

The criteria are to be followed when specifying fire suppression systems.

Any exceptions shall be coordinated in writing with the District engineer.

ATTACHMENTS:

A. Compliance with Standards

1. The applicable codes and standards enforced at the time of permitting include (but are not limited to) NFPA-13, NFPA-24, NFPA-70, NFPA-72, Florida Fire Prevention Code, and the State Requirements for Educational Facilities.
2. The applicable codes and/or laws shall govern the minimum requirements only. Where this design standard calls for materials, piping, or sizes in excess of the code requirements, this standard shall be followed.

B. Shop Drawings and Approvals

1. Shop drawings, signed and sealed by a registered professional engineer, shall be submitted to the District's Safety Office for their approval and/or comments.

C. Equipment Requirements

1. Materials, sprinkler devices, pipe fittings, valves, and hangers used in the system installation shall be on the approved or acceptable list of the 2010 issue of *Inspected Fire Protection Equipment and Materials*, as published by the Underwriters Laboratories, Inc., and shall be NFPA approved, as well as acceptable to the underwriters and the District.
2. Signs shall be provided for all control, drain, test and alarm valves. Signs shall be minimum 20 gauge sheet metal, pickled and treated, with baked on enamel white lettering and border on red background.
3. All exterior risers shall be located within 6 (six) foot high chain link fenced enclosure with locking, hinged gate. Provide a minimum of 24" clear space around riser to allow adequate access for service and inspection.
4. All underground fittings resulting in changes in piping direction (90's, 45's, tees, etc.) shall be provided with both thrust blocks and retainer glands.
5. All control, drain, and inspectors test valves shall be located within 7' of the floor to allow access without the aid of ladders, but shall not be located in areas accessible to the student population.
6. Inspectors test and main drains shall penetrate exterior walls at a maximum of 24" above grade and shall be provided with concrete splash blocks.
7. **CPVC and PVC pipe is prohibited.** Use metallic pipe only.

D. Acceptable Manufacturers

1. Aboveground Pipe: _____ Allied Tube and Conduit, Bull Moose Tube Co., Wheatland Tube Co.
2. Threaded Fittings: _____ Star, Anvil, Reliable
3. Grooved Mechanical Fittings: _____ Victaulic, Gruvlock, Star
4. Cast-Iron Flanged: _____ Viking, Reliable, Anvil
5. Sprinkler Heads: _____ Tyco-Central, Reliable, Viking
6. Valves: _____ Tyco-Central, Reliable, Victaulic
7. Pumps: _____ Aurora, Peerless, Bell & Gossett
8. Pump Controller: _____ Hubbel, Master, Joslyn - Clark
9. Water Bell: _____ Star, Viking, Reliable

E. Quality Assurance

1. Installation and alterations of fire suppression piping, equipment, specialties, and accessories, and repair and servicing of equipment shall be performed only by a qualified installer. The term qualified means experience in such work (experienced shall mean having a minimum of five years previous work history with projects similar in size and scope to this project), familiar with all precautions required, has complied with all the requirements of the authority having jurisdiction and is an approved vendor, registered with the District. Upon request, submit evidence of such qualifications to the District.
2. Schedule and perform all construction work such that security of the buildings are maintained 100% of the time throughout the construction period. Coordinate with and follow the District's directions.
3. All tests of the fire suppression system and associated fire alarm system shall be conducted and witnessed by the engineer of record, prior to final inspections by the authority having jurisdiction.

F. Piping and Valve Identification

1. All piping shall, for the purpose of identification, be provided with either painted or taped color coded markers. Identification markers shall include letters designating the pipe service and have arrows indicating direction of flow. All fire suppression system piping, valves, and equipment located outdoors and/or exposed to weather shall be painted fire engine red.
2. Valves:
 - a. Attach a two inch (2") round brass tag stamped with designating numbers one inch (1") high filled in with black enamel to each valve, except those in fixtures.
 - b. Securely fasten valve tag to valve spindle or handle with a brass chain.
 - c. Valve tag numbers shall correspond to the prepared instruction manuals and valve tag schedule.

G. Space Requirements

1. Contractor shall provide a minimum of 24" clear space around the perimeter of fire pumps to allow adequate access for maintenance and inspection.

H. Tests, Inspections, and Operations

1. The contractor shall furnish three (3) bound copies of complete instructions, including catalog cuts, diagrams, drawings, and other descriptive data covering the operation and maintenance of the systems installed, and necessary information for ordering replacement parts.
2. Upon completion of the installation, the Fire Suppression System shall be flushed at a rate no less than that specified by NFPA-13.
3. After flushing, test fire suppression piping for a period of at least two (2) hours with a water pressure of 200 pounds per square inch, or 50 pounds per square inch in excess of the normal pressure, when the normal pressure is in excess of 150 psi. Also perform any other tests required by the local authorities. Leaking fittings or pipe shall be either made up or replaced. No caulking will be allowed. Submit signed and completed copies of contractors' material and test certificates to the District upon completion.
4. Provide quarterly inspections for a period of one year after acceptance by owner. Furnish copy of inspection report to the District after each visit.
5. The contractor shall not cover any of his work until all work has been inspected and approved by the authorities having jurisdiction.

I. Warranties

1. The sprinkler contractor is required to provide a 1-year warranty on all parts, materials, equipment, and workmanship, commencing on the date of substantial completion of the project or phase in which the installation was accepted. This warranty covers all costs associated with the repair or replacement of defective parts, and/or workmanship as well as the removal and replacement of incidental materials..
2. During the initial one (1) year warranty period, the District shall contact the Installer for diagnosis of potential warranty issues. Issues deemed to be the responsibility of the Vendor shall be referred to the Vendor by the Installer, with a notice of same to the District. Upon completion of the repair, the Installer is required to confirm that the repairs are acceptable and to notify the District. The Installer shall not be entitled to additional compensation for the coordination of warranty repairs.
3. The Vendor is required to respond to warranty claims within 24 hours of notification and to repair or replace the covered equipment with 72 hours of receipt of request, and to provide temporary replacement equipment when required to maintain acceptable conditions in an occupied facility.
4. Compile and assemble the warranties into a separated set of vinyl covered, three ring binders, tabulated and indexed for easy reference.
5. Provide complete warranty information for each item to include product or equipment to include date of beginning of warranty or bond; duration of warranty or bond; and names, addresses, and telephone numbers and procedures for filing a claim and obtaining warranty services.

J. Operating Instructions and Maintenance Manual

1. Instruct to the District's satisfaction, or to such persons as the District designates, in the proper operation and maintenance of the systems and their parts.

K. Training

1. Prior to final acceptance, the sprinkler contractor shall provide on-site operational training to all maintenance personnel who will normally be working at the site or be involved with the fire suppression system(s).
2. The training sessions shall be conducted at the District's convenience, but within no more than one month from substantial completion.
3. The training session shall include at a minimum the following:
 - a. Detailed review of system operation.
 - b. Complete demonstration of all system safety features and procedures.
 - c. Complete demonstration of all system alarms.
 - d. Review of Emergency Service Procedures.
 - e. Question and Answer Session

END OF SECTION