FIRE PROTECTION SYSTEMS

NARRATIVE REPORT

The following is the Fire Protection System Narrative, which defines the scope of work and capacities of the Fire Protection System as well as the Basis of Design.

1. CODES
   A. All work installed under Section 210000 shall comply with the MA Building Code, IBC 2009 and all state, county, and federal codes, laws, statutes, and authorities having jurisdiction.

2. DESIGN INTENT
   A. The work of Section 210000 is shown on the drawings and specifications. All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Fire Protection work and all items incidental thereto, including commissioning and testing.

3. GENERAL
   A. In accordance with the provisions of the Massachusetts Building Code 780 CMR, a school building greater than 12,000 square feet must be protected with an automatic sprinkler system.

4. DESCRIPTION
   A. The system will include a new fire service, double check valve assembly, wet alarm valve complete with electric bell, and a fire department connection meeting local thread standards.
   B. The system will be a combined standpipe/sprinkler system with control valve assemblies to limit the sprinkler area controlled to less than 52,000 square feet as required by NFPA 13-2007.
   C. Control valve assemblies shall consist of a supervised shutoff valve, check valve, flow switch and test connection with drain.
   D. All areas of the building, including all finished and unfinished spaces, will be sprinklered. All electrical rooms/closets are to be sprinklered. The elevator shaft and elevator machine room are not sprinklered.
   E. All sprinkler heads will be quick response, pendent and/or sidewall in hung ceiling areas and upright in unfinished areas.
   F. Fire Protection Systems are designed in accordance with NFPA 13-2007, NFPA 14-2007 and NFPA 72-2010. The system includes a combination standpipe/sprinkler system throughout the building.
G. Fire department valves and cabinets will be provided on each side of the stage.

5. BASIS OF DESIGN

A. The mechanical rooms, kitchen, science classrooms, and storage rooms are considered Ordinary Hazard Group 1; stage is considered Ordinary Hazard Group 2; all other areas are considered light hazard.

B. Required Design Densities:

- Light Hazard Areas: 0.10 GPM over 1,500 s.f.
- Ordinary Hazard Group 1: 0.15 GPM over 1,500 s.f.
- Ordinary Hazard Group 2: 0.20 GPM over 1,500 s.f.

C. Sprinkler spacing (max.):

- Light Hazard Areas: 225 s.f.
- Ordinary Hazard Areas: 130 s.f.

D. A flow test is to be conducted to verify if a fire pump will be required for the project.

F. Installation of all work is to be coordinated with the phasing plans for the project.

6. PIPING

A. Sprinkler piping 1-1/2 in. and smaller shall be ASTM A-53, Schedule 40 black steel pipe. Sprinkler piping 2 in. and larger shall be ASTM A-135, Schedule 10 black steel pipe.

7. FITTINGS

A. Fittings on fire service piping, 2 in. and larger, shall be Victaulic Fire Lock Ductile Iron Fittings conforming to ASTM A-536 with integral grooved shoulder and back stop lugs and grooved ends for use with Style 009-EZ or Style 005 couplings. Branch line fittings shall be welded or shall be Victaulic 920/920N Mechanical Tees. Schedule 10 pipe shall be roll grooved. Schedule 40 pipe, where used with mechanical couplings, shall be roll grooved and shall be threaded where used with screwed fittings. Fittings for threaded piping shall be malleable iron screwed sprinkler fittings.

8. JOINTS

A. Threaded pipe joints shall have an approved thread compound applied on male threads only. Teflon tape shall be used for threads on sprinkler heads. Joints on piping, 2 in. and larger, shall be made up with Victaulic, or equal, Fire Lock Style 005, rigid coupling of ductile iron and pressure responsive gasket system for wet sprinkler system as recommended by manufacturer.
9 DOUBLE CHECK VALVE ASSEMBLY

A. Double check valve assembly shall be MA State approved, U.L./F.M. approved, with iron body bronze mounted construction complete with supervised OS & Y gate valves and test cocks. Furnish two spare sets of gaskets and repair kits.

B. Double check valve detector assembly shall be of one of the following:

1. Watts Series 757-OSY
2. Wilkins 350A-OSY
3. Conbraco Series 4S-100
4. Or equal

C. A chrome flush mounted test header is to be provided on the exterior of the building to test the back flow prevention device.