

SECTION 21 13 00 - FIRE SUPPRESSION SPRINKLER SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The provisions of the General Requirements, Supplementary Requirements, and Division 1 apply to the plumbing work specified in this Division.
- B. The requirements of this section apply to the fire suppression system. Modify existing systems in areas noted due to new ceilings or equipment installations.
- C. Provide all items, articles, materials, equipment, operations and/or methods listed in these Specifications, including all design, labor, supervision, services, permits, fees, and incidentals necessary and required to provide a NFPA 13 approved fire protection system in the areas effected. Provide all labor and material and perform such other services necessary and reasonably incidental to the design and installation of modification to the automatic sprinkler system for all areas indicated on the Drawings and as required by the Governing Agency.

1.2 QUALITY ASSURANCE

- A. Contractor Qualifications:
 - 1. Established fire protection contractor regularly engaged in the design and installation of automatic fire sprinkler systems.
 - 2. Employ workers experienced and skilled in this trade.
 - 3. System Designer: Qualified and certified for the design of fire protection sprinkler systems. NICET level III or IV technician or Professional Engineer experienced in the design of sprinkler systems.
- B. Governing Agency: All work in accordance with and accepted by the following hereafter referred to Governing Agencies:
 - 1. Fire Marshal State of Oregon.
 - 2. Fire Marshal for City of Bend.
- C. Design Requirements:
 - 1. Comply with the latest issue of NFPA Standard 13
 - 2. Design, lay out and install a code compliant system utilizing code approved automatic devices designed particularly for use in this type of system.
 - 3. Fire Sprinkler Coverage: Match existing:
 - 4. Occupancy Hazard: Match existing density.
 - 5. Seismic Restraint: Provide restraint per current NFPA 13 and OSSC Chapter 16 requirements for any new pipes or devices.
 - 6. Revisions to the Contractor's design and installed required by the Governing Agency shall be at the Contractor's expense.
- D. Acceptable Manufacturers: All sprinkler specialty material Grinnell/Gem, Central, Reliable, Globe, Star, Viking, Automatic Sprinkler Corp. of America with UL or FM approval for use in automatic sprinkler systems. All materials and equipment suitable for 175 psi working pressure.

1.3 WORK OF OTHER CONTRACTS

- A. Work under this contract shall be conducted in a manner to allow for the future installations of such equipment or items listed in other sections of this Specification.

1.4 WORK OF OTHER DIVISIONS

- A. Work under this Division shall be conducted in a manner to cooperate with the installation of such equipment or items as specified in other Divisions.
- B. Consult all Drawings and Specifications in this project and become familiar with all equipment to be installed. Coordinate all aspects of the construction with the other trades on the job to ensure that all work and materials required to provide a complete and operational facility are included in the bid.
- C. Conflict Resolution Drawings: Fire Sprinkler contractor shall work directly with appropriate trades to resolve conflicts in ceiling spaces and equipment rooms. It is the Fire Sprinkler contractor's responsibility to coordinate their portions of the work and provide accurate information to the Mechanical contractor who is providing the CADD Conflict Resolution Drawings. The following trades shall participate with the coordination process: Mechanical, Fire Sprinkler, Plumbing, Low Voltage, and Structural Steel.
- D. Coordination of piping and heads is particularly critical in auditorium. Review all auditorium drawings in preparation of design.

1.5 SUBMITTALS

- A. Working Drawings:
 - 1. Prepare fire protection system drawings showing sufficient detail for permit review.

1.6 EXTRA STOCK

- A. Additional Heads: Provide number, type and temperature rating installed as required to meet NFPA 13 requirements.
- B. Storage Cabinet: Provide as required to receive reserve sprinkler heads and special installation tools required.
- C. Index Label: Provide for each head indicating manufacturer, model, orifice, size or K-factor, and temperature rating. Also provide inside cabinet a list of heads stored within and brief description of where installed.

1.7 WARRANTY

- A. Furnish, prior to application for final payment, three copies of written and signed guarantee effective a period of one year from date of completion and acceptance of the work performed; agree to correct, repair and/or replace defective materials and/or equipment or the results of defective workmanship without additional expense to the Owner related to system modification. Where no response satisfactory to the Owner has occurred within three working days from the written report of a warranty covered defect, the contractor shall agree to pay for the cost of repair of the reported defect by a contractor of the Owner's choice.

- B. Where the manufacturer's guarantee exceeds one year, the longer guarantee shall govern and include the Contractor's labor.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

- A. Sprinkler Heads: Approved heads with temperature ratings required for service indicated. All shall be quick response early suppression type and rated heads.
 - 1. Unfinished Areas: Upright, pendant or sidewall spray type, plain bronze.
 - 2. Finished Areas: White painted recessed and sidewall heads in finished ceilings, and where piping is exposed use chrome plated upright heads.
 - 3. Outdoor heads to be chrome plated.
 - 4. Where ceiling construction allows flexible stainless steel sprinkler head supply drops are allowed. Must be listed and met NFPA 13 requirements.
- B. Escutcheons: Provide polished chrome escutcheons on pipe extending through finished walls and ceilings. Provide oversized escutcheon to comply with current code.
- C. Above Ground Water Piping: Use standard weight (schedule 40) black or galvanized steel pipe ASTM A53, A135, or A795, and ductile iron threaded fittings especially adapted and approved for sprinkler work or welded joint allowed. Use reducing fittings where changes in pipe size occur. Bushings are prohibited. Grooved fittings are not allowed.
- D. At Contractor's option, Schedule 10 black or galvanized steel pipe ASTM A135 or ASTM A795, and threaded joint fittings specifically approved for sprinkler use, may be substituted for the black steel pipe specified above. Pipe shall be UL listed and FM approved for 300 psi working pressure. Pipe must have a CRR of 1.00 or greater. Grooved fittings are not allowed.
- E. At Contractor's option, thin wall threadable steel pipe, ASTM A135 or A795, malleable iron screwed fittings 1½" and smaller, approved for sprinkler work.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install all piping in a true and even manner with lines pitched for drainage and system arranged so that it can be entirely emptied of water. Install hangers at all branch line connections to cross mains and at all other points as required in hereinbefore specified Underwriters Laboratories, Inc. and NFPA standards.
- B. Support all pipe work from building construction with mild steel hangers spaced not more than 12 feet on centers. Support mains independently of branches, and in no case shall branch hangers assume any portion of the weight of mains. Provide seismic restraints and flexible connections in accordance with building code requirements.
- C. Locate sprinkler heads in repeating, modular pattern, centered and accurately coordinated with ceiling grid as indicated. Conceal all piping unless indicated otherwise. Coordinate design with lighting and exposed HVAC duct layout in areas without ceilings.
- D. Where sprinkler lines penetrate fire rated partitions, provide fire stopping system in accordance with Section 22 05 00.

- E. Where sprinkler lines penetrate classroom or auditorium walls, provide acoustic seal. See Section 22 05 00 for more information.

3.2 TEST

- A. Test all pipes to a hydrostatic pressure of 175 psi and maintain for four hours minimum. Perform other tests as directed by Governing Agency.
- B. Test to be performed on all new and existing systems in the building.

3.3 PAINT

- A. Paint all exposed piping and hangers in accordance with Section 09 91 00. Do not paint heads.

3.4 CERTIFICATE OF COMPLETION

- A. Obtain and deliver to Owner a certificate, in duplicate, stating that system as installed has been inspected and accepted by authorities and/or agencies having jurisdiction, and that all regulations affecting work have been satisfied. Submit an acceptable certificate to the Owner before final payment is requested.
- B. Certificate: Minimum NFPA Figure 16-1 information per NFPA 13.

END OF SECTION 21 13 00