

Part 1 General

1.1 PRODUCT OPTIONS AND SUBSTITUTIONS

- .1 Refer to Division 01 for requirements pertaining to product options and substitutions.

1.2 PIPE AND TUBE SIZES

- .1 This Section includes "preferred metric units" for pipe and tube diameters.

1.3 RELATED WORK IN OTHER SECTIONS

- .1 Refer to Section 22 05 90, Plumbing Systems and Specialities for backflow preventer assemblies.

1.4 SHOP DRAWINGS AND SUBMITTALS

- .1 Comply with requirements of Section 20 00 13.
- .2 Submit shop drawings on electronic format using Autocad. The Departmental Representative will make a database of drawings available to this trade for shop drawing submittals. Submit also one mylar reproducible drawing with Autocad disc.
- .3 Submit layout showing head locations, detailed pipe layout, components and hydraulic design calculations to the Code Authority having jurisdiction. Include all costs associated with such approval in this work.
- .4 Submit sample of each type of sprinkler head to Departmental Representative for approval.
- .5 Submit "As-Built" record drawings that include all site revisions to the shop drawing submittals. Submit these documents on Autocad format to the Departmental Representative.

1.5 QUALITY ASSURANCE

- .1 Sprinkler equipment, design and installation shall meet the requirements of the Code Authority having jurisdiction. Include all costs to secure their review and approval.
- .2 Equipment, valves and material used in sprinkler systems shall be ULC labelled.

1.6 CONTRACTOR DESIGNED SPRINKLER SYSTEM

- .1 A Professional Engineer licensed to practice in Alberta is required to design, review construction, witness, and certify the system testing, and consistent with Alberta Building Code (latest edition).

1.7 HYDRAULICALLY DESIGNED SYSTEMS

- .1 Departmental Representative will accept a Contractor designed, hydraulically calculated sprinkler system provided the following requirements are met:
 - .1 System design to NFPA 13 for the identified hazard classification.
 - .2 System design to incorporate Departmental Representative's Insurer's requirements.
 - .3 Base design on current water supply data.
 - .4 Make allowance for pressure losses through the backflow preventer assembly installed on the water supply to the sprinkler system. Refer to Section 22 05 90.
 - .5 Sprinkler heads exceeding the minimum code requirements but necessary to coordinate ceiling patterns are provided.
 - .6 Other requirements specified in this section are met.

1.8 ALLOWANCE FOR EXTRA HEADS

- .1 Allow for installation of extra heads in addition to those shown on drawings for blind spots, offsets, ductwork, equipment, under stairs and other obstructions to provide adequate coverage and compliance with NFPA 13, and the Departmental Representative's Insurers.

Part 2 Products

2.1 PIPING AND FITTINGS

- .1 Pipe or tube material and fittings to NFPA 13 and to withstand a working pressure up to 2070 kPa.
- .2 Roll Grooved Piping Systems: Welded or seamless steel pipe joined by welding or couplings shall have the following wall thickness:
 - .1 Up to 125 mm diameter Schedule 10
 - .2 150 mm diameter 3.40 mm
 - .3 200 mm diameter 3.78 mm

- .4 250 mm diameter 4.78 mm
- .3 Threaded or Cut Grooved Pipe Systems: Steel pipe joined by threaded fittings or couplings using cut grooves shall have the following wall thickness:
 - .1 Up to 200 mm diameter use schedule 40
 - .2 200 mm diameter and larger use schedule 30

2.2 SPRINKLER HEADS (SECURE)

- .1 Pendant Sprinkler: Sprinkler designed to be installed in such a way that the water spray is directed downwards against the deflector; chrome plated finish on exposed surfaces. The assembly shall consist of the sprinkler body, lock ring, and thread-on escutcheon plate. Assembly to 'break-away' when connected to a 13.6 kg weight that is dropped 152 mm.
- .2 Sidewall Sprinkler: Sprinkler having a special deflector directing most of the water away from the nearby wall; chrome plated finish on exposed surfaces. The assembly shall consist of the sprinkler body, lock ring, and thread-on escutcheon plate. Assembly to 'break-away' when connected to a 18.1 kg weight that is dropped 152 mm.

2.3 SPRINKLER HEADS (NON-SECURE)

- .1 Upright Sprinklers: Sprinkler designed to be installed in such a way that the water spray is directed upwards against the deflector; brass construction.
- .2 Pendant Sprinkler: Sprinkler designed to be installed in such a way that the water spray is directed downwards against the deflector; chrome plated finish on exposed surfaces; semi-recessed epoxy coated cup to match ceiling tile.
- .3 Sidewall Sprinkler: Sprinkler having a special deflector directing most of the water away from the nearby wall; chrome plated finish on exposed surfaces.
- .4 Recessed Sprinkler: Sprinkler in which all or part of the body is mounted in a recessed housing.

2.4 VALVES

- .1 Isolation Valves: Indicating type valves, ULC labelled, with electric position monitor.
- .2 Drain Valves: Soft seated globe or angle globe valves, ULC labelled.
- .3 Check Valves: Soft seated single flapper type, ULC labelled.
- .4 Zone Valves. Indicating type valves with a flow indicating device, ULC labelled.

Part 3 Execution

3.1 INSTALLATION

- .1 Install system to the requirements of NFPA 13 and to the requirements of the Alberta Building Code, latest edition.
- .2 Review the routing of all exposed piping with the Departmental Representative prior to installation. Piping which has not been reviewed in advance of installation will be subject to removal and re-installation at the Contractor's cost.
- .3 Provide automatic sprinkler protection for the building addition in its entirety.
- .4 Do not commence installation of piping or components until proposed installation layout has been coordinated with work of other sections. Center heads two-way in ceiling tiles.
- .5 Install piping concealed above ceilings and in joist spaces to minimize obstructions. Expose heads only.
- .6 Protect sprinkler heads installed below 2400 mm with standard guards where necessary.
- .7 Zone shut-off valves to be visible from floor.
- .8 For each fire zone, provide a drain valve at lowest pipe elevation. Route drainage piping to nearest drain.
- .9 Install inspectors test connections near all zone valves and at the main valve. Test pipe shall discharge to drain.
- .10 Install shut-off valve at base of each vertical pipe riser.
- .11 Provide permanently marked identification signs on main control valve indicating the system it controls. Sign shall be secured with non-corrosive chain to the valve.
- .12 Install sprinkler heads under ductwork where width is 1200 mm or larger, whether shown on drawings or not.

3.2 MAINTENANCE PARTS

- .1 Provide on wall near sprinkler valve assembly, a steel cabinet containing four (4) extra sprinkler heads of each type with a wrench suitable for each head type.

3.3 DEPARTMENTAL REPRESENTATIVE'S TRAINING

- .1 Attend turnover seminar at completion of project.

- .2 Instruct Departmental Representative on routine maintenance, testing and operating techniques.

3.4 START-UP AND TESTING

- .1 Ensure installation of piping system is completed prior to performing starting and testing procedures. Ensure all equipment used has ULC labels visible.
- .2 Fill system with water for pressure. Record pressure of water supply.
- .3 Pressure test piping system as per requirements of authorities having jurisdiction.
- .4 Ensure all valves in the sprinkler system are monitored and are clearly visible.
- .5 Ensure all flow switches are installed and are operational.
- .6 Flow tests and pressure tests shall be performed as required by:
 - .1 Alberta Building Code, latest edition.
 - .2 The Code Authority having jurisdiction.
 - .3 NFPA 13 and 14.
- .7 Test and place sprinkler valve into operation. Adjust pressure switches.
- .8 Coordinate sequencing of fire alarm and fire alarm verification with Division 28.
- .9 Record outlet water pressure.

3.5 TEST REPORT

- .1 Submit Contractors Material and Test Certificate for Aboveground Piping (NFPA-13 Standard Form), to be signed and sealed by the Sprinkler Sub-Trades Professional Engineer, licensed to practice in Alberta, as required by the Authorities.

END OF SECTION