

**PART 1 - GENERAL****1.1 REFERENCE STANDARDS**

- .1 National Fire Prevention Association (NFPA)
  - .1 NFPA (Fire) 13, Standard for the Installation of Sprinkler Systems, 2019 Edition.
  - .2 NFPA (Fire) 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2017 Edition.
- .2 Underwriter's Laboratories of Canada (ULC).

**1.2 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

**PART 2 - PRODUCTS****2.1 DESIGN REQUIREMENTS**

- .1 Design automatic wet pipe fire suppression sprinkler systems in accordance with required and advisory provisions of NFPA (Fire) 13, by consideration to blind spaces, piping, electrical equipment, ducts, and other construction and equipment in accordance with detailed shop drawings.
- .2 Locate sprinkler heads in consistent pattern with ceiling grid, lights, and air supply diffusers.
- .3 Devices and equipment for fire protection service: ULC approved for use in wet pipe sprinkler systems.
- .4 Design systems for earthquake protection for buildings in seismic zones 3 and 4, and only essential and high risk buildings in seismic zone 2.
- .5 Location of Sprinkler Heads:
  - .1 Locate heads in relation to ceiling and spacing of sprinkler heads not to exceed that permitted by NFPA (Fire) 13 for light hazard occupancy.
  - .2 Uniformly space sprinklers on branch.
- .6 Water Distribution:
  - .1 Make distribution uniform throughout the area in which sprinkler heads will open.
  - .2 Discharge from individual heads in hydraulically most remote area to be 100 % of specified density.
- .7 Density of Application of Water:
  - .1 Size pipe to provide specified density when system is discharging specified total maximum required flow.

**2.2 ABOVE GROUND PIPING SYSTEMS**

- .1 Provide fittings for changes in direction of piping and for connections.
  - .1 Make changes in piping sizes through tapered reducing pipe fittings, bushings will not be permitted.
- .2 Conceal piping in areas with suspended ceiling

## 2.3 PIPE, FITTINGS AND VALVES

- .1 Pipe:
  - .1 Ferrous: to NFPA (Fire) 13.
  - .2 Copper tube: to NFPA (Fire) 13.
- .2 Fittings and joints to NFPA (Fire) 13:
  - .1 Ferrous: screwed, welded, flanged or roll grooved.
    - .1 Grooved joints designed with two ductile iron housing segments, pressure responsive gasket, and zinc-electroplated steel bolts and nuts. Cast with offsetting angle-pattern bolt pads for rigidity and visual pad-to-pad offset contact.
  - .2 Copper tube: screwed, soldered, brazed, grooved.
  - .3 Provide welded, threaded, grooved-end type fittings into which sprinkler heads, sprinkler head riser nipples, or drop nipples are threaded.
  - .4 Plain-end fittings with mechanical couplings and fittings which use steel gripping devices to bite into pipe when pressure is applied will not be permitted.
  - .5 Rubber gasketed grooved-end pipe and fittings with mechanical couplings are permitted in pipe sizes 32 mm and larger.
  - .6 Fittings: ULC approved for use in wet pipe sprinkler systems.
  - .7 Ensure fittings, mechanical couplings, and rubber gaskets are supplied by same manufacturer.
  - .8 Side outlet tees using rubber gasketed fittings are not permitted.
  - .9 Sprinkler pipe and fittings: metal.
- .3 Pipe hangers:
  - .1 ULC listed for fire protection services in accordance with NFPA.

## 2.4 SPRINKLER HEADS

- .1 General: to NFPA (Fire) 13 and ULC listed for fire services.
- .2 Concealed Sprinkler:
  - .1 Fully concealed pendent, quick response for hazard coverage as indicated, 5.6 K factor, enclosed escutcheon, separate two-piece design of mounting cup and coverplate, internal threaded closure, 68°C rated, 13 mm adjustment, FM approved, chrome finish, glass bulb type and white finish cover.
- .3 Semi-recessed Sprinkler:
  - .1 Semi-recessed pendent, quick response for hazard coverage as indicated, 5.6 K factor, extended adjustable escutcheon, chrome finish, FM approved, glass bulb type; 68°C rated, 13 mm orifice.
- .4 Upright Sprinkler:
  - .1 Upright bronze, quick response for hazard coverage as indicated, 5.6 K factor, FM approved, chrome finish, glass bulb type; 68°C rated, 13 mm orifice.

## PART 3 - EXECUTION

### 3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheet.

### **3.2 INSTALLATION**

- .1 Install, inspect and test to acceptance in accordance with NFPA (Fire) 13 and NFPA (Fire) 25.

### **3.3 PIPE INSTALLATION**

- .1 Install piping straight and true to bear evenly on hangers and supports. Do not hang piping from plaster ceilings.
- .2 Keep interior and ends of new piping and existing piping thoroughly cleaned of water and foreign matter.
- .3 Keep piping systems clean during installation by means of plugs or other approved methods. When work is not in progress, securely close open ends of piping to prevent entry of water and foreign matter.
- .4 Inspect piping before placing into position.

END OF SECTION