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Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 Section 01 00 10 - General Instructions.
- .2 Section 21 05 01 - Common Work Results for Mechanical.

1.2 REFERENCES

- .1 National Fire Protection Association (NFPA)
 - .1 NFPA (Fire) 13, Standard for the Installation of Sprinkler Systems. 2013 Edition.
 - .2 NFPA (Fire) 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems. 2014 Edition.
- .2 Underwriter's Laboratories of Canada (ULC)
 - .1 CAN/ULC S543-09-AM1, Standard for Internal Lug Quick Connect Coupling for Fire Hose (includes Amendment 1).

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 00 10 - General Instructions.
- .2 Product Data:
 - .1 Provide manufacturer's printed product literature and data sheets for equipment and systems, applicable series designation or style and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Ontario, Canada.
- .4 Test reports:
 - .1 Test hydrostatically to meet requirements of fire protection system to which it will be connected.
- .5 Certificates:
 - .1 Submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
- .6 Manufacturers' Instructions:
 - .1 Instructions: provide manufacturer's installation instructions.
- .7 Field Quality Control Submittals:
 - .1 Manufacturer's Field Reports: submit manufacturer's field reports specified.

1.4 CLOSEOUT SUBMITTALS

- .1 Provide maintenance data for incorporation into manual specified in Section 01 00 10 - General Instructions.

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1.5 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Installer: company or person specializing in pre-action sprinkler systems with documented experience.
- .2 Supply grooved joint couplings, fittings, valves, grooving tools and specialties from a single manufacturer. Use date stamped castings for coupling housings, fittings, valve bodies, for quality assurance and traceability.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements:
 - .1 Deliver materials to site in original factory packaging, labelled with manufacturer's name, address.
- .3 Packaging Waste Management: remove for reuse and return by manufacturer.

Part 2 Products**2.1 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 or welded.
 - .2 Copper tube: screwed or soldered.
- .3 Auxiliary valves:
 - .1 ULC listed for fire protection service.
 - .2 Up to NPS 2: bronze, screwed ends, grooved, OS
 - .3 Swing or spring-actuated check valves.
 - .4 Ball drip.
 - .5 Tamper devices wired back to fire alarm panel.
- .4 Pipe hangers:
 - .1 ULC listed for fire protection services.

2.2 AUXILIARY SUPERVISORY SWITCHES

- .1 General: to NFPA (Fire) 13 and ULC listed for fire service.
- .2 Replace all monitoring wiring contacts for all valves, flow switches and pressure alarm switches. Refer to Section 21 13 13 - Wet Pipe Sprinkler Systems for device information. All new wiring modules to be SPDT and ULC rated.
- .3 Refer to drawing for locations and quantities.

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- .4 Valves:
 - .1 Mechanically attached to valve body, with normally open and normally closed contacts and supervisory capability.
- .5 Flow switch type:
 - .1 With normally open and normally closed contacts and supervisory capability.
- .6 Pressure alarm switch:
 - .1 With normally open and normally closed contacts and supervisory capability.

2.3 SPRINKLER HEADS

- .1 General: to NFPA 13 and ULC listed for fire services.
- .2 Sprinkler Head Type:
 - .1 Upright bronze.
 - .1 Standard response upright and conventional sprinklers, thermosensitive, glass-bulb spray sprinklers.
 - .2 Minimum operating pressure: 7 psi (0.5 bar).
 - .3 Ordinary classification: 68°C
 - .2 Semi- recessed chrome with glass bulb type with ring and cup.
 - .1 Standard response pendent sprinklers, thermosensitive, glass-bulb spray sprinklers.
 - .2 Minimum operating pressure: 7 psi (0.5 bar)
 - .3 Ordinary classification: 68°C.
 - .4 Supply with recessed escutcheons.
 - .3 Refer to drawing M400 for legend.
- .3 Provide nominal 1.2 cm orifice sprinkler heads.
 - .1 Release element of each head to be of intermediate temperature rating or higher as suitable for specific application.
 - .2 Provide corrosion-resistant sprinkler heads and sprinkler head guards in accordance with NFPA 13.
 - .3 Refer to Fire Protection drawing for new sprinkler locations.
 - .4 Deflector: not more than 75 mm below suspended ceilings.
 - .5 Ceiling plates: not more than 25 mm deep.

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 PRE-ACTION/DELAYED ALARM VALVE

- .1 Once all monitoring devices have been replaced, reconnect existing solenoid alarm valve to the new fire alarm panel.

- .2 Test all sequences of the pre-action alarm valve to ensure that the solenoid is activated as intended.
- .3 Drain pre-action system once testing is complete.

3.3 INSTALLATION

- .1 Install, inspect and test to acceptance in accordance with NFPA (Fire) 13 and NFPA (Fire) 25.
- .2 Testing to be witnessed by authority having jurisdiction.
- .3 Valve identification:
 - .1 Identify drain valve, by-pass valves and main shut-off valve and all auxiliary valves.

3.4 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services:
 - .1 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
- .2 Verification requirements, include:
 - .1 Materials and resources.
 - .2 Storage and collection of recyclables.
 - .3 Construction waste management.
 - .4 Resource reuse.
 - .5 Recycled content.
 - .6 Local/regional materials.
 - .7 Low-emitting materials.

3.5 CLEANING

- .1 Clean in accordance with Section 01 00 10 - General Instructions.
 - .1 Remove surplus materials, excess materials, rubbish, tools and equipment.
- .2 Waste Management: separate waste materials for reuse and recycling.

END OF SECTION