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**Part 1            General**

**1.1                RELATED REQUIREMENTS**

- .1            This section covers items common to all sections of Division 02.

**1.2                REFERENCES**

- .1            National Fire Protection Association (NFPA)
  - .1            NFPA13-2013, Standard for the Installation of Sprinkler Systems.
  - .2            NFPA 25-2011, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.
  - .3            NFPA 20-2010, Installation of Stationary Pumps for Fire Protection.
- .2            Underwriter's Laboratories of Canada (ULC)
  - .1            CAN4 S543-M1984, Standard for Internal Lug Quick Connect Coupling for Fire Hose.

**1.3                ACTION AND INFORMATIONAL SUBMITTALS**

- .1            Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .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 Newfoundland & Labrador, Canada.
- .4            Samples:
  - .1            Submit samples of following:
    - .1            Each type of sprinkler head.
    - .2            Signs and valve tags.
- .5            Test reports:
  - .1            Submit certified test reports for packaged fire pumps from approved independent testing laboratories, indicating compliance with specifications for specified performance characteristics and physical properties.
  - .2            Test each pump/driver package at factory to provide detailed performance data and to demonstrate compliance with NFPA and specification. Submit certified test curves for approval of Departmental Representative and Consultant.
  - .3            Test hydrostatically to meet requirements of fire protection system to which it will be connected.
- .6            Certificates:

.1 Submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

.7 Manufacturers' Instructions:

.1 Instructions: provide manufacturer's installation instructions.

.8 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 78 00 - Closeout Submittals.

.2 Provide detailed hydraulic calculations including: Contractor's Material and Test Certificate for aboveground piping, as well as other deliverables for incorporation into manual specified in Section 01 78 00 - Closeout Submittals, in accordance with NFPA 13.

#### **1.5 QUALITY ASSURANCE**

.1 Qualifications:

.1 Installer: company or person specializing in dry 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 MAINTENANCE MATERIAL SUBMITTALS**

.1 Extra Materials:

.1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide spare sprinklers and tools in accordance with NFPA 13.

#### **1.7 DELIVERY, STORAGE AND HANDLING**

.1 Deliver, store and handle materials in accordance with Section 01 52 00, Section 01 74 21 and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

### **Part 2 Products**

#### **2.1 ENGINEERING DESIGN CRITERIA**

.1 Design system in accordance with NFPA 13, using following parameters:

.1 Hazard: Extra hazard Group I. The minimum density shall be 0.3USGPM/ft<sup>2</sup> over 2500 ft<sup>2</sup> or the entire area. Maximum 130 ft<sup>2</sup> per head.

- .1 To suit occupancy as indicated.
- .2 Pipe size and layout:
  - .1 Design: to NFPA 13.
  - .2 Sprinkler head layout: to NFPA 13.
- .3 Water supply:
  - .1 Base design on NFPA13.
- .4 Zoning:
  - .1 System zoning as indicated.

## 2.2 PIPE, FITTINGS AND VALVES

- .1 Pipe:
  - .1 Ferrous: to NFPA 13. All pipe shall be clearly marked as to brand, schedule, date and ASTM number. Unmarked pipe will be removed from site. All pipe must be manufactured in North America. Schedule 40 galvanized for pipe 50mm or smaller. Schedule 10 galvanized pipe for greater than 65mm. Galvanized pipe for pumper connection to check. Check shall be located at sprinkler main.
- .2 Fittings and joints to NFPA 13:
  - .1 Ferrous: screwed or roll grooved.
    - .1 Grooved joints designed with two ductile iron housing segments, flush seal gasket for dry service, and zinc-electroplated steel bolts and nuts. Cast with offsetting angle-pattern bolt pads for rigidity and visual pad-to-pad offset contact.
    - .2 Fittings shall satisfy the following: Victaulic on 65mm and greater in diameter (rigid connections). Piping 50mm and smaller shall be threaded. Fittings must withstand 175psi working pressure.
- .3 Pipe hangers:
  - .1 ULC listed for fire protection services.

## 2.3 SPRINKLER HEADS

- .1 General: to NFPA 13 and ULC listed for fire services.

## 2.4 SPRINKLER HEAD TYPE A

- .1 Match existing sprinkler heads.
- .2 UL/C-UL listed.
- .3 Bronze frame, brass/copper frame, stainless steel w/ teflon sealing assembly, glass bulb, bronze compression screw, bronze deflector.
- .4 Upright bronze quick response for ordinary hazard with guard.
- .5 141°C (286°F) temperature rating in generator room.
- .6 Discharge coefficient  $K=80.6 \text{ LPM/bar}^{1/2}$  ( $5.6 \text{ GPM/psi}^{1/2}$ ).

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**2.5 MULTI-PURPOSE DRY CHEMICAL EXTINGUISHER**

- .1 Dry chemical (multi-purpose ABC) 10 lb capacity c/w wall bracket for Generator Enclosure and pump room. Minimum rating 40BC. Rated for outdoors.
- .2 Steel cylinder c/w cylinder skirt.
- .3 Polyester powder paint finish.
- .4 Waterproof stainless steel gauge.
- .5 Polyester powder-coated steel handle.
- .6 Weather proof cover.
- .7 Bracket or strap for mounting.
- .8 Manufactured and tested to CAN/ULC-S508-M90, ANSI/UL711, CAN/ULC-S504-M86 and ANSI/UL299.

**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 13 and NFPA 25.
- .2 Testing to be witnessed by authority having jurisdiction.
- .3 Install fire department connections as indicated.
- .4 Install spare parts cabinet as indicated.

**3.3 CLEANING**

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Remove surplus materials, excess materials, rubbish, tools and equipment.
- .2 Waste Management: separate waste materials for recycling or disposal in accordance with Section 01 74 21 – Construction Demolition Waste Management and Disposal.

**3.4 COORDINATION**

- .1 This Contractor shall include an allowance to adjust existing excess pressure pumps in the ATB and CSB Buildings to ensure normal operating pressure is above that produced by jockey pump in pump house.

**END OF SECTION**