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## **Part 1 General**

### **1.1 GENERAL REQUIREMENTS**

- .1 The use of multiple brands or manufacturers for the same device is prohibited.

### **1.2 RELATED REQUIREMENTS**

- .1 Section 20 00 10 – General Instructions for Mechanical and Electrical.
- .2 Section 23 05 53.01 – Mechanical Identification.
- .3 Section 23 05 48 – Vibration Systems and Seismic Controls for HVAC Piping and Equipment.

### **1.3 REFERENCES**

- .1 American National Standards Institute (ANSI):
  - .1 ANSI/ASME B1.20.1-83(R2001), Standard for Pipe Threads, General Purpose.
  - .2 ANSI/ASME M16.3-2006, Malleable Iron Threaded Fittings Classes 150 and 300.
  - .3 ANSI/ASME B16.9-2001, Factory Made Wrought Buttwelding Fittings.
  - .4 ANSI/ASME 2004 Boiler and Pressure Vessel Code- Section IX, Welding and Brazing Qualifications.
- .2 American Society of Mechanical Engineers (ASME):
  - .1 ASME B31.1-2004, Power Piping.
- .3 American Society for Testing and Materials International (ASTM):
  - .1 ASTM A53/A53M-2007, Standard Specification for Pipe, Steel, Black and Hot-Dipped Zinc Coated, Welded and Seamless.
  - .2 ASTM A106/A106M-2006a, Standard Specification for Seamless Carbon Pie for High Temperature Service.
  - .3 ASTM A197/A197M-2000 (R2006), Standard Specification for Cupola Malleable Iron.
  - .4 ASTM A234/A234M-2007, Standard Specification for Pipi Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service.

### **1.4 WORK**

- .1 Work includes:
  - .1 The work generally includes: labor, delivery and installation of all materials and equipment necessary for the work of "FIRE PROTECTION" shown in the drawings and specifications.
  - .2 The work includes, but is not limited to:
    - .1 Distribution on the 6<sup>th</sup> floor of refit offices.
    - .2 Demolition as shown on drawings.
    - .3 Relocation of fire extinguishers and cabinets.



- .4 Supply and installation of a extinguisher cabinet.
- .5 Payment of all fees, permits, inspection fees and other costs.
- .6 Supports and structural steel components required to support the piping and equipment.
- .7 All special connections described in the specifications and/or shown in the drawings.
- .8 All the elements required to complete the seismic installation.
- .9 The supply and installation of the thermal insulation (of the water inlet until backflow). Refer to Division 23.
- .10 Portable fire extinguishers.
- .11 Erection drawings.
- .12 Installation drawings.
- .13 Hydraulic calculations.
- .14 Identification and labels required for fire protection equipment.

.2 Work excludes:

- .1 In general the following work is excluded:
  - .1 The temporary fire protection system during construction.
  - .2 The detection system and fire monitoring system.
  - .3 Electrical conduits, cables and connections alarm switches and supervisors valves, starters, etc.

**1.5 STANDARDS**

- .1 Do work in accordance with the following standards and regulations:
  - .1 Construction Code of Québec (2005).
  - .2 National Building Code (2010).
  - .3 Federal regulations, provincial and municipal, with regards to construction and fire protection.
  - .4 Standards of the National Fire Protection Association, last edition: NFPA 10, NFPA 13, NFPA 14.

**1.6 AUTHORITIES HAVING JURISDICTION**

- .1 The authorities having jurisdiction are:
  - .1 Municipal or city fire department.
  - .2 Municipal or city service license issuers.
  - .3 Québec Building Governance.

**1.7 APPROVAL**

- .1 The company in charge of the work of this section must be recognized/specialized for performing this kind of work.



- .2 All materials must be UL/ULC listed and FM and meet the latest published requirements.
- .3 Inspect the facility before the plaster and ceilings are completed so that the inspection is easy and complete.
- .4 During final inspection by the Consultant and expensing of this section, make any necessary changes to obtain final acceptance.
- .5 The consultant must check the installation and erection drawings, the complete installation, equipment and materials, and inspect and monitor all tests.

## 1.8 DESIGN CRITERIA

- .1 Design the system after the hydraulic calculations based on the results of dynamic testing and/or existing facilities and this and for each of the networks.
- .2 Use a 5 psi safety factor in the hydraulic calculation.
- .3 Density:
  - .1 In general, the density of the areas is low risk. However, the following sectors have particular risks:
    - .1 Deposits, storage: Ordinary risk, group 2.
- .4 Areas located on the 6th floor should be calculated using the pump pressure as specified on drawings.

## 1.9 INSTALLATION DRAWINGS

- .1 See sections "SHOP DRAWINGS" and "ERECTION DRAWINGS" in Section 20 00 10 – General Prescriptions for Mechanical and Electrical.
- .2 Prepare all facility drawings, details, and hydraulic calculations required to obtain approvals before starting work.
- .3 Erection drawings and hydraulic calculations must be signed and sealed by an Engineer of the Contractor for fire protection.**
- .4 Drawings must clearly indicate:
  - .1 Name of the department or agency.
  - .2 Location including the address.
  - .3 Orientation.
  - .4 Ceiling construction details.
  - .5 Full-height cross sections.
  - .6 Type of occupation for each room (room type).
  - .7 The location and dimensions of cul-de-sacs and cupboards.
  - .8 Any small room or enclosed space that is not equipped with automatic sprinklers.
  - .9 Other water supply sources, noting the pressure or elevation.
  - .10 The make, model and the diameter of the automatic sprinklers.
  - .11 The nominal release temperature and location of high operating temperature automatic sprinklers.
  - .12 The number of automatic sprinklers per riser and the total number per floor.



- .13 Crossings, riser fittings and size/dimensions.
  - .14 The type of supports, bushings and sleeves.
  - .15 All valve controls, valves and test pipes.
  - .16 The provisions on the drain network.
  - .17 If the equipment to be installed is an addition to an existing sprinkler system, without additional power from the external network, components of the old network must appear in the drawings, so as to indicate the total number sprinklers to provide and clarify them under all installation conditions.
  - .18 Name and address of the installer.
- .5 In addition to the requirements of the preceding paragraph, specify the following points in the case of hydraulic installations:
- .1 Points of reference for hydraulic systems must be identified by a letter or a number corresponding to the points indicated on the calculation sheets.
  - .2 A description of the sprinklers used.
  - .3 Criteria for installation design, including the minimum water flow density, the expected scope and extent of internal and external casings.
  - .4 Actual calculated requirements: the total amount of water and the pressure required at a common reference point for each installation.
  - .5 Data regarding the rise, including the rising on points of reference and sprinkler connection.
- .6 The summary form should clearly indicate:
- .1 The date.
  - .2 Location.
  - .3 Name of the department or agency.
  - .4 Building number or other designation.
  - .5 Description of the level of risk of fire.
  - .6 Name and address of the Contractor or designer.
  - .7 The name of the approval body.
  - .8 Network design criteria, including the expected scope, the minimum flow of water density and scope of each sprinkler head.
  - .9 The total amount of water required, according to calculations, taking into account the internal and external hydrant hoses.
  - .10 Information about the water supply.
- .7 Formulas and detailed descriptions of the work or computer printed sheets must clearly indicate:
- .1 The numbering of the nozzles and the constant flow of K.
  - .2 The reference points of hydraulic installations.
  - .3 Flow in L/s (usgpm).
  - .4 Pipe diameter.
  - .5 Frictional pressure drop in kPa/m (lb/sq/ft) pipe.



- .6 Load loss by friction between the reference points.
  - .7 The water column in kPa (feet of water) between reference points.
  - .8 The pressure required in 10 kPa (lb/in<sup>2</sup>) at each reference point.
  - .9 Kinetic pressure and the atmospheric pressure if they are included in calculations.
  - .10 Notes to indicate the starting points, references to other sheets or specify the data entered.
- .8 Semi-logarithmic graphs must show the power curves of water, the requirements for facilities, as well as those relating to internal and external hoses, so as to present a graphical overview of all hydraulic calculations.

#### **1.10 SPECIAL CONNECTIONS**

- .1 Automatic sprinkler drainage connections over to the closest funnels provided. The supply and installation of funnels within the section responsible for carrying out the plumbing work.

#### **1.11 ELECTRICAL CONNECTIONS**

- .1 The relevant mechanical section must provide and install its own specialty devices shown in the drawings and/or requested in the estimate.
- .2 Refer to the general terms of mechanical specifications and electricity.
- .3 The installation of accessories around the valves of the systems will be performed by the fire protection Contractor.
- .4 According to the diagrams in the drawings, Division 25 or 26 must provide and install the conduit, cable boxes and complete the necessary connections with all mechanical devices under the supervision of the Division who provided the device.
- .5 However, each mechanical section concerned is the sole responsibility for the proper operation of its equipment. It must check all the electrical control sequences and the protection control of each device by checking all of the overload relays.
- .6 Each mechanical section concerned shall be responsible for the choice of overload relay.
- .7 All electrical connections must comply with the requirements of the power estimate.

#### **1.12 REQUIRED DOCUMENTS**

- .1 Provide the following documents:
  - .1 A list of identification of piping and valves legends. Refer to Section 23 05 53.01 – Network identification and mechanical systems.
  - .2 Certificates of materials and tests carried out by the Contractor.
  - .3 Certification of the installation of the backflow preventer.
  - .4 Certificates of approval by the authorities concerned.
  - .5 Approval certificates of erection drawings and hydraulic calculations by the relevant authorities.
  - .6 Inspection certificates from the competent authorities.



- .7 Certificates of guarantee, see the article "GUARANTEE" Section 20 00 10 - General Instructions for Mechanical and Electrical.
- .8 Instruction manuals for operation and maintenance of the equipment. See the article "OPERATING INSTRUCTION MANUAL AND MAINTENANCE" Section 20 00 10 - General Instructions for Mechanical and Electrical.
- .9 Maintained drawings, see the article "UPDATED REQUIRED DRAWINGS" Section 20 00 10 – General Instructions for Mechanical and Electrical.

### **1.13 SAMPLES**

- .1 See the article "SAMPLES" in Section 20 00 10 - General Instruction for Mechanical and Electrical.
- .2 Submit samples of each type of sprinkler and signage used.

### **1.14 SEPARATE PRICE**

- .1 Provide with the submission, an overall fixed price covering all the work of the "FIRE PROTECTION" section. In addition to the lump sum covering the work indicated in the quote and in the drawings, provide a list of unit prices requested in the tender form.
- .2 In addition, provide a price for the installation of each type of sprinkler due to changes that may occur during the installation. These prices include all costs, whether piping, fittings, accessories, calculations and design and they apply as a credit or debit.
- .3 Note: unit prices apply as credit or debit on the condition that the number of added or subtracted sprinklers does not exceed 5% of the quantity indicated on the drawings upon submission. For an excess by 5%, the credit or debit calculated by this section will give an estimate for approval.

## **Part 2 Products**

### **2.1 GENERAL PIPING**

- .1 Design the system in accordance with NFPA standards, complete with all accessories, excess pressure pumps, alarms and surveillance and fittings of an approved type.
- .2 Pipes and Fittings of an approved type, conforming to the FM or ULC NFPA identified and designed to withstand an operating pressure of 1210 kPa.
- .3 Install all valves shown in the drawings in areas where necessary for the proper functioning of the system and where required by NFPA.
- .4 Valves taps, valves, check valves, butterfly valve, as indicated in the drawings, of the size of the piping approved by ULC or FM.
- .5 Each type of piping, elbows, reducers elbows, adapters, couplings and unions, must be of the same brand.

### **2.2 PIPING ABOVE GROUND AND UNDER KPA 1210**

- .1 Conforms to NFPA.



- .2 Steel pipe :
  - .1 NPS 2 and under:
    - .1 Piping in black steel , 40 series, ASTM-A53, ASTM-A135 and ASTM-A795.
    - .2 Threaded joints or cast-iron flanges or mechanical.
    - .3 Cast iron fittings ASTM A126, 860 kPa, approved by UL, threaded, hydrostatic pressure of 1210 kPa operating at 66°C, Anvil.
    - .4 Fittings for 3.2 mm rubber flanges such as Blue Gard Style 3000.
  - .2 NPS 2½ to NPS 8:
    - .1 Piping in black steel , 10 series, ASTM-A53, ASTM-A135 and ASTM-A795.
    - .2 Flanged cast iron joints or mechanical.
    - .3 Cast iron fittings ASTM A536, 860 kPa, approved by UL, hydrostatic pressure of 1210 kPa operating at 66°C or less, Anvil .
    - .4 Clamps/screw-type adapter ("companion flange"), cast iron ASTM-A126, 860 kPa , standards, approved by UL, hydrostatic pressure of 1210 kPa operating at 66°C, Anvil fig. 1016.
    - .5 Bolts for flange square or hex head nut, heavy, ASTM-A307 76b.
    - .6 Linings for rubber flanges, 3.2 mm, Albion 300.
  - .3 NPS 8 and higher:
    - .1 Black steel , 30 series, ASTM-A53, electric resistance welded (ERW).
- .3 Mechanical piping seals:
  - .1 General:
    - .1 Grooved pipe, 40 series, in mechanical seals, free of marks, projections or recesses over the entire surface in contact with the sealing gasket. Cut straight and prepare the ends of the pipe, according to manufacturer standards.
  - .2 Groove:
    - .1 The groove must have a square or round shape by rolling and dimensions must be given in Manufacturer's Table catalog.
  - .3 Filling:
    - .1 Resilient elastomeric seal, center cavity, following the contours of the cavity and forming a pressurized watertight point around the pipe when the ring is tightened.
  - .4 Connections:
    - .1 Fittings formed of ductile iron ring segments enclosing the liner and fitting into the grooves of the pipes.
    - .2 Use fittings with or without set, so as to allow for expansion and angular adjustment, as required by the installation.
  - .5 Acceptable Products:
    - .1 VGS, Victaulic, Tyco, Anvil.



- .2 For steel: styles 005, 07, 72, 77, 920N, 922 and 009H Firelock EZ.
- .3 Cast iron: styles 31, 307 and 341.
- .4 For copper: styles 606 and 641.
- .6 Bolting:
  - .1 Use thermally treated bolts, oval collar and pulling head, adapting to the same hole shape and for clamping one side.

### **2.3 COLLARS**

- .1 Everywhere where pipes pass through walls, floors, ceilings, install cast iron flanges on each side, model 207xxx by Lyncar.
- .2 Wherever pipes pass through ceilings, acoustic tiles, install chrome steel flanges with clamping mechanism and concealed hinges, Fig. 10 by Anvil.
- .3 For other locations, see the general mechanical and electrical requirements.

### **2.4 DIAELECTRIC SEALS**

- .1 Making connections between two pipes of different metals such as copper and steel, by means of dielectric unions or flanges with gaskets between the flanges and insulating sleeves to the bolts, in order to avoid contact between the two metals, UL approved connections, union and Epco flange.

### **2.5 SEISMIC MEASURES**

- .1 Seismic measurements must be made according to standards and enforced regulations. Refer to Section 23 05 48 - Systems and Anti-vibration and Anti-seismic Devices for HVAC Piping and Equipment.

### **2.6 MANUFACTURERS**

- .1 Comply with the article "MANUFACTURERS" in Section 20 00 10.
- .2 List of acceptable manufacturers, section 21 10 01:
  - .1 Piping:
    - .1 Allied Tube
    - .2 American Tube and Piping
    - .3 Grinnell
    - .4 Sidbec-Dosco
    - .5 Steel of Canada
    - .6 Stelco
    - .7 or a substitute product approved in an addendum in accordance with the Instructions to tenderers.
  - .2 Welded fittings and flanges:
    - .1 Anvil-Merit
    - .2 or a substitute product approved in an addendum in accordance with the Instructions to tenderers.



- .3 Fittings for flanges:
  - .1 Garlock
  - .2 or a substitute product approved in an addendum in accordance with the Instructions to tenderers.
- .4 Flange connections:
  - .1 Central
  - .2 Gruvlok
  - .3 Victaulics
  - .4 Nibco
  - .5 or a substitute product approved in an addendum in accordance with the Instructions to tenderers.
- .5 Threaded connections:
  - .1 Anvil
  - .2 Central
  - .3 Ward
  - .4 or a substitute product approved in an addendum in accordance with the Instructions to tenderers.
- .6 Main manual stop valves:
  - .1 Anvil
  - .2 Mueller
  - .3 Nibco
  - .4 Tyco
  - .5 Victaulic
  - .6 or a substitute product approved in an addendum in accordance with the Instructions to tenderers.
- .7 Dielectric seals:
  - .1 Epco
  - .2 Victaulic
  - .3 or a substitute product approved in an addendum in accordance with the Instructions to tenderers.

### **Part 3 Execution**

#### **3.1 GENERAL**

- .1 Piping placement, location of equipment and special devices, etc., mentioned in the specifications or in drawings indicating the general layout of equipment.
- .2 Perform installation according to the standards and learn about the architectural layout of the building.
- .3 Install upright piping in a straight line according the required gradients.
- .4 No pipe should come in contact with the concrete or the ground.



- .5 Install all hoses in such a way to avoid tensile stress or compression.
- .6 Do not bend the pipe in any way.
- .7 The identification of the pipe markings must always be legible for easy inspection.

### **3.2 ABOVE GROUND PIPING**

- .1 See the article "LOCATION OF PIPING AND CONDUIT" in Section 20 00 10 – General Instructions for Mechanical and Electrical.

### **3.3 GRADIENTS**

- .1 Install the system so as to empty it completely. Install drain taps at the low points.

### **3.4 CLEANING OUTLETS**

- .1 Install cleaning outlets where required by NFPA.

### **3.5 SUPPORTS**

- .1 Conform to the NFPA.
- .2 Secure all pipes using brackets and anchors approved by NFPA.
- .3 Adjustable supports with steel rod securely fastened to the structure.
- .4 Piping up to NPS 4, the threaded rods will be 9 mm. For piping NPS 5 to NPS 8, the rods will be 13 mm. For piping NPS 10 and NPS 12 in diameter, the rods will be 15.6 mm.

### **3.6 ANCHORS**

- .1 Adequately anchored in order to avoid any stress to joints and/or warping. Using anchors made of welded structural steel, constructed and firmly secured to the structure by means of anchoring bolts, size and capacity proportional to the weight.
- .2 Generally, attach anchors to the main beams and slabs cast, but not to pre-stressed or precast slabs.
- .3 The structure should not be damaged by anchors. Submit position anchors for approval to the structural Engineer with proper erection drawings.

### **3.7 TESTING**

- .1 See sections "TEST", "FINAL TEST" and "TEST BY OWNER" of Section 20 00 10 - General Instructions for Mechanical and Electrical.
- .2 Maintain leak-free scenario for at least two hours in all piping, with hydrostatic pressure of 1400 or 350 kPa more than the normal operating pressure.
- .3 Provide a certificate stating the results of the tests for each system.
- .4 The Contractor will provide the hydraulic pump, connections, and temporary labor needed for these tests.
- .5 Set all devices so that they function properly.



**3.8 PAINT**

- .1 Apply a metal mordant layer on all exposed pipes.
- .2 Ensure that no sprinkler head is painted. For this purpose, protecting the heads with plastic bags or polythene securely held in place by a string or wire prior to painting.
- .3 Once the painting is completed, remove the temporary protection from the heads. All painted or damaged heads will be replaced and expensed.

**END OF SECTION**



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## **Partie 1      General**

### **1.1            RELATED REQUIREMENTS**

- .1      Section 20 00 10 – Mechanical and Electrical General Instructions.
- .2      Section 21 05 05 – Common Work Results for Fire Suppression.

### **1.2            REFERENCES**

- .1      National Fire Prevention Association (NFPA):
  - .1      NFPA 13 - Standard for the Installation of Sprinkler Systems, 2013 Edition.
  - .2      NFPA 25 - Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2014 Edition.

### **1.3            DESIGN REQUIREMENTS**

- .1      Design the sprinkler water systems in accordance with the requirements and recommendations of NFPA 13, in accordance with the hydraulic calculations for a uniform distribution of water throughout the protected area. See Section 21 05 05 - Common Work Results for Fire Suppression, Design Criteria.
- .2      Implemented systems must be complete and ready for use, and they must include all the materials, elements and interior and exterior accessories necessary for this purpose.
- .3      Design each system taking into account all design features and all structures and elements such as hidden spaces, piping, electrical equipment and air ducts, indicated in detail on shop drawings.
- .4      Determine the location of sprinkler heads according to the panels/ceiling tiles, lighting fixtures and air diffusers.
- .5      Materials and fire protection equipment must be approved by the ULC for use in an automatic underwater sprinkler system.
- .6      Design the system with seismic protection in the case of buildings in earthquake zones (3) and (4), and protection for essential services or to very high risk in the case of buildings located in the seismic zone (2).
- .7      Location of sprinkler heads:
  - .1      Determine the location of the sprinklers according to the characteristics of the ceiling; the spacing between the heads must not exceed that specified in NFPA 13.
  - .2      Ensure uniform spacing of sprinklers along the bypass lines.
- .8      Water distribution:
  - .1      Ensure that water distribution is uniform throughout the area or throughout the area protected by the requested extinguisher heads.
  - .2      The rate of the most disadvantaged heads must match hydraulically 100) % of the prescribed spray density.



- .9 Surface application:
  - .1 Most hydraulically underprivileged area, determined in accordance with NFPA 13.
- .10 Flow intended for outdoor nozzles:
  - .1 Provide the feed rate of external nozzles in the hydraulic calculations.

#### **1.4 DOCUMENTS/SAMPLES TO SUBMIT FOR APPROVAL/INFORMATION**

- .1 Submit all required documents and samples in accordance with section 20 00 10 – Mechanical and Electrical General Instructions.
- .2 Technical datasheet:
  - .1 Submit required technical datasheet, and manufacturer instructions and documentation. Technical datasheets must indicate product characteristics, performance criteria, physical size, finish and
- .3 Shop drawings:
  - .1 Submitted shop drawings stamped and signed by professional engineer registered or licensed in Canada in the province of Québec.
- .4 Certificates:
  - .1 Submit certificates signed by manufacturer certifying that the products, materials and equipment meet the requirements as to the physical characteristics and performance criteria.

#### **1.5 DOCUMENTS/ITEMS TO GIVE AT WORK COMPLETION**

- .1 Submit all required documents and items in accordance with section 20 00 10 – Mechanical and Electrical General Instructions.
- .2 O M Sheets: Provide instruction for OM which will be included in the OM Manuals.

#### **1.6 TRANSPORTATION, STORAGE AND HANDLING**

- .1 Transport, store and handle materials and equipment according to Section 20 00 10 – Mechanical and Electrical General Instructions.
- .2 Delivery and acceptance: deliver materials and equipment to site in original factory packaging, labeled with the name and address of the manufacturer.
- .3 Waste management and disposal:
  - .1 Separate waste materials for reuse / re-use and recycling in accordance with Section 01 74 21 – Construction/demolition waste management and disposal.
  - .2 Remove from site all packaging materials and transport them to the appropriate recycling facilities.
  - .3 Collect and sort paper packaging, plastic, polystyrene, corrugated cardboard for recycling in accordance with Waste Management Plan.
  - .4 Sort steel scrap, metal, plastic for recycling and place in designated containers in accordance with Waste Management Plan.
  - .5 Divert unused metal materials from metal recycling facility.



## **Partie 2      Product**

### **2.1            PIPING AND VALVE CONNECTIONS**

- .1      In accordance with NFPA-13.
- .2      See Section 21 05 05 – Common Work Results for Fire Suppression.

### **2.2            SPRINKLERS**

- .1      Approved type, mist with fuse, to varying degrees as required.
- .2      With appropriate melting points at places where hot air is circulated through the ventilation grills, heaters or other appliances that produce heat.
- .3      Sprinklers shall be specified or an approved equivalent.
- .4      The location of heads in the same room should be symmetrical to 6 mm.
- .5      Sprinklers of the following type:
  - .1      Ordinary straight: Micromatic model (M) with Viking glass fuse, bronze finish.
  - .2      Regular chrome: Micromatic model (M) with Viking glass fuse, with chrome washer.
  - .3      Semi-flush: Micromatic model (E-1) with glass fuse, chrome and ring Model No. E-1, Chrome Viking mounted flush with the ceiling.
  - .4      If invisible: Model No. VK-462 by Mirage Viking, completely recessed into the suspended ceiling and hidden by a disc 70 mm in diameter mounted at ceiling level. The disc color is chosen by the architect.
  - .5      Rapid response heads: every head located in an area with low or normal risk density should be of rapid response type, as outlined by the NFPA-13.

### **2.3            PROTECTIVE BASKETS**

- .1      Install protective baskets in places where the nozzles are susceptible to mechanical shock and where indicated in drawings. They must be securely fastened.
- .2      Protective baskets are painted red for bronze and chrome finished nozzles and for sprinkler chrome finishes.
- .3      Install protective screens on the baskets with sprinklers at the locations shown in the drawings.
- .4      These baskets must be approved for the type of head installed.

### **2.4            LIST OF MANUFACTURERS**

- .1      According to article "LIST OF MANUFACTURERS" from section 20 00 10 - Mechanical and Electrical General Instructions.



- .2 List of manufacturers, this section 21 13 13 - Wet Pipe Sprinkler Systems:
  - .1 Sprinkler heads:
    - .1 Central
    - .2 Globe
    - .3 Grinnell
    - .4 Reliable
    - .5 Victaulic
    - .6 Viking
    - .7 or a substitute product approved in an addendum in accordance with the Instructions to tenderers.

### **Partie 3 Execution**

#### **3.1 MANUFACTURERS INSTRUCTIONS**

- .1 Compliance: comply with requirements, recommendations and manufacturer's written data, including product technical bulletins, instructions for handling, storage and product installation, and information sheet techniques.

#### **3.2 INSTALLATION**

- .1 Install automatic sprinkler systems, check and submit them to an acceptance test in accordance with NFPA 13 and NFPA 25.

#### **3.3 PIPING INSTALLATION**

- .1 Install, level and square the piping so that it rests evenly on its supports and suspensions. Do not attach the suspensions to plaster ceilings.
- .2 Make sure the interior and the ends of the new pipe as well as the existing pipe are free from water debris.
- .3 During the installation and at the end of each work period, seal the open ends of the pipe with caps or other approved methods to prevent the entry of foreign matter.
- .4 Inspect the pipes before setting them into place.

#### **3.4 ELECTRICAL CONNECTIONS**

- .1 Electrical work related to the work covered by this section shall be performed in accordance with Section 26 05 00 – Common Work Results for Electrical.

#### **3.5 PIPING PRESSURE TESTS**

- .1 Testing/Site Inspections:
  - .1 Perform the required tests to verify compliance with the prescribed requirements.
  - .2 Perform the required tests and inspections and approve the piping prior to concealing it.



- .3 Preliminary tests:
  - .1 Conduct hydrostatic testing for each system at a pressure of 200 lb/in<sup>2</sup> for a period of two (2) hours, there must be no leakage or pressure drop during this test.
  - .2 Flush drinking water pipes in accordance with NFPA 13.
  - .3 Perform required tests and inspections and approve the piping installed in empty ceiling spaces before setting the ceilings.
  - .4 Test the alarms and other related devices.
  - .5 Once testing is complete and corrections have been made, submit the certificate of inspection, signed and dated in accordance with NFPA 13.
- .4 Final tests and inspections:
  - .1 Do not request to have tests and final inspections performed before the preliminary tests are completed and any corrections made.
  - .2 Application for final inspection must be made at least 15 days before the desired inspection date.
  - .3 Repeat required testing as directed.
  - .4 Correct any anomalies and conduct additional tests until the systems comply with contractual requirements.
  - .5 Provide the hydraulic pump, temporary connections, and labor necessary for carrying out the tests.
  - .6 Provide a certificate indicating the test results for each system.

**END OF THE SECTION**



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## **Part 1        General**

### **1.1            GENERAL REQUIREMENTS**

- .1        Section 20 00 10 – Mechanical and Electrical General Instructions.

### **1.2            REFERENCES**

- .1        Health Canada/Information System Hazardous Materials (WHMIS):
  - .1        Material Safety Data Sheets (MSDS).
- .2        National Fire Protection Association (NFPA):
  - .1        NFPA 10 – Standard for Portable Fire Extinguishers – 2013 Edition.

### **1.3            DOCUMENTS TO SUBMIT**

- .1        Submit the following documents:
  - .1        A list of the identification legends in compliance with Division 20.
  - .2        Copies of the instruction manuals for the operation and maintenance of the equipment, in compliance with Division 20.
  - .3        Drawings kept up to date, in compliance with the Division 20.
  - .4        Certificates of compliance from an approved body for all product and equipment.

## **Part 2        Product**

### **2.1            GENERAL**

- .1        Fire extinguishers must be ULC approved and meet the requirements of Canada's National Fire Prevention Code, NFPA-10 Standard and meet the regulation concerning fire prevention in the municipalities concerned.
- .2        Label:
  - .1        Attach or stick onto the fire extinguisher, a label indicating the month and year of installation. Provide a space to record the dates of the periodic maintenance.
  - .2        Register on a permanent plaque, the user manual and guidelines for re-filling.

### **2.2            CABINET FOR EXTINGUISHERS**

- .1        In locations shown in drawings, portable fire extinguishers installed in special cabinets of adequate size, depending on the type and capacity.
- .2        For most extinguishers, cabinet dimensions 228 mm x 685 mm x 203 mm deep (9" x 27" x 8"), wrought iron frame, piano hinge-type cover, glass window, see drawing for details. Supply same type as existing cabinets.



- .3 In locations where the wall thickness does not allow the installation of the cabinet, 203 mm (8") thick, install a plastic dome cabinet of dimensions 368 mm x 762 mm x 102 mm (14½" x 30" x 4") thick.
- .4 Acceptable products: C.F.H. Security Inc. nos. C-950/CE-950 and C950A/CE-950-1.

### **Part 3 Execution**

#### **3.1 GENERAL**

- .1 Final location to be determined on the spot by the fire department.
- .2 Install fire extinguishers so that the top is at a height of 1520 mm (60") maximum above the floor.

**END OF SECTION**

