1. GENERAL

1.1 **References**

.1 The requirements of the Fire Department of the municipality.

.2 The requirements of the National Building Code of Canada 2015.

.3 The requirements of the National Fire Code of Canada 2015.

.4 Good Practices Guideline - Nunavut Second Edition.

1.2 **Action and Informational Submittals**

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

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for a complete fire protection system 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 Territory of Nunavut, Canada.
- .2 Indicate on drawings:
  - .1 Mounting arrangements.
  - .2 Operating and maintenance clearances.
- .3 Shop drawings and product data accompanied by:
  - .1 Detailed drawings of bases, supports, and anchor bolts.
  - .2 Manufacturer to certify current model production.
  - .3 Certification of compliance to applicable codes.
- .4 In addition to transmittal letter referred to in Section 01 33 00 - Submittal Procedures: use SNC-Lavalin's "Shop Drawing Submittal Title Sheet". Identify section and paragraph number. Each drawing is to be submitted individually, in electronic (portable document file) format, with the Shop Drawing Submittal Title Sheet included in the electronic document. Refer to Appendix A for Submittal Identification Sheet.

1.3 **Closeout Submittals**

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 Operation and Maintenance Data: submit operation and maintenance data for Fire Protection System for incorporation into manual.
- .1 Operation and maintenance manual approved by, and final copies deposited with, Departmental Representative before final inspection.
- .2 Operation data to include:
  - .1 Control schematics for systems.
  - .2 Description of systems and their controls.
  - .3 Operation instruction for systems and component.

.4 Description of actions to be taken in event of equipment failure.
.5 Valves schedule and flow diagram.
.6 Colour coding chart.

.3 Maintenance data to include:
.1 Servicing, maintenance, operation and trouble-shooting instructions for each item of equipment.
.2 Data to include schedules of tasks, frequency, tools required and task time.

.4 Performance data to include:
.1 Equipment manufacturer's performance datasheets with point of operation as left after commissioning is complete.
.2 Equipment performance verification test results.
.3 Special performance data as specified.

.5 Approvals:
.1 Submit 2 copies of draft Operation and Maintenance Manual to Departmental Representative for approval. Submission of individual data will not be accepted unless directed by Departmental Representative.
.2 Make changes as required and re-submit as directed by Departmental Representative.

.6 Additional data:
.1 Prepare and insert into operation and maintenance manual additional data when need for it becomes apparent during specified demonstrations and instructions.

.7 Site records:
.1 Departmental Representative will provide 1 set of reproducible fire protection drawings in electronic format (.pdf). Provide sets of white prints as required for each phase of work. Mark changes as work progresses and as changes occur.
.2 Transfer information weekly to reproducibles, revising reproducibles to show work as actually installed.
.3 Use different colour waterproof ink for each service.
.4 Make available for reference purposes and inspection.

.8 As-Built drawings:
.1 Identify each drawing in lower right hand corner in letters at least 12 mm high as follows: "AS BUILT DRAWINGS: THIS DRAWING HAS BEEN REVISED TO SHOW FIRE PROTECTION SYSTEMS AS INSTALLED" (Signature of Contractor) (Date).
.2 Submit to Departmental Representative for approval and make corrections as directed.
.3 Perform testing, adjusting and balancing using as-built drawings.
.4 Submit completed reproducible as-built drawings with Operating and Maintenance Manuals.

1.4 **Maintenance Material Submittals**

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide one set of special tools required to service equipment as recommended by manufacturers and in accordance with Section 01 78 00 - Closeout Submittals.

1.5 Delivery, Storage and Handling

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements with manufacturer's written instructions.

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

.3 Storage and Handling Requirements:
- .1 Store materials in dry location and in accordance with manufacturer's recommendations.
- .2 Store and protect each components from nicks, scratches, and blemishes.
- .3 Replace defective or damaged materials with new.

.4 Develop Construction Waste Management Plan related to Work of this Section.

1.6 General Requirements

.1 Fire protection contractor shall respect the plans issued by the Engineer and shall notify him of any material changes to the fire protection systems. Any changes to the engineer's plans resulting from the contractor must be approved by the Engineer prior to installation. These new proposals are to be coordinated with all stakeholders and other trades and shall be calculated and certified by an engineer member of NAPEG, at the expenses of the contractor.

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.2 The work includes, among others, without limitation, coordination, labor, delivery and installation of all materials and equipment required for fire protection work indicated on the plans and specifications including :
- .1 Supply and installation of a complete new sprinkler room.
- .2 The supply and installation of portable fire extinguishers in accordance with Section 21 13 14 - Fire Extinguishers. The positioning of portable fire extinguishers is shown on plans.
- .3 Supply and installation of Wet Pipe System in accordance with Section 21 13 13 – Wet Pipe Sprinkler Systems.
- .4 Supply and installation of the entire drainage system not shown in the plan, but necessary to drain the fire protection system.
- .5 Supply and installation of all required sleeves and openings. Coordination with structure is required for any opening in structural elements.
- .6 Coordination of fire sealing work with the general contractor.
- .7 Coordination of fire sealing with architecture in accordance with Section 07 80 00 – Fire and Smoke Protection.
- .8 All fire acoustics and air sealing required for all conduit penetrations through walls, floors and others shall be included.
- .9 Installation of piping in accordance with Section ***23 05 06*** ~~23 05 05~~ - Installation of piping.
- .10 Welding of piping in accordance with Section 23 05 17 – Pipe Welding.
- .11 Supply and installation of piping supports and suspensions in accordance with Section 23 05 29 - Hangers and Supports for HVAC Piping and Equipment.
- .12 Painting of piping.
- .13 Supply, installation and design of vibration isolation and seismic fasteners in accordance with NFPA standards ~~and Section 23 05 49.01 - Seismic Restraint System~~. Contractor shall produce plans and calculations of entire fire protection installation seismic systems and shall be sealed by an engineer member of NAPEG.

.14 Designation of the material attached to this section as described in Section 23 05 53~~.01~~ – Mechanical Identification.

.15 ~~The supply and installation of insulation on piping where indicated on the plan and in accordance with section 23 07 15 – Thermal Insulation for Piping.~~

.16 Supply and coordination with architecture for trap installations required for access and maintenance of the equipment that needs it.

.1 Installation of these traps is the responsibility of architecture.

.2 The plans do not necessarily show all the required access doors, exact location and size. The contractor must pay particular attention to this, because all the required access doors must be provided and installed and no additional compensation will be granted to it.

.17 Temporary facilities fire protection during construction.

.18 All other work not specifically described but required for the proper operation of all equipment at the end of this contract.

.19 Assistance to start-up and adjustments of the buildings fire alarm systems affected by this work.

.20 Supply operating and maintenance manuals.

.21 Execution of all tests required by NFPA including test reports.

.22 Obtaining all required permits.

.23 This list is not exhaustive and does not relieve the Contractor of its responsibility to provide a complete and functional installation.

2. PRODUCTS

2.1 **Materials**

.1 Refer to Fire Protection Sections.

3. EXECUTION

3.1 **Examination**

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Departmental Representative.

.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied [and after receipt of written approval to proceed from Departmental Representative.

3.2 **Painting Repairs and Restoration**

.1 Do painting in accordance with Section 09 91 00 - Painting.

.2 Prime and touch up marred finished paintwork to match original.

.3 Restore to new condition, finishes which have been damaged.

1

3.3 **Field Quality Control**

.1 Site Tests: conduct following tests ~~in accordance with Section 01 45 00 - Quality Control~~ and submit report as described in PART 1 - ACTION AND INFORMATIONAL SUBMITTALS.

.1 Flow and hydrostatic tests as required by NFPA 13.

.2 Manufacturer's Field Services:

.1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - ACTION AND INFORMATIONAL SUBMITTALS.

.2 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.

3.4 **Demonstration**

.1 Departmental Representative will use equipment and systems for test purposes prior to acceptance. Supply labour, material, and instruments required for testing.

.2 Supply tools, equipment and personnel to demonstrate and instruct operating and maintenance personnel in operating, controlling, adjusting, trouble-shooting and servicing of all systems and equipment during regular work hours, prior to acceptance.

.3 Use operation and maintenance manual, as-built drawings, and audio visual aids as part of instruction materials.

.4 Instruction duration time requirements as specified in appropriate sections.

.5 Departmental Representative will record these demonstrations on video tape for future reference.

3.5 **Commissioning requirements**

.1 For general commissioning requirements refer to Sections 01 91 13, 01 91 31, 01 91 33, 01 91 41, 01 91 51.

.2 Contractor must provide a Commissioning schedule to include verification of component(s) and system(s) specific to static and dynamic functional performance. Include also period for tests of integrated system(s).

.3 In addition, for start-up and operational verifications, refer to technical sections and manufacturers' specifications

.4 In addition, provide a supplementary 5 days support during testing of integrated systems.

.5 Coordinate with Contractor Commissioning Agent to determine schedule for test of integrated systems according with other disciplines.

3.6 **Cleaning**

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

3.7 **Protection**

.1 Protect equipment and systems openings from dirt, dust, and other foreign materials with materials appropriate to system.

End of Section

APPENDIX A
SUBMITTAL IDENTIFICATION SHEET

SUBMITTALS IDENTIFICATION SHEET

PROJECT: New Daycare, Iqaluit, Nunavut	DEPT. REP.: **PWGSC**
	Construction Manager:
	O/REF.: .: **R.082769.001** Package:
CONTRACTOR:	ARCHITECT: **EVOQ Architecture**
Project Manager:	
Telephone:	ENGINEER: **SNC-LAVALIN Inc.**
E-mail:	Project no: 648139
SUBCONTRACTOR:	DISCIPLINE:
Address:	
	PRODUCT SUBMITTED:
Person responsible:	☐ As Specified
Telephone: ( ) E-mail:	☐ Alternate
SUPPLIER or MANUFACTURER:	REVIEW AND COMMENTS (for use by Consultants):
Address:	
Person responsible:	
Telephone: ( ) E-mail:	
DESCRIPTION OF SUBMITTAL:	
# of pages:	
Reference to drawings:	
Reference to specs:	
Division: _____ Section: _____	
Article: _____ Page: _____	
Product abbreviation: _____	
REMARKS:	

SNC·LAVALIN

Verification of conformity

Nature and scope of the examination

Verification of conformity according to the specifications and drawings.

This verification is by no way a complete and detailed audit of the design.

- ☐ No correction noted
- ☐ Perform indicated corrections
- ☐ Correct and resubmit
- ☐ Refused

Signature ☐ Engineer ☐ Other Date

Name Member No.

The review of this paper is limited to the nature and scope indicated. The person or company who prepared it cannot be relieved of their obligations in any cases, of any nature whatsoever.

Review of this submission is for compliance with general intent of the contract. This review does not relieve the Sub-Contractor, Supplier or Manufacturer of responsibility for error or omissions in the submission or the responsibility of meeting all requirements of the contract documents. Any deviation from the contract documents initiated by the Sub-Contractor, Supplier or Manufacturer shall be at their sole risk. QUANTITIES AND DETAIL DIMENSIONS ARE THE SUB-CONTRACTORS OR SUPPLIERS RESPONSIBILITY. VERIFY DATA WITH FIELD DIMENSIONS.

SUBMITTAL TRACKING No.:	Date: Rev.:

1.1 REFERENCE STANDARDS

.1 National Fire Prevention Association (NFPA)
- .1 NFPA 13-2016, Standard for the Installation of Sprinkler Systems.

.2 CSA
- .1 B64.10-11/B64.10.1-11 (R2016) - Selection and installation of backflow preventers/ Maintenance and field testing of backflow preventers

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 All electronic submittals shall be in PDF format and shall be searchable using the “Find” command. Scans for hard copies which cannot be searched shall not be acceptable.

.2 Product Data:
- .1 Provide manufacturer's printed product literature and data sheets, and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Detailed Design Drawings:
- .1 Submit drawings stamped and signed by licenced professional engineer.
- .2 Indicate:
  - .1 Materials.
  - .2 Finishes.
  - .3 Method of anchorage
  - .4 Number of anchors.
  - .5 Supports.
  - .6 Reinforcement.
  - .7 Assembly details.
  - .8 Accessories.
- .3 Sprinkler and piping system layout.
  - .1 Prepare detail working drawings of system layout in accordance with NFPA 13, "Working Drawings (Plans)".
  - .2 Show data essential for proper installation of each system.
  - .3 Show details, plan view, elevations, and sections of systems supply and piping.
  - .4 Show piping schematic of systems supply, devices, valves, pipe, and fittings. Show point to point electrical wiring diagrams.

.4 Manufacturers' Instructions:
- .1 Provide manufacturer's installation instructions.

.5 Manufacturer's catalogue Data, including specific model, type, and size for:
- .1 Pipe and fittings.
- .2 Valves, including gate, check, and globe.
- .3 Backflow Preventer
- .4 Sprinklers.
- .5 Pipe hangers and supports.
- .6 Flow switch.

.7 Fire department connections.
.8 Mechanical couplings & fittings.

.6 Design Data:
.1 Hydraulic calculations for sprinkler system design.

1.3 CLOSEOUT SUBMITTALS

.1 Field Test Reports:
.1 Tests reports on piping system and operational testing of system components.

.2 Records:
.1 As-built drawings of each system.
.1 After completion, but before final acceptance, submit complete set of as-built drawings of each system for record purposes.
.2 Submit drawings with title block similar to full size contract drawings.

.3 Operation and Maintenance Manuals:
.1 Provide detailed hydraulic calculations and Material and Test Certificate for piping and other documentation for incorporation into manual in accordance with NFPA 13.
.2 Contractor's warranty letter shall be included in the Operation and Maintenance Manual.

.4 Contractor shall provide letter stating that they have installed and tested the sprinkler system as per all requirements of NFPA 13.

1.4 QUALITY ASSURANCE

.1 Qualifications:
.1 Installer: company or person specializing in wet 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.

1.5 MAINTENANCE MATERIAL SUBMITTALS

.1 Extra Materials:
.1 Provide spare sprinklers and tools in a cabinet in accordance with NFPA 13.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance 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 Storage and Protection:
- .1 Store materials in dry location indoors.
- .2 Store and protect materials from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer.

1.7 DESIGN REQUIREMENTS

.1 Design automatic wet pipe fire suppression sprinkler systems in accordance with required and advisory provisions of NFPA 13, by hydraulic calculations for uniform distribution of water over design area for light hazard occupancy in daycare areas and ordinary hazard occupancy group 1 in mechanical spaces.

.2 Include with each system materials, accessories, and equipment inside and outside building to provide each system complete and ready for use.

.3 Design and provide each system to give full consideration to blind spaces, piping, electrical equipment, ducts, and other construction and equipment in accordance with detailed shop drawings.

.4 Locate sprinklers in consistent pattern with ceiling, lights and diffusers.

.5 Devices and equipment for fire protection service: ULC approved for use in wet pipe sprinkler systems.

.6 Location of Sprinklers:
- .1 Locate sprinklers in relation to ceiling and spacing of sprinklers not to exceed 20.9 m^2 per sprinkler for light hazard occupancy and 12.1 m^2 per sprinkler for ordinary hazard occupancy.
- .2 Uniformly space sprinklers on branch.

.7 Water Distribution:
- .1 Make distribution uniform throughout the area in which sprinklers will open.
- .2 Discharge from individual sprinklers in hydraulically most remote area to be 100% of specified density.

.8 Density of Application of Water:
- .1 Size pipe to provide specified density when system is discharging specified total maximum required flow.
- .2 Application to horizontal surfaces below sprinklers shall be 4.1 L/min per m^2 for light hazard occupancy sprinklers and 6.1 L/min per m^2 for ordinary hazard group 1 occupancy sprinklers.

.9 Sprinkler Discharge Area:
- .1 Area: hydraulically most remote 139 m^2.

.10 Outside Hose Allowances:
- .1 Include allowance in hydraulic calculations of 379 L/min for light hazard occupancy and 947 L/min for ordinary hazard occupancy.

.11 Friction Losses:
.1 Calculate losses in piping in accordance with Hazen-Williams formula with 'C' value of 120 for steel piping, 150 for copper tubing and 140 for cement-lined ductile-iron piping.

.12 Water Supply:
.1 Available water supply to be determined on site prior to calculation of sprinkler systems.

2. PRODUCTS

2.1 **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 Perform welding in shop when possible; field welding will only be permitted on a case by case basis.

.3 Conceal piping in areas with suspended ceiling.

2.2 **PIPE, FITTINGS AND VALVES**

.1 Pipe:
.1 Ferrous: to NFPA 13.
.2 Piping which can be seen by users of the facility shall be stainless steel. Piping above ceilings or in mechanical spaces shall be galvanizes steel.

.2 Fittings and joints to NFPA 13:
.1 Ferrous: threaded, 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 All joints on visible piping which is not at the ceiling (i.e. risers in elevator shafts) shall be welded; keep such visible joints to a minimum.
.2 Provide 25 mm threaded outlets into which sprinklers are threaded.
.3 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.
.4 Rubber gasketted grooved-end pipe and fittings with mechanical couplings are permitted in pipe sizes 32 mm and larger.
.5 Fittings: ULC approved for use in wet pipe sprinkler systems.
.6 Ensure fittings, mechanical couplings, and rubber gaskets are supplied by same manufacturer.
.7 Sprinkler pipe and fittings: metal.

.3 Valves:
.1 UL listed for fire protection service.
.2 Gate valves: open by counterclockwise rotation.
.3 Check valves: flanged clear opening swing or spring actuated check type with flanged inspection and access cover plate for sizes 10 cm and larger.

.4 Valve for backflow preventer test header shall be listed to be monitored normally closed.

.4 Pipe hangers:
.1 ULC listed for fire protection services in accordance with NFPA.

2.3 SPRINKLERS

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

.2 Sprinkler Type:
.1 Type A: upright, chrome, quick response.
.2 Type B: pendent, chrome, quick response.
.3 Type C: concealed, quick response with chrome cover plate.

.3 Provide nominal 13 mm orifice sprinklers with an 80.1 K-Factor.
.1 Release element of each sprinkler to be of intermediate temperature rating or higher as suitable for specific application.
.2 Intermediate temperature sprinklers shall be installed in elevator shaft.

.4 Provide protective cages on sprinklers in elevator shaft and where shown on drawings.

2.4 SUPERVISORY SWITCHES

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

.2 Valves:
.1 Mechanically attached to valve body, with normally open and normally closed contacts and supervisory capability.

.3 Flow switch type:
.1 With normally open and normally closed contacts and supervisory capability.
.2 Provide switch with circuit opener or closer for automatic transmittal of alarm over facility fire alarm system.
.3 Connect into building fire alarm system.
.4 Alarm actuating device: mechanical diaphragm controlled retard device adjustable from 10 to 60 seconds and instantly recycle; set at 45 seconds.

2.5 FIRE DEPARTMENT CONNECTION

.1 Provide connections 900 mm above finish grade, location as indicated.

.2 Polished chrome plated, recessed of approved two-way type with 65 mm National Standard female hose threads with plug, chain and identifying fire department connection escutcheon plate.

.3 Thread specifications: compatible with local fire department.

.4 Install a 90-degree elbow with drain connection at the low-point of the fire department connection to allow for system drainage.

2.6 **PRESSURE GAUGES**

.1 90 mm minimum diameter, liquid filled. Maximum limit of not less than twice normal working pressure at point where installed.

2.7 **INSPECTOR'S TEST CONNECTION**

.1 Locate inspector's test connection 600 mm downstream of flow switch and provide test connections not more than 3 m above floor.

.2 Provide test connection piping to location where discharge will be readily visible and where water may be discharged without property damage.

.3 Provide discharge orifice of same size as corresponding sprinkler orifice.

2.8 **BACKFLOW PREVENTER (BFP-2)**

.1 Locate ULC listed double check valve backflow preventer at connection to water entry to the building.

.2 Backflow preventer shall be installed as required by CSA B44.10; all piping upstream of backflow preventer shall be suitable for potable water.

.3 Upstream and downstream valves of the backflow preventer shall be monitored normally open.

2.9 **SIGNS**

.1 Attach properly lettered and approved metal signs to each valve and alarm device to NFPA 13.

.2 Permanently fix hydraulic design data nameplates to riser of each system.

2.10 **SPARE PARTS CABINET**

.1 Provide metal cabinet with extra sprinkler and sprinkler wrench adjacent to riser. Number and types of extra sprinklers as specified in NFPA 13.

2.11 **ESCUTCHEON PLATES**

.1 Provide one piece type metal plates for piping passing through floors and walls in exposed spaces.

.2 Provide polished chromium-plated finish on copper alloy plates in finished spaces.

.3 Provide paint finish on metal plates in unfinished spaces.

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.

3.3 PIPE INSTALLATION

.1 Install piping straight and true to bear evenly on hangers and supports.

.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.

3.4 ELECTRICAL CONNECTIONS

.1 Coordinate with electrical / fire alarm contractor.

3.5 FIELD PAINTING

.1 All piping and components to be painted; refer to architectural specifications and drawings for painting requirements.

3.6 FIELD QUALITY CONTROL

.1 Site Test, Inspection:
- .1 Test, inspect, and approve piping before covering or concealing.
- .2 Preliminary Tests:
  - .1 Hydrostatically test each system at 13.8 bar for a 2 hour period with no leakage or reduction in pressure.
  - .2 Piping above suspended ceilings: tested, inspected, and approved before installation of ceilings.
  - .3 Test alarms and other devices.
  - .4 Test water flow alarms by flowing water through inspector's test connection. When tests have been completed and corrections made, submit signed and dated certificate in accordance with NFPA 13.
- .3 Formal Tests and Inspections:
  - .1 Do not submit request for formal test and inspection until preliminary test and corrections are completed and approved.

.2 Submit written request for formal inspection at least 15 days prior to inspection date.

.3 Repeat required tests as directed.

.4 Correct defects and make additional tests until systems comply with contract requirements.

.5 Authority of Jurisdiction will witness formal tests and approve systems before they are accepted.

.4 Furnish appliances, equipment, instruments, connecting devices, and personnel for all tests.

1

3.7 **CLEANING**

.1 Remove surplus materials, excess materials, rubbish, tools and equipment.

.2 Waste Management: separate waste materials for reuse and recycling in accordance with Section ***01 74 19 Waste Management and Disposal*** ~~01 74 21 Construction/Demolition Waste Management and Disposal.~~

END OF SECTION

1. GENERAL

1.1 **References**

.1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
.1 Material Safety Data Sheets (MSDS).

.2 National Fire Protection Association (NFPA)
.1 NFPA 10-2013, Standard for Portable Fire Extinguishers.

1.2 **Action and Informational Submittals**

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

.2 Product Data:
.1 Submit manufacturer's printed product literature and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
.2 Submit two copies WHMIS MSDS - Material Safety Data Sheets

.3 Provide shop drawings.

1 .4 Quality control submittals: ~~submit following in accordance with Section 01 45 00 - Quality Control.~~
.1 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence and cleaning procedures.

.5 Closeout Submittals:
.1 Provide operation and maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.3 **Delivery, Storage and Handling**

.1 Packing, shipping, handling and unloading:
.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

2. PRODUCTS

2.1 **Multi-Purpose Dry Chemical Extinguishers**

.1 Stored pressure rechargeable type with hose and shut-off nozzle, ULC labelled for Class A, B and C protection.
.1 Size 2.25 kg or as indicated.
.2 Minimum rating: 3A:40B:C.

2.2 **Kitchen Extinguishers (Class K)**

.1 Stored pressure rechargeable type ULC labelled for Class K protection.
.1 Size 6.0 litres or as indicated.

2.3 **Extinguisher Brackets**

.1 Type recommended and provided by extinguisher manufacturer.

2.4 **Cabinets**

.1 Semi-recessed type as indicated, constructed of 1.6 mm thick steel, 180 degrees opening door of 2.5 mm thick steel with latching device.

.2 Cabinet to maintain fire resistive rating of construction in which they occur.

.3 Cabinet door: with 5 mm full glass panel.

.4 Finish:
- .1 Tub: prime coated.
- .2 Door and frame: No.4 satin finish stainless steel.

2.5 **Identification**

.1 Identify extinguishers in accordance with recommendations of NFPA 10.

.2 Attach bilingual tag or label to extinguishers, indicating month and year of installation. Provide space for service dates.

3. EXECUTION

3.1 **Manufacturer's Instructions**

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

3.2 **Installation**

.1 Install or mount extinguishers in cabinets or on brackets as indicated in accordance with NFPA 10.

.2 All fire extinguishers shall be located in cabinets with the exception of the unit in the kitchen. Do not install cabinets in fire rated walls.

.3 Top of fire extinguishers shall be 1 200 mm above finish floor.

3.3 **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.

End of Section