

Part 1 General

1.01 REFERENCE STANDARDS

- .1 National Research Council Canada (NRC):
 - .1 National Building Code of Canada 2015 (NBC).
- .2 Treasury Board of Canada (TBS), Occupational Safety and Health (OSH):
 - .1 Fire Protection Standard-10.
- .3 Underwriter's Laboratories of Canada (ULC):
 - .1 CAN/ULC-S524-06, Standard for the Installation of Fire Alarm Systems.
 - .2 CAN/ULC-S537-04, Standard for the Verification of Fire Alarm Systems.

1.02 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 multiplex fire alarm 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 New Brunswick, Canada.
 - .2 Indicate on shop drawings:
 - .1 Detail assembly and internal wiring diagrams for control unit[s].
 - .2 Overall system riser wiring diagram identifying control equipment, signaling circuits and initiating zones; identifying terminations, terminal numbers, conductors and raceways.
 - .3 Details for devices.
 - .4 Details and performance specifications for control, annunciation and peripherals with item by item cross reference to specification for compliance.
 - .5 Step-by-step operating sequence, cross referenced to logic flow diagram.

1.03 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 alarm system for incorporation into manual.

- .3 Include:
 - .1 Instructions for complete fire alarm system to permit effective operation and maintenance.
 - .2 Technical data - illustrated parts lists with parts catalogue numbers.
 - .3 Copy of approved shop drawings with corrections completed and marks removed except review stamps.
 - .4 List of recommended spare parts for system.

1.04 MAINTENANCE MATERIAL SUBMITTALS

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

1.05 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section with manufacturer's written instructions 01 61 00 - Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials indoors off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect materials from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

Part 2 Products

2.01 DESCRIPTION

- .1 Existing system is Simplex 4100U.
- .2 System to carry out fire alarm and protection functions; including receiving alarm signals; initiating general alarm; supervising components and wiring; actuating annunciators and auxiliary functions; initiating trouble signals and signaling to monitoring agency.
- .3 Zoned, non-coded single stage.
- .4 Input Modules: to CAN/ULC-S524.
- .5 Regulatory Requirements:
 - .1 To TBS Fire Protection Standard.
 - .2 Subject to Fire Commissioner of Canada (FC) approval.
 - .3 Subject to FC inspection for final acceptance.
 - .4 To Canadian Forces Fire Marshal approval.

- .5 System components: listed by ULC and comply with applicable provisions of NBC and meet requirements of local authority having jurisdiction.

2.02 SYSTEM OPERATION: SINGLE STAGE - SIGNALS ONLY

- .1 Actuation of any alarm initiating device to:
 - .1 Cause electronic latch to lock-in alarm state at central control unit and data gathering panel/transponder.
 - .2 Indicate zone of alarm at central control unit and remote annunciator display.
 - .3 Cause audible signaling devices to sound continuously throughout building and at central control unit.
 - .4 Transmit signal to fire department via central station master fire alarm box.
- .2 Acknowledging alarm: indicated at central control unit.
- .3 Actuation of supervisory devices to:
 - .1 Cause electronic latch to lock-in supervisory state at central control unit and data gathering panel/transponder.
 - .2 Indicate respective supervisory zone at central control unit and at [remote annunciator display.
 - .3 Cause audible signal at central control unit to sound.
 - .4 Activate common supervisory sequence.
- .4 Resetting alarm supervisory device not to return system indications/functions back to normal until control unit has been reset.
- .5 Trouble on system to:
 - .1 Indicate circuit in trouble at central control unit.
 - .2 Activate "system trouble" indication, buzzer and common trouble sequence. Acknowledging trouble condition to silence audible indication; whereas visual indication to remain until trouble is cleared and system is back to normal.
- .6 Trouble on system: suppressed during course of alarm.
- .7 Trouble condition on any circuit in system not to initiate alarm conditions.

2.03 INITIATING/INPUT CIRCUITS

- .1 Receiving circuits for alarm initiating devices such as manual pull stations, smoke detectors, heat detectors and water flow switches, wired in DCLA configuration to central control unit.
- .2 Alarm receiving circuits (active and spare): compatible with smoke detectors and open contact devices.
- .3 Actuation of alarm initiating device: cause system to operate as specified in "System Operation".

- .4 Receiving circuits for supervisory, N/O devices. Devices: wired in DCLA configuration to central control unit.
- .5 Actuation of supervisory initiating device: cause system to operate as specified in "System Operation".

2.04 WIRING

- .1 Twisted copper conductors: rated 300V.
- .2 To initiating circuits: 18 AWG minimum, and in accordance with manufacturer's requirements.

2.05 GRAPHIC DISPLAY

- .1 Active and Passive type.
- .2 Contractor shall update all graphics within pump house and MCCP in Building B-5. Updates shall be completed by Fire Alarm Agency.
- .3 Contractor shall procure the services of the Building Automation Contractor to update facility alarm annunciation system (FAAS) located at MCCP in Building B-5.

Part 3 Execution

3.01 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for fire alarm 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.

3.02 INSTALLATION

- .1 Install systems in accordance with CAN/ULC-S524.
- .2 Connect alarm circuits to a control panel.
- .3 Sprinkler system: wire alarm and supervisory switches and connect to control panel.
- .4 Splices are not permitted.
- .5 Ensure that wiring is free of opens, shorts or grounds, before system testing and handing over.

3.03 FIELD QUALITY CONTROL

- .1 Perform tests in accordance with Section 26 05 00 - Common Work Results for Electrical and CAN/ULC-S537.
- .2 Fire alarm system:
 - .1 Test such device and alarm circuit to ensure manual stations and detectors transmit alarm to control panel and actuate general alarm.
 - .2 Check annunciator panels to ensure zones are shown correctly.
 - .3 Simulate grounds and breaks on alarm and signaling circuits to ensure proper operation of systems.
 - .4 Addressable circuits system style DCLA:
 - .1 Test each conductor on all DCLA addressable links for capability of providing 3 or more subsequent alarm signals on each side of single open-circuit fault condition imposed near midmost point of each link. Operate Acknowledge/Silence switch after reception of each of the 3 signals. Correct imposed fault after completion of each series of tests.
 - .2 Test each conductor on all DCLA addressable links for capability of providing 3 or more subsequent alarm signals during ground-fault condition imposed near midmost point of each link. Operate Acknowledge/Silence switch after reception of each of the 3 signals. Correct imposed fault after completion of each series of tests.
- .3 Provide final PROM program re-burn for system Departmental Representative incorporating program changes made during construction.

3.04 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.

3.05 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by fire alarm system installation.

3.06 CLOSEOUT ACTIVITIES

- .1 Provide on-site lectures and demonstration by fire alarm equipment manufacturer to train operational personnel in use and maintenance of fire alarm system.

END OF SECTION