

PART 1 - GENERAL

1.1 SUMMARY

- .1 Section Includes:
 - .1 Materials and installation for fire alarm systems.
 - .2 New devices to be connected to an existing control panel to carry out fire alarm and protection functions including receiving alarm signals, initiating general alarm, supervising system continuously, actuating zone annunciators, and initiating trouble signals.
 - .3 Audible signal devices.
- .2 Related Sections:
 - .1 Section 26 05 00 - Common Work Results.

1.2 REFERENCES

- .1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .2 National Fire Protection Agency
 - .1 NFPA (Fire) 20, Standard for the Installation of Stationary Pumps for Fire Protection, 2013 Edition.
- .3 Underwriter's Laboratories of Canada (ULC)
 - .1 CAN/ULC S524-14, Standard for the Installation of Fire Alarm Systems.
 - .2 CAN/ULC S525-07, Audible Signal Devices for Fire Alarm Systems, Including Accessories.
 - .3 CAN/ULC S527-11, Standard for Control Units for Fire Alarm Systems.

1.3 SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and datasheet in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS) in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Shop Drawings:
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Shop drawings: stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
 - .2 Include:
 - .1 Layout of equipment.
 - .2 Zoning.
 - .3 Complete wiring diagram, including schematics of modules.
 - .3 Quality assurance submittals: submit following in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
 - .2 Instructions: submit manufacturer's installation instructions.
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- .3 Manufacturer's Field Reports: manufacturer's field reports specified.
- .4 Closeout Submittals:
 - .1 Submit maintenance and engineering data for incorporation into manual specified in Section 01 78 00 - Close Out Submittals in accordance with NFPA (Fire) 20.
 - .2 Authority of Jurisdiction will delegate authority for review and approval of submittals required by this Section.
 - .3 Submit to Authority of Jurisdiction 2 sets of approved submittals and drawings immediately after approval but no later than 15 working days to prior to final inspection.
 - .4 Submit following:
 - .1 Manufacturer's Data for:
 - .1 Alarm speakers.
 - .2 Wiring.
 - .2 System wiring diagrams:
 - .1 Submit wiring diagrams of system showing points of connection and terminals used for electrical connections in the system.
 - .3 Design data: Power Calculations:
 - .1 Submit design calculations for existing system and new work specified to substantiate that battery capacity exceeds supervisory and alarm power requirements.

1.4 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Installer: company or person specializing in fire alarm system installations approved by manufacturer.
- .2 Provide services of representative or technician from manufacturer of system, experienced in installation and operation of type of system being provided, to supervise installation, adjustment, preliminary testing, and final testing of system and to provide instruction to project personnel.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Equipment and devices: ULC listed and labelled and supplied by single manufacturer.
- .2 Audible signal devices: to CAN/ULC S525.

2.2 EXISTING SYSTEM OPERATION

- .1 Two stage operation. Operation to actuation following:
 - .1 Manual station.
 - .2 Heat detector.
 - .3 Smoke detector.
 - .4 Automatic fire sprinkler system.
 - .5 Fire extinguishing system.
 - .6 Fire standpipe system.
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- .2 Actuation of two operation device to initiate following:
 - .1 Building evacuation alarm devices to operate continuously.
 - .2 Transmit signal to fire department via monitoring station.
 - .3 Zone of alarm device to be indicated on control panel and remote annunciators.
 - .4 Ventilating fans to shut down or to function so as to provide required control of smoke movement.
 - .5 Fire doors and smoke control doors if normally held open, to close automatically.
 - .6 Electro-magnetic door holders to de-energize.
 - .7 Operations to remain in alarm mode (except alarm notification appliances if manually silenced) until system is manually restored to normal.

2.3 CONTROL PANEL

- .1 Existing fire alarm in R.H. Coats Building is a Siemens model MXLV system.
 - .1 Hire the services of Siemens to do the work of this section.

2.4 AUDIBLE SIGNAL DEVICES

- .1 Audible device(s):
 - .1 Speakers: 24 V dc, 200 mm, white.
- .2 Do not exceed 80 percent of listed rating in amperes of notification appliance circuit. Provide additional circuits above those shown if required to meet this requirement.
- .3 For surface mounting provide appliance manufacturer's approved back box. Back box finish to match appliance finish.

2.5 CONDUIT

- .1 Electrical Metallic Tubing (EMT):.

2.6 WIRING

- .1 Wire for 120 V circuits: No. 12 AWG minimum solid copper conductor.
 - .2 Wire for low voltage DC circuits: No. 14 AWG minimum solid copper conductor
 - .3 Insulation 75 degrees C minimum with nylon jacket.
 - .4 Colour code wiring.
 - .5 Type FAS.
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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 systems in accordance with CAN/ULC S524 and TB OSH Chapter 3-04.
- .2 Install new modules as required to existing main control panel.
- .3 Connect alarm circuits to main control panel.
- .4 Locate and install signal and connect to signalling circuits.
- .5 Connect signalling circuits to main control panel.

3.3 FIELD QUALITY CONTROL

- .1 Site Tests:
 - .1 Perform tests in accordance with Section 26 05 00 - Common Work Results - for Electrical and CAN/ULC S537.
 - .2 Fire alarm system:
 - .1 Check annunciator panels to ensure zones are shown correctly.
 - .2 Simulate grounds and breaks on alarm and signalling circuits to ensure proper operation of system.
 - .3 Class A circuits.
 - .1 Test each conductor on circuits for capability of providing alarm signal on each side of single open-circuit fault condition imposed near midmost point of circuit. Reset control unit after each alarm function and correct imposed fault after completion of each test.
 - .2 Test each conductor on circuits for capability of providing alarm signal during ground-fault condition imposed near midmost point of circuit. Reset control unit after each alarm function and correct imposed fault after completion of each test.
 - .4 Class B circuits.
 - .1 Test each conductor on circuits for capability of providing alarm signal on line side of single open-circuit fault condition imposed at electrically most remote device on circuit. Reset control unit after each alarm function and correct imposed fault after completion of each test.
 - .2 Test each conductor on circuits for capability of providing alarm signal during ground-fault condition imposed at electrically most remote device on circuit. Reset control unit after each alarm function and correct imposed fault after completion of each test.
 - .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 - 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.
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- .3 Schedule site visits, to review Work, as directed in PART 1 - QUALITY ASSURANCE.
- .4 The fire alarm service contractor for the R.H. Coats building is Siemens.
- .5 Verification shall be performed by at least one representative of the system supplier and the installing contractor.

3.4 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.