

PART 1 - GENERAL1.1 REFERENCES

- .1 Government of Canada
 - .1 TB OSH Chapter 3-03, 1997-01-28, Treasury Board of Canada, Occupational Safety and Health, Chapter 3-03, Standard for Fire protection Electronic Data Processing Equipment.
 - .2 TB OSH Chapter 3-04, 1994-12-22, Treasury Board of Canada, Occupational Safety and Health, Chapter 3-04, Standard for Fire Alarm Systems.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .3 Underwriter's Laboratories of Canada (ULC)
 - .1 CAN/ULC-S524-2001, Standard for the Installation of Fire Alarm Systems.
 - .2 CAN/ULC-S525-1999, Audible Signal Device for Fire Alarm Systems.
 - .3 CAN/ULC-S536-S537-2004, Burglar and Fire Alarm Systems and Components.
- .4 National Fire Protection Agency
 - .1 NFPA 72-2002, National Fire Alarm Code.
 - .2 NFPA 90A-2002, Installation of Air Conditioning and Ventilating Systems.
- .5 FMD 4007

1.2 ACTION AND INFORMATIONAL 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.
- .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.
- .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 - Closeout Submittals.
 - .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 Mark data which describe more than one type of item to indicate which type will be provided.
 - .3 Submit original for each item and clear, legible, first-generation photocopies for remainder of specified copies.
 - .2 Test Reports:
 - .1 Preliminary testing:
 - .1 Final acceptance testing.
 - .2 Submit for inspections and tests specified under Field Quality Control.

1.3 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.
- .3 System:
 - .1 To TB OSH Chapter 3-04.
 - .2 Subject to Canadian Forces Fire Marshal (CFFM) approval.

.3 Subject to CFFM inspection for final acceptance.

- .4 Extra Materials:
.1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

1.4 DELIVERY, STORAGE, AND HANDLING

- .1 Packing, shipping, handling and unloading:
.1 Deliver, store and handle in accordance with Section 01 61 00 - Common Product Requirements.
.2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Waste Management and Disposal:
.1 Construction/Demolition Waste Management and Disposal: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

PART 2 - PRODUCTS

2.1 SUSTAINABLE REQUIREMENTS

- .1 Materials and products in accordance with Section 01 00 10 - General Instructions.

2.2 MATERIALS

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

2.3 CONTROL PANEL

- .1 Reuse existing Edwards control panel. Coordinate with Fire Alarm Upgrade project which is being implemented under a separate project.

2.4 AUTOMATIC ALARM INITIATING DEVICES

- .1 Open-Area Smoke Detectors: reuse existing.

2.5 AUDIBLE SIGNAL DEVICES

- .1 Audible device(s):
 - .1 Speakers: flush or surface mounted, type to match existing.
- .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.

2.6 END-OF-LINE DEVICES

- .1 End-of-line devices to control supervisory current in alarm circuits and signalling circuits, sized to ensure correct supervisory current for each circuit. Open, short or ground fault in any circuit will alter supervisory current in that circuit, producing audible and visible alarm at main control panel and remotely as indicated.

2.7 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 Wire for connection to base telegraphic alarm loop: No. 10 AWG minimum solid copper conductor.
- .4 Insulation 90 degrees C minimum with nylon jacket, type FAS90.
- .5 Colour code wiring.

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 Connect alarm circuits to main control panel.
- .3 Locate and install audible signal devices and connect to signalling circuits.
- .4 Connect signalling circuits to main control panel.
- .5 Install end-of-line devices at end of alarm and signalling circuits.

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 Test each device and alarm circuit to ensure manual stations, thermal and smoke detectors transmit alarm to control panel and actuate general alarm and ancillary devices.
 - .2 Check annunciator panels to ensure zones are shown correctly.
 - .3 Simulate grounds and breaks on alarm and signalling circuits to ensure proper operation of system.
 - .4 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.
 - .5 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.

.3 Schedule site visits, to review Work, as directed in PART 1 - QUALITY ASSURANCE.

.3 Verification requirements in accordance with Section 01 00 10 - General Instructions, include:

.1 Materials and resources.

.2 Storage and collection of recyclables.

.3 Construction waste management.

.4 Resource reuse.

.5 Recycled content.

.6 Local/regional materials.

.7 Low-emitting materials.

3.4 CLEANING

.1 Proceed in accordance with Section 01 00 10 - General Instructions.

.2 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION