

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 Section 26 05 00 – Common Work Results for Electrical.

1.2 REFERENCES

- .1 Treasury Board of Canada Secretariat (TBS), Occupational Safety and Health (OSH)
 - .1 Fire Protection Standard-10.
- .2 Underwriter's Laboratories of Canada (ULC)
 - .1 CAN/ULC-S524-06, 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-S526-07, Visible Signal Devices for Fire Alarm Systems, Including Accessories.
 - .4 CAN/ULC-S527-99, Standard for Control Units for Fire Alarm Systems.
 - .5 CAN/ULC-S528-05, Manual Stations for Fire Alarm Systems, Including Accessories.
 - .6 CAN/ULC-S529-09, Smoke Detectors for Fire Alarm Systems.
 - .7 CAN/ULC-S530-91(R1999), Heat Actuated Fire Detectors for Fire Alarm Systems.
 - .8 CAN/ULC-S531-02, Standard for Smoke Alarms.
 - .9 CAN/ULC-S537-04, Standard for the Verification of Fire Alarm Systems.

1.3 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.

1.4 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.

1.5 MAINTENANCE MATERIAL SUBMITTALS

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

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 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 off ground, indoors 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.
- .4 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, packaging materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products**2.1 DESCRIPTION**

- .1 Existing fully supervised addressable two stage system: Edwards Technology System (GE EST 3).

2.2 WIRING

- .1 Twisted copper conductors: rated 300 V.
- .2 To initiating circuits: 18 AWG minimum, and in accordance with manufacturer's requirements.
- .3 To signal circuits: 16 AWG minimum, and in accordance with manufacturer's requirements.
- .4 To speaker circuits: twisted, shielded pairs, and in accordance with manufacturer's requirements.
- .5 To control circuits: 14 AWG minimum, and in accordance with manufacturer's requirements.

2.3 AUXILIARY CIRCUITS

- .1 Auxiliary contacts for control functions.
- .2 Actual status indication (positive feedback) from controlled device.
- .3 Alarm supervisory on system to cause operation of programmed auxiliary output circuits.
- .4 2 sets of separate contacts for elevator capture to main floor of egress and to alternate floor of egress.
- .5 Upon resetting system, auxiliary contacts to return to normal or to operate as pre-programmed.

- .6 Auxiliary circuits: rated at 2 A, 24 Vdc or 120 Vac, fuse-protected.

2.4 AUDIBLE/VISUAL SIGNAL DEVICES

- .1 Combined (surface mounting):
 - .1 Mini-horns: 90 db, red colour, 24 V dc.
 - .2 Strobe type: flashing, white, 24 V dc.
 - .3 Designed for surface mounting on ceiling or walls.

2.5 END-OF-LINE DEVICES

- .1 End-of-line devices to control supervisory current in alarm 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.

Part 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 INSTALLATION

- .1 Install systems in accordance with CAN/ULC-S524.
- .2 Locate and install detectors and connect to alarm circuit wiring. Mount detectors more than 1 m from air outlets. Maintain at least 600 mm radius clear space on ceiling, below and around detectors.
- .3 Connect alarm circuits to main control panel.
- .4 Install horns and visual signal devices and connect to signalling circuits.
- .5 Install end-of-line devices at end of alarm and signalling circuits.
- .6 Splices are not permitted.
- .7 Provide necessary raceways, cable and wiring to make interconnections to terminal boxes, as required by equipment manufacturer.
- .8 Ensure that wiring is free of opens, shorts or grounds, before system testing and handing over.
- .9 Identify circuits and other related wiring at central control unit, annunciators, and terminal boxes.

3.3 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, thermal and smoke detectors, sprinkler system transmit alarm to control panel and actuate first stage alarm.
 - .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 systems.

3.4 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 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.5 PROTECTION

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

END OF SECTION