

PART 1 – GENERAL

1.1 RELATED WORK

- .1 Section 26 05 00 – Common Work Results for Electrical.
- .2 Section 26 05 21 – Wires and Cables (0-1000 V).
- .3 Section 26 05 34 – Conduits, Conduit Fastenings and Conduit Fittings.

1.2 REFERENCE STANDARDS

- .1 Canadian Standards Association (CSA International)
 - .1 C22.1-18, Canadian Electrical Code, Part I (24th Edition), Safety Standard for Electrical Installations.
 - .2 C22.2 No. 208-14, Fire Alarm and Signal Cable.
- .2 National Research Council of Canada
 - .1 National Building Code of Canada (NBCC) 2010.
 - .2 National Fire Code of Canada (NFCC) 2010.
- .3 National Fire Protection Association (NFPA)
 - .1 NFPA 101 Life Safety Code, 2015 Edition.
- .4 Treasury Board of Canada Secretariat (TBS), Occupational Safety and Health (OSH)
 - .1 Fire Protection Standard-10.
- .5 Underwriter's Laboratories of Canada (ULC)
 - .1 CAN/ULC-S536-13, Standard for Inspection and Testing of Fire Alarm Systems.
 - .2 CAN/ULC-S537-13, Standard for Verification of Fire Alarm Systems.

1.3 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Division 01 – General Requirements.
- .2 Operation and Maintenance Data: submit operation and maintenance data for fire alarm system for incorporation into manual.
- .3 Include:
 - .1 Fire detection and alarm system inspection report.
 - .2 Fire detection and alarm system certificate of verification.
 - .3 Fire detection and alarm system warranty guarantee.

1.4 QUALITY ASSURANCE

- .1 Inspection tests to conform to: CAN/ULC-S536.
- .2 Submit inspection report to Departmental Representative.

PART 2 – PRODUCTS

2.1 DESCRIPTION

- .1 The building renovation will require the relocation of alarm devices and detecting initiating devices in the renovated area.
- .2 The existing system is an Edwards FireShield Plus which is a fully supervised, microprocessor-based, fire alarm system, utilizing digital techniques for data control and digital, and multiplexing techniques for data transmission.
- .3 The system carries 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.
- .4 Zoned, non-coded, single stage.
- .5 System includes:
 - .1 Central Control Unit in separate enclosure with power supply, stand-by batteries, central processor with microprocessor and logic interface, main system memory, input-output interfaces for alarm receiving, annunciation/display, and program control/signaling with necessary switches and controls.
 - .2 Power supplies.
 - .3 Addressable interface modules.
 - .4 Initiating/input circuits.
 - .5 Output circuits.
 - .6 Auxiliary circuits.
 - .7 Wiring.
 - .8 Manual and automatic initiating devices.
 - .9 Audible and visual signaling devices.
 - .10 End-of-line resistors.
 - .11 Local annunciator display.

2.2 WIRING

- .1 Wire type and number of conductors as recommended by fire alarm equipment manufacturer and in accordance with Section 26 05 21 – Wires and Cables (0-1000 V).
- .2 Copper conductors: rated 300 V minimum.
- .3 To initiating circuits: twisted, shielded or unshielded as required plus bonding conductor, 18 AWG minimum, and in accordance with manufacturer's requirements.
- .4 To signal circuits: 14 AWG minimum, and in accordance with manufacturer's requirements for voltage drop.
- .5 To control circuits: 14 AWG minimum, and in accordance with manufacturer's requirements.

PART 3 – EXECUTION

3.1 FIRE ALARM SYSTEM IMPAIRMENT

- .1 When a fire alarm system or part thereof becomes impaired as a result of construction activities, the system owner and the departmental representative shall be notified. Impairments to systems shall include out-of-service events. The service provider shall report to the authority having jurisdiction any fire alarm system that is out of service more than 8 hours. The system owner and the departmental representative shall be notified when an impairment period is completed or discontinued.
- .2 Mitigating measures and procedures acceptable to the authority having jurisdiction and in accordance with NFPA 72 & NFPA 101, shall be implemented for the period that the system is impaired. Contractor to implement and comply with all measures and procedures and when necessary provide a continuous, dedicated, approved fire watch. All associated costs to be included in the total tender price. Details of the fire watch must be acceptable to the authority having jurisdiction prior to the shutdown of the fire alarm system.

3.2 INSTALLATION

- .1 Install systems to CAN/ULC-S524.
- .2 For signal, alarm and ancillary devices, wire in EMT conduit with wire counts to be approved by fire alarm equipment manufacturer prior to installation. Install alarm and signal circuits in separate conduits. Surface mounted devices to be installed on matching outlet boxes recommended by manufacturer.
- .3 Verify condition of existing batteries and replace if necessary.
- .4 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.
- .5 Locate and install signal, horn/strobe device and connect to signalling circuits.
- .6 Splices are not permitted.
- .7 Provide necessary raceways, cable and wiring to make interconnections to terminal boxes, annunciator equipment and CCU, 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.

- .10 Coordinate with the departmental representative and manufacturer for the naming of all loop device locations. Provide a list to the departmental representative indicating all proposed naming prior to programming. Make changes as directed by the departmental representative at no extra charge. Arrange with manufacturer to have location names listed on charts with loop numbers and device addresses. During installation of devices, peel the serial number label from the device and stick to the location message chart beside the location name.
- .11 Include system configuration and programming to meet the needs of the building design as required. Include programming of detection devices, relays, signal devices and custom configuration. Coordinate with departmental representative for device location and description of designations.

3.3 FIELD QUALITY CONTROL

- .1 Perform tests in accordance with Section 26 05 00 - Common Work Results for Electrical and to CAN/ULC-S537.
- .2 Fire alarm system:
 - .1 Test device and alarm circuit to ensure manual stations, thermal and smoke detectors transmit alarm to control panel and actuate general alarm and ancillary devices. Check annunciator panels to ensure zones are shown correctly.
 - .2 Simulate grounds and breaks on alarm and signaling circuits to ensure proper operation of system.

3.4 CERTIFICATES & REPORTS

- .1 On completion of the project, the manufacturer's authorized agent to issue to the Departmental Representative:
 - .1 A copy of inspecting technician's report showing location of each device and certifying the test results of each device.
 - .2 A certificate of verification confirming that the inspection has been completed in accordance with CAN/ULC-S537 and showing the conditions upon which such inspection and certification have been rendered.
 - .3 A final test and acceptance of the system shall be witnessed by representatives of three parties: the departmental representative, the Contractor and the Manufacturer.

3.5 WARRANTY

- .1 Provide a written guarantee, signed and issued in the name of the Owner, stating that the fire alarm system additions are guaranteed against defects in material, workmanship and performance for a period of one (1) year from the date of the Final Certificate of Completion.

3.6 CLEANING

- .1 Progress Cleaning: clean in accordance with Division 01 – General Requirements.
 - .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 Division 01 – General Requirements.
- .2 Waste Management: separate waste materials for reuse and recycling in accordance with Division 01 – General Requirements.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.7 MAINTENANCE

- .1 Provide one year's free maintenance with one inspection by manufacturer at end of warranty period.

END OF SECTION