

PART 1 - GENERAL

1.1 RELATED SECTIONS

- .1 Section 26 05 00 - Common Work Results - Electrical.
- .2 Section 26 05 21 - Wires and Cables (0-1,000 V).

1.2 REFERENCES

- .1 Underwriter's Laboratories of Canada (ULC).
 - .1 CAN/ULC-S524-06, Installation of Fire Alarm Systems.
 - .2 ULC-S525, Audible Signal Devices for Fire Alarm Systems, including Accessories.
 - .3 CAN/ULC-S526, Visual Signal Devices for Fire Alarm Systems, including Accessories.
 - .4 Standard for Control Units for Fire Alarm Systems.
 - .5 CAN/ULC-S528, Manual Stations for Alarm Systems, including Accessories.
 - .6 CAN/ULC-S529, Smoke Detectors for Fire Alarm Systems.
 - .7 CAN/ULC-S530, Heat Detectors.
 - .8 CAN/ULC-S531, Smoke Alarms.
 - .9 CAN/ULC-S536-S537-04, Burglar and Fire Alarm Systems and Components
 - .2 National Fire Protection Agency.
 - .1 NFPA 90A, Installation of Air Conditioning and Ventilating Systems.
 - .3 Gouvernement of Québec.
 - .1 Code de construction du Québec - Chapitre I, Bâtiment et Code national du bâtiment - Canada 2005 (modifié).
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1.3 DESCRIPTION OF SYSTEM

- .1 Existing system, is such as Siemens MXL (two steps).

1.4 SHOP DRAWINGS

- .1 Submit the following shop drawings.
- .2 Shop drawings shall include:
 - .1 The system hardware;
 - .2 Zoning;
 - .3 A complete wiring diagram including module diagrams.

1.5 SCOPE OF WORK

- .1 Work to be done during the weekend in the presence of a technician SimplexGrinnell Office:
 - .1 Relocate elements relating to the fire alarm, as shown on the plans.
 - .2 Addition of new Fire alarm components according to plans.

1.6 CONTINUITY OF EXISTING SYSTEM

- .1 The existing network will remain operational throughout the construction period. At the end of each shift, all existing devices must be fully functional without any indication of trouble.
- .2 Should some detection points or signalization would not operate outside of the construction hours, the Contractor shall provide, at its expense, the additional security service in the areas affected by these deficiencies.
- .3 It will not be permitted at any time to remove the signalization on more than one floor at a time or area at a time or neutralize more than one addressable loop at a time.
- .4 During the hours of office occupation, the Contractor shall take measures to avoid triggering an alarm. Audible and visual signaling circuits shall remain operational at all times and ready to be switched on if required by the fire alarm system.

1.7 OPERATING AND MAINTENANCE MANUAL

- .1 Provide operation and maintenance manuals.
 - .2 Operation and maintenance manuals will be provided in French / English.
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1.8 TRAINING

- .1 Within a month before or after the acceptance of the work after the complete installation of all components of the system, the manufacturer shall ensure adequate training of staff responsible for operation.
- .2 This training shall be both theoretical and practical with alerts and handling simulations of equipments by the responsible personnel designated by the Owner, under supervision of a qualified instructor.
- .3 During this course, responsible staff shall have the necessary documentation in French / English.

PART 2 - PRODUCTS

2.1 SMOKE DETECTOR

- .1 The detector shall be designed to detect smoke and combustion products, be addressable multi-sensor (photoelectric and ionization).

2.2 ADDRESSABLE PULL STATIONS

- .1 Pull stations installed on a addressable trigger circuit. The manual station shall be monitored by the control panel to the specified address, to check its operation. When actuated, the addressable manual station shall report its precise location (up to 40 characters).
- .2 The pull station shall be of two (2) steps, and shall consist of a molded housing with a lever "pull under fire." Activation mode must be written in French and English and embossed white on a red background.
- .3 The pull station shall be designed to be installed on a single device box.

2.3 INTERFACE MODULE ADDRESSABLE

- .1 A addressable interface module shall be used to interface between normally open short circuiting devices and an addressable trigger circuit, mounting on a double device box.
 - .2 Wiring monitoring the between an interface module and device contacts shall be ensured by an end of line resistor.
 - .3 The interface module when shown on the plans must include a relay 2 A at 24 VDC for control purposes. The relay shall be controlled from the control panel and used as function exit at the address of the interface module.
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- .4 It shall be possible to program the address automatically by the panel and the type of report addressable module. The interface module must be able to provide a precise location message (set by the user of thirty-two (32) characters for identification purposes).
- .5 The interface module shall be mounted in a deep double device box and shall be approved by Underwriters' Laboratories of Canada ULC.
- .6 The interface module shall be similar to the module from the operation standpoint and the interface to include two detection or trouble points or with short-circuiting devices contact.

2.4 VENTILATION DUCT DETECTOR

- .1 Ventilation duct detector shall be designed to detect products of combustion and smoke in the ducts of air conditioning and ventilation systems. The assembly shall consist of a housing and sample tubes occupying the entire width of the ventilation duct. As long as the fans are operating a continuous cross-section of the air flow sample will pass through the photoelectric detector, after which the sampled air is returned into the duct.
- .2 It shall be possible to measure and adjust the detector sensitivity from the control panel in actual air circulation conditions.
- .3 The detector shall report its status to the panel when it needs to be cleaned.
- .4 For duct sensors, the Contractor shall provide and install addressable relays dedicated to duct smoke detectors that shall be installed close to the ventilation systems starters.

2.5 END OF LINE RESISTORS

- .1 End of line resistors shall be used to adapt the signaling circuits control current; the values of the resistors shall be chosen according to the desired ampacity for each circuit control current. An open circuit, short circuit or ground fault in any circuit will produce a change in the signaling circuit current, which will trigger audible and visual alarms on the main control panel and on any other control panel installed remotely.

2.6 WIRING AND PIPING

- .1 See specification section 26 05 21.
 - .2 Each wire will be clearly identified. The identification will be embedded in the insulation and will be by uniform color, by numbered color or other approved method.
 - .3 These conductors shall be in electrical metallic tubing (EMT). The conduit diameter will be determined with the Electrical Code.
 - .4 The Contractor shall make special efforts to do well the grounding of all metallic elements.
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- .5 Addressable detection devices shall be connected via a cable with copper conductors No. 16. The use of FAS-105 is required for any additional wiring.
- .6 Signaling devices will be connected via a cable with copper conductors No. 14 and characteristics as defined in Section 26 05 21 - Wire and cable (0-1,000 V).

PART 3 - EXECUTION

3.1 INSTALLATION

- .1 Perform the installation in accordance with ULC-S524 and the Quebec Construction Code, Chapter V - Electricity. The entire installation must be in ducts.
- .2 Install in designated areas, and as indicated, pull stations, fire detectors for ductwork, fire detectors and connect the addressable loop connected to the fire alarm panel.
- .3 Install the designated locations, and as indicated, addressable modules and connect alarm and sprinkler supervisory signals.
- .4 Install the designated locations, and according to indications, audible signal devices and connect them to signal circuits.
- .5 All fire alarm junction boxes shall be painted red.
- .6 Mounting height of equipment must comply with the requirements of CAN / ULC S524-06.
- .7 Provide, install and connect all components to meet the demands and requirements of this section.
- .8 Seek Safety Sisco inc. (Phone: 819.569.0171) for programming, testing and certification relating to the modification of the fire alarm system.

3.2 TESTS

- .1 Perform tests in accordance with the general requirements and CAN 4-S537 standard for all devices and equipment.
 - .2 Test all devices new and existing alarm circuits affected by the works.
 - .3 Simulate a fault condition by a ground leakage or rupture, on alarm and signaling circuits to ensure proper operation of the fault signals.
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- .4 Measure the sound levels way voice communication system on all floors affected by the works following the changes, indicating the levels measured in alarm and ambient noise levels. Provide a report readings Departmental Representative. The Contractor shall provide the measures already mentioned before provisional acceptance stage.
- .5 The tests will be conducted by a representative of the Fire Department (HRSDC) after receipt of the report of testing of the fire alarm system (CAN / ULC S537-04).

3.3 VERIFICATION AND CERTIFICATION

- .1 The manufacturer shall perform a verification of the alarm system.
 - .2 All connections of all equipments (pull stations, fire detectors, etc.) are verified to ensure that:
 - .1 That the system is installed according to plans and specifications from the Engineer.
 - .2 That the system is installed according to the manufacturer's recommendations.
 - .3 That the system is installed according to the requirements of "Underwriters Laboratories of Canada."
 - .4 That regulations concerning the current monitoring are met; each wire connected to different devices (manual station, thermal, combustion products, etc.) is verified by disconnecting devices to ensure the monitoring continuity.
 - .5 That devices are checked from an operation standpoint; each manual station, thermal sensor, combustion products detector, combustion products of sampling shall be operationally tested.
 - .3 The manufacturer shall provide a detailed report from a printer connected to the control panel listing:
 - .1 The identification number and type of any device connected to the system:
 - .1 The voltage value of addressable devices.
 - .2 The analog value.
 - .3 The calibration value.
 - .4 Identification value.
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- .4 The proper functioning certificate shall be provided before each phase delivered to the Customer. When this inspection is completed, the manufacturer must send the Departmental Representative a certificate stating that the work was performed according to these guidelines. Include in the submission all costs necessary for the inspection.
- .5 In addition, at the end of the works, the manufacturer shall submit to the Consultant a full list showing the exact location (room number) of all equipment on the project, and the various changes or amendments that may have been made at this inspection.
- .6 During the period of the audit conducted by the manufacturer, the Contractor shall make available to the manufacturer, an electrician and an apprentice.
- .7 The manufacturer shall include in his tender the number of hours required to complete the audit.
- .8 Forsee the verification of at least 30% of the results of the report, with assistance from the manufacturer and the Contractor, together with the site supervisor and commissioning manager. Notify, in writing, at least 48 hours in advance for this verification.
- .9 The system shall be verified in accordance with the applicable standard ULC S537-04.

3.4 DOCUMENTS

- .1 Issue the warranty certificate, maintenance manuals and installation diagrams for each phase delivered to Customer.

END OF SECTION
