Part 1 General

1.1 RELATED SECTIONS

.1 Section 26 05 00 - Common Work Results For Electrical

1.2 REFERENCE STANDARDS

.1 National Building Code (NBC) - 2015

.2 Underwriter's Laboratories of Canada (ULC)

.3 CAN/ULC-S524-2014 AM1, Installation of Fire Alarm Systems.

.4 CAN/ULC-S527-2011, Standard for Control Units for Fire Alarm Systems.

.5 CAN/ULC-S536-2013, Inspection and Testing of Fire Alarm Systems.

.6 CAN/ULC-S537-2013, Verification of Fire Alarm Systems.

.7 CAN/ULC-S559-2013, Equipment for Fire Signal Receiving Centres and Systems.

.8 CAN/ULC-S561-2013, Installation and Services for Fire Signal Receiving Centres and Systems, Includes Amendment 1 (September 2006).

1.3 REQUIREMENTS OF REGULATORY AGENCIES

.1 Modifications to system:

.2 To National Building Code.

.3 Subject to Authority Having Jurisdiction approval.

.4 Subject to Authority Having Jurisdiction acceptance.

.5 System components: listed by ULC and comply with applicable provisions of National Building Code, and meet requirements of local Authority Having Jurisdiction.

1.4 SYSTEM DESCRIPTION

.1 There is an existing fire alarm system Simplex 4100ES, addressable presently installed in the building and is to remain operational during this scope of work. All materials must be selected to ensure compatibility with existing system.

.2 This contract is to carry the proprietary services of the manufacture to provide for all fire alarm connections as outlined in this Specification and Drawings and tie the new and or relocated points into the existing loop serving floor area to meet the system requirements. Fire alarm agency to include for all related programming, final Verification Report and all other associated work and devices to allow for a complete operation system in accordance with ULC.

.3 Work to include for all related fire alarm wiring and conduit associated with the installation to fire alarm manufacturer’s recommendations.

.4 Remove any fire alarm wiring, devices and the like which become redundant upon removal.

.5 Contractor to ensure existing system has required capacity.

1.5 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section 26 05 00 Common Work Results – Electrical.

.2 Include:

.3 Detail assembly and internal wiring diagrams.

.4 Overall system riser wiring diagram identifying control equipment initiating zones, device addresses signaling circuits; identifying terminations, terminal numbers, conductors and raceways.

.5 Details for devices.

.6 Details and performance specifications for control, annunciation and peripherals with item by item cross reference to specification for compliance.

.7 Step-by-step operating sequence, cross referenced to logic flow diagram.

.8 Complete input/output correlation schedule.

.9 Battery and power calculation, showing compliance with this specification.

.10 Bill of material for equipment shipping.

1.6 CLOSEOUT SUBMITTALS

.1 Provide operation and maintenance data for fire alarm system for incorporation into O+M manual.

.2 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.

.5 FA Certification report c/w dB readings and required data.

1.7 MAINTENANCE AND WARRANTY

.1 Provide one year's free maintenance related to project by manufacturer during warranty period. Inspection test to conform to CAN/ULC S536. Submit all reports to Owner.

.2 All parts, labour, etc. to be included such that the Owner incurs no cost during warranty period. Warranty/service work to be provided 24 hours per day, 7 days per week with a reasonable response time.

.3 Provide temporary program changes during construction period, to include zone labels, control functions, system operation, etc.

.4 Assume maintenance related to new work of the existing fire alarm system during construction.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials.

.2 Place materials defined as hazardous or toxic waste in designated containers.

.3 Ensure emptied containers are sealed and stored safely for disposal

.4 Unless otherwise directed by Engineer, all material removed becomes the property of the Contractor and may be reused or recycled.

1.9 QUALIFICATION

.1 Existing Fire Alarm System Manufacturer.

.2 The fire alarm manufacturer must have 24 hour, 7 day a week service with a maximum response time of 2 hours for any service/warranty call.

.3 The fire alarm manufacturer must have direct access to factory engineering support and the factory parts supply.

Part 2 Products

2.1 MATERIALS

.1 Equipment and devices: ULC listed and labelled and supplied by single manufacturer.

.2 Equipment and devices to match base building standards.

.3 The only acceptable materials are Simplex.

2.2 SYSTEM OPERATION

.1 Existing system operation to remain as is.

.2 Actuation of supervisory devices to:

.3 Cause electronic latch to lock-in supervisory state at central control unit.

.4 Indicate respective supervisory zone at central control unit.

.5 Cause audible signal at central control unit to sound.

.6 Transmit signal via central station connection.

.7 Resetting alarm supervisory device not to return system indications/functions back to normal until control unit has been reset.

2.3 INITIATING/ INPUT CIRCUITS

.1 Receiving circuits for supervisory, N/O devices. Devices: wired in DCLB configuration to central control unit.

.2 Actuation of supervisory initiating device: cause system to operate as specified in "System Operation".

2.4 ALARM OUTPUT CIRCUITS

.1 Alarm output circuits to remain as is.

2.5 AUXILIARY CIRCUITS

.1 Auxiliary contacts for control functions.

.2 Actual status indication (positive feedback) from controlled device.

.3 Alarm and supervisory trouble on system to cause operation of programmed auxiliary output circuits.

.4 Upon resetting system, auxiliary contacts to return to normal or to operate as pre-programmed.

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

2.6 WIRING

.1 All wiring shall be done as per manufacturer’s recommendations and requirements.

.2 Twisted copper conductors: FAS rated.

.3 To initiating circuits: 18 AWG minimum, and in accordance with manufacturer's requirements.

.4 To signal circuits: 16 AWG minimum, and in accordance with manufacturer's requirements.

.5 To control circuits: 14 AWG minimum, and in accordance with manufacturer's requirements. Multi-conductor cables are not permitted.

2.7 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.

2.8 REMOTE RELAY

.1 Addressable relay.

.2 Surface mount on standard 100 x 100 or double gang electrical box with face plate and LED to indicate status (visible when installed).

.3 DPDT Relay contacts rated at 2A, 120 VAC inductive.

2.9 LINE ISOLATOR MODULES

.1 Addressable line isolator module.

.2 Short circuit isolation.

.3 Class A configuration.

.4 LED to indicate device activation.

.5 Self restoring.

.6 Installed per ULC-S524 2014 and in locations identified in ULC-S524.

Part 3 Execution

3.1 INSTALLATION

.1 Install systems in accordance with CAN/ULC-S524.

.2 Install end-of-line devices where required.

.3 All wire supervisory points and relays. Coordinate with mechanical and fire protection drawings.

.4 Provide necessary raceways, cable and wiring to make interconnections to terminal boxes, annunciator equipment and CCU, as required by equipment manufacturer.

.5 Ensure that wiring is free of opens, shorts or grounds, before system testing and handing over.

.6 Identify circuits and other related wiring at central control unit, annunciators, and terminal boxes.

.7 Extend fire alarm wiring as required to pick up new and or relocated fire devices.

.8 Provide related modules as required by equipment and manufacturer.

3.2 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 to ensure system transmits accurately to control panel.

.2 Simulate grounds and breaks on circuits to ensure proper operation of systems.

.3 Provide testing documentation with the CAN/ULC-S537 verification report for each isolator sequence tested: documentation to include list of all isolators and devices failed (include device address) during each sequence.

.3 Provide final programing for system incorporating program changes made during construction and provide final fire alarm verification report.

END OF SECTION