

**PART 1 - GENERAL**

- 1.1 RELATED REQUIREMENTS** .1 Section 26 05 00 - Common Work Results for Electrical.
- 1.2 REFERENCES** .1 Canada Green Building Council (CaGBC)  
.1 LEED Canada-CI Version 1.0-2007, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Guide For Commercial Interiors.  
.2 Treasury Board of Canada Secretariat (TBS), Occupational Safety and Health (OSH)  
.1 Fire Protection Standard-10.  
.3 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-S536-13, Inspection and Testing of Fire Alarm Systems.  
.4 CAN/ULC-S537-13, 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 devices and voice communication speakers and include product characteristics, performance criteria, physical size, finish and limitations.  
.3 Shop Drawings:  
.1 Indicate on shop drawings:  
.1 Details for devices.
- 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 and voice communication systems 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.

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| <u>1.5 MAINTENANCE<br/>MATERIAL SUBMITTALS</u>    | .1 | Submit maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.  |
|   | .2 | Extra Stock Materials: submit 2 spare glass rods for manual pull box stations if applicable.   |
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| <u>1.6 QUALITY<br/>ASSURANCE</u>                  | .1 | Inspection tests to conform to: CAN/ULC-S536.  |
|   | .2 | Submit inspection report, to Departmental Representative.  |
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| <u>1.7 DELIVERY,<br/>STORAGE AND<br/>HANDLING</u> | .1 | Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.  |
|   | .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:<br>.1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.<br>.2 Store and protect materials from nicks, scratches, and blemishes.<br>.3 Replace defective or damaged materials with new. |
|   | .4 | Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.                               |

## **PART 2 - PRODUCTS**

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| <u>2.1 EXISTING<br/>SYSTEM</u> | .1 | The existing system consists of a Siemens, model MXLV, 2 stage fire/voice communications system. All materials must be selected to ensure, compatibility with existing fire alarm system. |
| <br>                           |    |   |
| <u>2.2 WIRING</u>              | .1 | FAS cables, copper conductors.  |
|                                | .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 telephone circuits: twisted, shielded pairs, and in accordance with manufacturer's requirements.   |
|                                | .6 | To control circuits: 14 AWG minimum, and in accordance with manufacturer's requirements.  |
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2.2 WIRING (Cont'd)	.7	Risers: twisted, shielded pairs, 1 h fire-rated configured to eliminate interference and cross-talk.
2.3 MANUAL ALARM STATIONS	.1	Manual alarm stations: pull lever, wall mounted semi-flush type, non-coded single pole normally open contact for single stage and general alarm key switch for two stage system bilingual English French signage.
	.2	Addressable manual pull station: .1 Pull lever, break glass rod, semi-flush wall mounted type, single action, single 2 stage, electronics to communicate station's status to addressable module/transponder over 2 wires and to supply power to station. Station address to be set on station in field.
2.4 AUTOMATIC ALARM INITIATING DEVICES	.1	Heat detectors, fixed temperature, non- restorable, rated 57 & 88 degrees C.
	.2	Addressable smoke detector: .1 Ionization type. .2 Electronics to communicate detector's status to addressable module/transponder. .3 Detector address to be set on detector base in field.
2.5 AUDIBLE SIGNAL DEVICES	.1	Speakers: .1 Cone type: recessed round ceiling mounted within T-bar ceiling or drywall and as per building standard.
2.6 VISUAL ALARM SIGNAL DEVICES	.1	Strobe type: flashing, red, 24 V.
	.2	Recessed in ceiling as shown.
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.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION**

- .1 Install systems to CAN/ULC-S524 and TBS OSH Fire Protection Standard.
- .2 Install manual alarm stations and connect to alarm circuit wiring.
- .3 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. Locate duct type detectors in straight portions of ducts.
- .4 Connect alarm circuits to main control panel.
- .5 Install signal to CAN/ULC-S525 and connect to signalling circuits.
- .6 Connect signalling circuits to main control panel.
- .7 Install end-of-line devices at end of alarm and signalling circuits.
- .8 Install door releasing devices.
- .9 Install remote relay units to control fan shut down.
- .10 Sprinkler system: wire alarm and supervisory switches and connect to control panel.
- .11 Room detection system.
  - .1 Install detectors. Make necessary connections between room detection panel and main fire alarm panel.
  - .2 Locate and install audible signals.
- .12 Connect fire suppression systems to control panel.
- .13 Splices are not permitted.
- .14 Provide necessary raceways, cable and wiring to make interconnections to terminal boxes, annunciator equipment and CCU, as required by equipment manufacturer.
- .15 Ensure that wiring is free of opens, shorts or grounds, before system testing and handing over.
- .16 Identify circuits and other related wiring at central control unit, annunciators, and terminal boxes.
- .17 Install speakers and connect to speaker circuits.

#### **3.2 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 first stage alarm.

- 3.3 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 reuse and 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.
- 3.4 MAINTENANCE .1 Provide one year's free maintenance with two inspections by manufacturer during warranty period.