

PART 1 - GENERAL

<u>1.1 Related Work</u>	.1	Wiring:	Section 26 05 21 Wires and Cables 0-1000V
	.2	Conduits:	Section 26 05 34 Conduits, Conduit Fastenings and Conduit Fittings
<u>1.2 References</u>	.1	CAN/ULC-S524-14, Installation of Fire Alarm Systems.	
	.2	ULC-S525-2016, Audible Signal Appliances for Fire Alarm.	
	.3	CAN/ULC-S536-13, Inspection and Testing of Fire Alarm Systems.	
	.4	CAN/ULC-S537-13, Verification of Fire Alarm Systems.	
	.5	NBC-latest edition in effect, National Building Code of Canada.	
<u>1.3 System Description</u>	.1	Connect to existing GE fully supervised, microprocessor-based, fire alarm system.	
	.2	Zoned, non-coded, single stage.	
<u>1.4 Requirements of Regulatory Island Fire Agencies</u>	.1	System:	
		.1	Subject to Fire Commissioner of Canada (FCC) approval.
		.2	Subject to FCC inspection for final acceptance.
	.2	System components: listed by ULC and comply with applicable provisions of National Building Code, Local/Provincial Building Code, and meet requirements of local authority having jurisdiction.	

- 1.5 Shop Drawings .1 Submit shop drawings in accordance with Section 01 33 00.
- .2 Include:
.1 Details for devices.
.2 Details and performance specifications for control, annunciation and peripherals with item by item cross reference to specification for compliance.
- 1.6 Operation and Maintenance Data .1 Provide operation and maintenance data for fire alarm system for incorporation into Maintenance Manual specified in Section 01 78 00 and 26 05 00.
- .2 Include:
.1 Technical data -illustrated parts lists with parts catalogue numbers.
.2 Copy of approved shop drawings with corrections completed and marks removed except review stamps.
.3 List of recommended spare parts for system.
- 1.7 Maintenance Materials .1 Provide maintenance materials as recommended by the Manufacturer.
- 1.8 Maintenance .1 Provide one year's free maintenance with two inspections by manufacturer during warranty period. Inspection tests to conform to CAN/ULC-S536. Submit inspection report to Engineer.

PART 2 - PRODUCT

- 2.1 Materials .1 Equipment and devices: ULC listed and labelled and supplied by single manufacturer.
- .2 Audible signal devices: to ULC-S524.
- 2.2 System Operation .1 Actuation of any alarm initiating device on to:
.1 Cause electronic latch to lock-in alarm state at central control unit.
.2 Indicate zone of alarm at central control.
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- 2.2 System Operation (Cont'd)
- .1 (Cont'd)
 - .3 Cause audible devices to sound continuously throughout the building.
 - .2 Acknowledging alarm: indicated at central control unit.
 - .3 Resetting alarm or supervisory devices not to return system indications/functions back to normal until control unit is reset.
 - .4 Trouble on system to:
 - .1 Indicate circuit in trouble at central control unit.
 - .2 Activate "system trouble" indication, buzzer and common trouble sequence. Acknowledging trouble condition to silence audible indication; visual indication to remain until trouble is cleared and system is back to normal.
- 2.3 Control Panel
- .1 Central control unit (CCU). Existing Edwards Sysms.
- 2.4 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: 14 AWG minimum, and in accordance with manufacturer's requirements.
 - .4 To control circuits: 14 AWG minimum, and in accordance with manufacturer's requirements.
 - .5 Fire alarm wiring to be in electrical metallic conduit (EMT). All conduit to use steel fittings.
- 2.5 Automatic Alarm Initiating Devices
- .1 Addressable input modules to match existing
- 2.6 Audible Alarm Signal Devices
- .1 Speakers: 24 V dc, 94 db at 10 feet.
 - .2 Designed for flush mounting on wall in four inch square outlet box.
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2.7 Acceptable Material .1 Acceptable Material: Edwards.

PART 3 - EXECUTION

- 3.1 Installation .1 Install systems in accordance with CAN/ULC-S524.
- .2 Connect new addressible control relays to fan coil motor starters.
- .3 Relocate existing speakers and connect to existing signalling circuits.
- .4 Splices are not permitted.
- .5 Provide necessary raceways, cable and wiring to make interconnections to terminal boxes, and CCU, as required by equipment manufacturer.
- .6 Ensure that wiring is free of opens, shorts or grounds, before system testing and handing over.
- .7 Identify circuits and other related wiring at central control unit and terminal boxes.
- 3.2 Field Quality General Control .1 Perform tests in accordance with Section 26 05 00 - Common Works for Electrical and CAN/ULC-S537.
- .2 Fire alarm system:
- .1 Test such device and alarm circuit to ensure devices transmit alarm to control panel and actuate general alarm and ancillary devices.
- .2 Simulate grounds and breaks on alarm and signalling circuits to ensure proper operation of systems.
- .3 Addressable circuits system style DCLB:
- .1 Test each conductor on all DCLB addressable links for capability of providing 3 or more subsequent alarm signals on line side of single open-circuit fault condition imposed near electrically most remote device on each link. Operate Acknowledge/Silence switch after reception of each of the 3 signals. Correct imposed fault after completion of each series of tests.
- .2 Test each conductor on all DCLB addressable links for capability of
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- 3.2 Field Quality .2 Fire alarm system:(Cont'd)
- General Control .3 (Cont'd)
- (Cont'd) .2 (Cont'd)
- providing 3 or more subsequent alarm signals during ground-fault condition imposed near electrically most remote device on each link. Operate Acknowledge/Silence switch after reception of each of the 3 signals. Correct imposed fault after completion of each series of tests.
- .3 Provide final PROM program re-burn for system Engineer incorporating program changes made during construction at no additional cost.
- 3.3 Commissioning .1 Commission fire alarm system as per Paragraph 3.2 above and Section 01 91 13 and 01 91 41.

APPENDIX A

Luminaire Schedule

Fixture Type	Description, Cat. #
C	<ol style="list-style-type: none"> 1. 305 mm linkable surface mounted linear LED strip light, 92 lumens per ft, 3000⁰K, 82 CRI, adhesive backing for mounting. Note there are 24 at 305mm sections required. 2. Lamps : LED, 3000⁰K 3. Driver : 24 volt, 0-10VDC, 100W 4. S.O.A. : Modalight, Mini Zilva, complete with 2 flexible connectors for 90 degree bends and dimmable driver, Cat. #MINI-ZILVA-3000K, Power lead #MCLA01, Flexible bends # MCLA02, Mounting clips MCLA07 and Dimming driver # MP19, 0-10VDC, 100W
C1	<ol style="list-style-type: none"> 1. 305 mm linkable surface mounted linear LED strip light, 92 lumens per ft, 3000⁰K, 82 CRI, adhesive backing for mounting. Note there are 5 at 305mm sections required. 2. Lamps : LED, 3000⁰K 3. Driver : : 24 volt, 0-10VDC, 100W 4. S.O.A. : Modalight, Mini Zilva, complete with 2 flexible connectors for 90 degree bends and dimmable driver, Cat. #MINI-ZILVA-3000K, Power lead #MCLA01, Flexible bends # MCLA02, Mounting clips MCLA07 and Dimming driver # MP19, 0-10VDC, 100W
P1	<ol style="list-style-type: none"> 1. Recessed 4" diameter, 1000 lumen LED downlight, medium reflector, haze finish, white flange. 0-10 V Dimming driver, 3500⁰K color temperature,90CRI, 14.1 watt 2. Lamps : 1000 lumens, 3500⁰K 3. Driver: 120 volt, 0-10V, 1% dimming, 4. S.O.A. : Cooper Portfolio, Cat. #LD4B-10-DE010-EU4B-1020-90-35-4LB-M-2-WMH
P2	<ol style="list-style-type: none"> 1. Recessed 4" diameter LED downlight, 3500⁰, 90 CRI, white reflector with solite lens and white flange. 2. Lamps : LED, 3500⁰K 3. Driver: 120 volt, dimming 0-10V DC 4. S.O.A. : Cooper, Cat. #H457-TAT-E010-EL406-935-TL410H

P3	<ol style="list-style-type: none"> 1. 4" diameter surfaced mounted LED downlight, 3500⁰, 90 CRI, white flange. 2. Lamps : LED, 3500⁰K 3. Driver: 120 volt 4. S.O.A. : Cooper, Cat. #SLD405-9-35-WHJB
S1	<ol style="list-style-type: none"> 1. 2400mm long, 60mm wide suspended linear LED luminaire, 3500⁰K, extruded aluminum housing, satin white acrylic diffuser, matte white finish, 921 lumens per foot (10.5watts/foot), CRI 85, field adjustable wire rope hanger 1200mm long. 0-10 v 1% dimming driver. 2. Lamps : 7 watt/foot , 921 lumen/foot, 3500⁰K 3. Driver: 120 volt, 0-10 V Dimming to 1% 4. S.O.A.: Cooper lighting, Neoray - Straight & Narrow Series, Cat. #S22-DIP-1-L35-SCST-8-120-LUT-1-S1-S92S-W
S2	<ol style="list-style-type: none"> 1. 1800mm long, 60mm wide suspended linear LED luminaire, 3500⁰K, extruded aluminum housing, satin white acrylic diffuser, matte white finish, 9210 lumens per foot (10.5watts/foot), CRI 85, field adjustable wire rope hanger 1200mm long. 0-10 v 1% dimming driver. 2. Lamps : 10.5 watt/foot , 921 lumen/foot, 3500⁰K 3. Driver: 120 volt, 0-10 V Dimming to 1%. 4. S.O.A.: Cooper lighting, Neoray - Straight & Narrow Series, Cat. #S22-DIP-1-L35-SCST-6-120-LUT-1-S1-S92S-
S3	<ol style="list-style-type: none"> 1. 1800mm long, 60mm wide recessed linear LED luminaire, 3500⁰K, extruded aluminum housing, satin white acrylic diffuser, matte white finish, 440 lumens per foot (7watts/foot), CRI 85, field adjustable wire rope hanger 1200mm long. 0-10 v driver. 2. Lamps : 7watt/foot , 440 lumen/foot, 3500⁰K 3. Driver : 120 volt, 0-10 V 4. S.O.A.: Cooper lighting, Neoray - Straight & Narrow Series, Cat. #S22-DR1-L35-ETG-6-1-DD-1-S1-S92-W
Exit Light	<ol style="list-style-type: none"> 1. LED Running man, edge-lite exit light, ceiling/wall mounted, extruded aluminum housing, CSA 22.2 No. 141, C860, universal 120/347 volt input, 12 VDC battery backup. Self powered for 90 minutes upon power failure. 2. Voltage: 120/347 3. Battery: Self powered, 90 watts for 30 minutes 4. S.O.A. : Aimlite, #RPEL-U-BSH-BAT