1. GENERAL

1.01 SECTION INCLUDES

.1 Provide a complete system of conduit, pull boxes, outlets, wiring, and devices for a complete working system.

1.02 RELATED REQUIREMENTS

.1 Section 26 05 33.13 – Conduit for Electrical Systems.

.2 Section 26 05 33.16 – Boxes for Electrical Systems.

.3 Section 28 10 00 – Access Control.

1.03 REFERENCES

.1 All work must conform to the following industry accepted practices, and manufacturers' component installation guidelines:

.1 CSA C22.1 No. 214-17 (R2021), Communications Cables.

.2 CAN/CSA-T530, Commercial Building Standards for Telecommunications Pathways and Spaces.

.3 CAN/CSA-T529-95, Commercial Buildings Telecommunications Standards.

.4 CAN/CSA-T527, Grounding and Bonding Requirements for Telecommunications in Commercial Buildings.

.5 CAN/CSA-T528, Administration Standard for the Telecommunications Infrastructure of Commercial Buildings.

.6 Ontario Building Code.

.7 Ontario Electrical Safety Code.

2. PRODUCTS

2.01 OUTLETS

.1 Wall and door outlets shall be single boxes, or 115 mm square boxes with plaster rings to suit single gang devices unless otherwise noted. Coordinate with Security Contractor.

2.02 CONDUITS

.1 Provide conduit in all walls, exposed areas, and inaccessible ceilings. All conduit work shall be concealed.

.2 Minimum 21 mm diameter conduit size.

.3 Provide conduit from outlets back to security panel for wiring.

.4 Minimum space requirements in pull boxes for 90 degree pulls, as follows:

Maximum conduit size	Size of pull boxes in millimetres			For each additional conduit size increase width by:
	Width	Length	Depth	
21 mm	150 mm	300 mm	100 mm	50 mm
27 mm	200 mm	400 mm	150 mm	75 mm
35 mm	250 mm	450 mm	200 mm	75 mm
41 mm	300 mm	600 mm	250 mm	100 mm
53 mm	350 mm	750 mm	300 mm	125 mm

2.03 INTRUSION DETECTION SYSTEM

.1 The Intrusion Alarm Systems shall be integrated with the new ACS platform. This will consist of a hybrid addressable Security (Intrusion Alarm) Control Panel, control keypads, glass break detectors, and motion detectors, etc., which shall be installed, wired, and be programmed as shown and required by the Project Documents.

.2 The system will monitor the facility for intrusion events, and report Security breaches to the security command centre. The system will provide for arming and disarming of the entire system as well as individual system partitions from each system keypad controller.

.3 The Intrusion Alarm System will be integrated with the Surveillance system and the Access control system.

.4 System Operation:

.1 Upon entering the facility while the Intrusion System is armed, an audible countdown timer will commence at the system keypads. Upon entering the appropriate PIN code into the keypad, the system will be disarmed. Failure to enter the correct PIN code prior to expiration of the countdown timer will activate the building alarm as described herein.

.2 The actuation of any armed alarm initiating device, or expiration of the countdown timer will cause the following to occur:

.1 Annunciate the event on the ACS. Each event shall be entered into the system event history file by device, location, date, and time.

.2 Annunciate the event on each LCD display annunciator/keypad to indicate the device that has alarmed and its location.

.3 Sound the alarm horn, and report the event to the off-site Central Monitoring Facility.

.3 The main security control panel shall contain initiating circuits, and shall be connected to all necessary equipment to individually and collectively power and effect the operating of the overall security alarm system. All initiating circuits shall be supervised. The control station shall visually annunciate alarm and trouble conditions.

.4 The control panel shall be connected to a primary source of 120 volts, through the UL Listed power supply.

.5 Sufficient standby power shall be furnished for no less than four hours of overall system operation at full auxiliary power standby load.

.5 Equipment:

.1 Acceptable Manufacturers:

.1 DSC,

.2 Honeywell,

.3 Bosch,

.2 Security Control Panel: The main security control panel shall be a surface mounted cabinet that contains all necessary system power and circuitry. The cabinet shall be a locked 18 gauge cold-rolled steel enclosure with a locked cover and a tamper switch installed. The panel shall include the following features and functions:

.3 LCD Annunciator Control Station Keypad:

.1 Each annunciator shall contain a keypad, sounder, and status indicators for armed, status, and power indications and a 32- character backlit alphanumeric LCD display.

.2 The annunciator shall have a back-lit keypad backlight dimmer volume control text for alpha numeric displays shall be freely programmable for all points and partitions.

.3 Keypads shall support all system control functions and shall be able to access status and control of any and all system partitions.

.4 The keypads shall be connected to the control panel with #22 AWG, unshielded, 4-wire cable and have a maximum of 1000 feet between the devices.

.4 Field Devices:

.1 Motion Detectors: Furnish and install addressable passive infrared detectors as shown on drawings. Provide devices with adjustable wall or ceiling-mount brackets as indicated on plans or required by site conditions.

.2 Concealed Door Contacts: Provide DPDT door contacts with a Form C output where shown and required on the plans. Provide recessed contacts for steel frame doors, and SPDT contacts for overhead doors. Provide addressable Contact Input Modules to monitor conventional devices where otherwise required.

.3 Glass Break Detectors – shall be microprocessor-based sound analysis technology (SAT) to listen for the specific frequencies associated with breaking glass. The detector shall be capable of detecting the breakage of plate, tempered, laminated, and wired glass types. A built-in environmental test feature alerts the installer to false alarm hazards in harsh environments. The detector shall have 360 degree operation, round enclosure and mounts on ceilings or walls.

2.04 INTRUSION DETECTION DEVICES

.1 Motion Sensors (for Security) – Bosch Low Profile Panoramic PIR Detector series or similar.

.2 Door Contacts

.1 Concealed - Interlogix 1078/1076 series or approved equivalent.

.2 Surface - Interlogix 1085T series or approved equivalent. (may be used where approved only)

.3 Overhead – Interlogix 25200 series Armored Cable or approved equivalent. (on overhead doors)

.3 Glass Break – Bosch DS1108i Glassbreak Detector series or similar.

2.05 CABLING

.1 Provide from each device to security panel.

.2 Provide homerun wiring individually to match existing security wiring FT6 rated for each security device back to security panel located in Custodian's Office.

3. EXECUTION

3.01 INSTALLATION

.1 Vertically mount outlet boxes, unless noted otherwise, 300 mm to centre above floor, or 150 mm above countertops where shown at counters or benches.

.2 Fish conduit, clear blockages and outlet and clean out pull boxes at completion of installation. Leave conduit free of water or excess moisture. Install No. 12 gauge galvanized soft iron pull wire, or 1/8 inch nylon pull cord continuously from outlet to outlet, through conduit and fasten at each box.

.3 Conduit bend radius of not less than nine times conduit diameter. Ream out conduit and identify ends with green paint.

.4 Install additional steel pull boxes in such a manner that, throughout entire system, there shall be not more than two 90 degree or equivalent bends or more than 30 000 mm in each run, so that wire or cables may be pulled in or withdrawn with reasonable ease. Minimum space requirements in pull boxes having one conduit each in opposite ends of the box, shall be as follows:

Maximum conduit size	Size of pull boxes in millimetres			For each additional conduit size increase Width by:
	Width	Length	Depth	
21 mm	150 mm	300 mm	100 mm	50 mm
27 mm	200 mm	400 mm	150 mm	75 mm
35 mm	250 mm	450 mm	200 mm	75 mm
41 mm	300 mm	600 mm	250 mm	100 mm
53 mm	350 mm	750 mm	300 mm	125 mm

.5 Provide main conduit system from security panel location to addition area and separate 21 mm conduits from main junction boxes to each device.

.6 Show as-installed conduit routing and location of all pull boxes on the record drawings, prior to project completion, for use by Security installer to facilitate wiring and equipment installation. Include above noted information on final record drawings at project completion.

End of Section